



WORLD NEOLITHIC CONGRESS 2024
4-8 NOVEMBER 2024 ŞANLIURFA, TÜRKİYE

ABSTRACTS

WORLD NEOLITHIC CONGRESS 2024

The 2024 World Neolithic Congress aims to bring together discussion of diverse Neolithic formations that took place across different geographical locations in different time-frames following diverse cultural and socio-economic trajectories. The Congress will provide a platform for comparing increasing Neolithic social complexity in different parts of the world.

The emergence of Neolithic cultures has been one of the most critical turning points in human history laying the foundations for our present global impact and population size, and playing a significant role in the evolution of human society over the past 12,000 years.

The Congress intends to challenge conventional theories and terminologies on the emergence and the development of productive and newly adapted ways of living.

Focus will be on sedentary lifeways, impacts on nature, the built environment , social hierarchies, the cognitive frameworks for ever-shifting norms, ontological approaches, symbols, identities, beliefs, cult practices, sanctuaries, artworks, cognition, innovation , technologies, languages, craft specialization, resilience, demographic pressure, climatic fluctuations, defining the impact of environmental settings; the use and implications of natural and bioscience research, particularly genetic, isotopic, residues, radiocarbon dating, physical anthropology, geoarchaeology, and also the most recent archaeological results from primary and secondary core areas of Neolithic formations.

The Congress aims to foster new ways of looking and thinking about Neolithic phenomena on both local and global scales.

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GLOBAL PERSPECTIVES ON THE NEOLITHIC

G01 - Understanding 'Long Neolithics' in Global Comparative Perspective

Session Organisers

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Abstract

Archaeologists continue to define and frame the Neolithic in terms of a progressive step towards new forms of economy (farming). In turn, these developments are linked to other phenomena, chiefly domestication, but also storage, sedentism and increasing social complexity. Recent decades have seen growing critique of these stadial perspectives, with acceptance of an expansive and persistent 'middle-ground' between foraging and farming. This typically involves a range of deliberate interventions to achieve 'low-level food production' across plant, animal and also aquatic resources. However, the dynamics and long-term potentials of these divergent trajectories are poorly understood and would benefit from renewed efforts at global comparative analysis. This session focuses on the theme of 'Long Neolithics' in different world regions. Papers are invited to focus on the complexity, duration and internal diversity of local Neolithics, and especially on the characteristics of 'alternative' social-ecological trajectories that do not culminate in intensive agriculture, including their demographic potentials, ecological sustainability and cultural resilience. Focal themes include (but are not limited to) emergence and displacement of 'lost crops', diverse human-animal interventions, and especially the modification and cultivation of 'wild' landscapes, forests, wetlands, grasslands and coastal zones in ways that generate distinctive place-based food systems that in some regions have persisted into historical times.

The Neolithization of Northeast Asia: Explaining Innovation, Collapse and Transformation

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Abstract: Northeast Asia underwent a unique kind of Neolithization process at the Pleistocene-Holocene transition, creating the economic foundations for distinct socio-ecological trajectories that persisted through to recent historical times. What makes this world region so interesting from a global comparative perspective is that agriculture played no role in the emergence and consolidation of Neolithic lifeways. Instead, shifts to sedentism, social complexity and increasing human “management” of natural landscapes were all underpinned by intensification of broad-based foraging economies. However, the main challenge for archaeologists is that these diverse Neolithic trajectories are still studied in terms of progressive stadial developments that are embedded into modern national boundaries. In contrast, a far more dynamic understanding of Neolithization is being produced by a flood of new data, better chronologies and improved paleoclimatic records, as well as application of new analytical methods and approaches. This paper aims to examine the potentials of this new information by exploring new themes, including the underlying biogeography of modern human expansions into Northeast Asia, how these patterns were impacted by the LGM, and the diverse range of innovations that emerged during the turbulent climatic and environmental changes that followed. Key topics include the precise drivers of broad-based adaptations, creative solutions to the “cognitive crisis” triggered by settling down and modifying new ecological niches, and the deeper ecological and demographic sustainability of the new socio-ecological trajectories appeared. Emerging insights point to “fragility” of Neolithic lifeways, as evidenced by repeated cycles of innovation, collapse and transformation.

Keywords: Collapse, Innovation, Neolithic, Northeast Asia, Transformation

Features of the Neolithization process in the coastal territory of the Russian Far East in the Early and Middle Holocene (12000 - 5000 years BP)

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Abstract: Modern approaches associated with cross-analysis, traditional archaeological and natural science methods for the data from the sites of the Russian Far East, Northeast China, the Korean Peninsula, the Japanese Islands, the Pacific coast of the American continent will allow us to carry out technical, technological and sociocultural reconstructions for the Far Eastern territories of Russia systematically and in a new way. This period is characterized by the interaction of hunter-gatherers in the basin of the Sea of Japan with the agricultural communities of neighboring territories, such as south of Northeast China. A remarkable feature is the multi-vector nature of possible Neolithization scenarios, depending on the natural and climatic characteristics of neighboring territories. One of the most important issues that requires an integrated approach to study is the problem of the transition to the Neolithic on the basis of an appropriating economy based on the integrated use of biological resources of the environment by communities of hunters and gatherers who are moving to sedentism, to the very early widespread use of ceramic ware and other typically Neolithic technological innovations without domestication of animals and plant breeding for agricultural needs. This makes it possible to suggest several models of the Neolithization process based on cultural interaction, the spread of innovative technologies, the formation of Neolithic complex societies in the Russian Far East with specific features in the traditions of material culture, settlement strategies, and spiritual culture.

Keywords: Neolithic, Neolithization, Russian Far East, Hunter-Gatherer, Transformation

The main stages and trajectories of the neolithization in the island world of northeast Asia

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Abstract: The main periods of the Neolithic of the island world of Northeast Asia (Sakhalin Islands, Hokkaido, the Kuril Archipelago) are highlighted: initial (13-9.5 ky), early (9.5-7.5 ky), middle (8.5-7 ky), late (4.7-3.7 ky), final (3-2.8 ky). The complex nature of the adaptation of islander's Neolithic cultures demonstrates the presence of gaps in the chronology and examples of coexistence in the same territory of multicultural, multi-stage and even multi-epochal components. The main economic content of the process of neolithization of the islands of the Far East is the formation of adaptive reactions to Holocene climate changes and, as a result, the formation of an island landscape in the northern part of the temperate climate zone. As a result, during the Neolithic era, a complex economy was formed, focused on the exploitation of aquatic biological and transport resources. The characteristic features of this economy, with the situational preservation of traditional hunting and gathering, are marine fishing and gathering in the littoral, hunting for marine mammals using boats and on ice, exploitation of deposits of stone raw materials (jasper, flint, obsidian, amber) and the organization of exchange relations using water means of transport, the formation of a sedentary lifestyle in the form of permanent settlements with long-term dwellings in the form of semi-earthen houses with hearths, as the main form of organization of living space on the seashore.

Keywords: Island's world of Northeast Asia, Sakhalin, Kuriles, adaptation to island conditions, maritime economy

Neolithic development with river fishery resources: A case from the Eastern Amur region and surrounding areas

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Abstract: In the eastern Amur Basin (Jewish Autonomous Oblast to Khabarovsk Krai of the Russian Far East), the Neolithic trajectory is characterized by three distinct stages: 1) neolithization from the Last Glacial to the Early Holocene, 2) local development from the climatic optimum to the 3rd millennium BC, and 3) partial acceptance of the effects of social changes that occurred in the 2nd millennium BC in northeastern China. Despite increasing contact with 'metalization' groups in the upper reaches of the Amur water system, traditional lifestyles were maintained in the region until the 1st millennium BC. The above shows that the river's fishery resources have consistently attracted human groups since the emergence of pottery, and that profits were generated by occupation even after the metal/agricultural impact. Abundant food resources allowed the inhabitants to sustain their respective communities. On the other hand, the society of the Sakhalin Island groups, who obtained iron from the Amur region, developed in the late 1st millennium BC. Here, the prehistory of the northern boundary region of the Japanese archipelago took on a new dynamic, forming the basis of the exchange network in and after the Middle Ages. Such a situation may have been caused by contact with the ancient Lower Amur fishermen, (described by A.P. Okladnikov), who lived on local food resources rather than cultivation and who selectively owned/used convenience items. This presentation outlines the latest archaeological evidence for 13-2 ka from the Russian-Japanese joint research team over the past 20 years.

Keywords: river fishery resources, eastern Amur Basin, 13-2 ka, northern boundary region of the Japanese archipelago

A Man in the Art of the Stone Age of Kamchatka (Far East, Russian Federation)

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Abstract: Art objects are a multilevel source of knowledge about the culture of the Stone Age population. The analysis of these items allows us to supplement our knowledge of the state of the art and technology of processing stone tools. We can draw cultural and chronological parallels with the cultures of neighboring territories in time and space, as well as identify the features of self-identification of collective members. The analysis and systematization of mobile art objects in the Stone Age of Kamchatka allows us to conclude that the most ancient artifacts were associated with personal ornamentation (Late Paleolithic, ~13.300–12.500 BP, 12.000–10.100 BP). These are miniature beads and pendants made of pyrophyllite, agalmatolite, amber, quartzite, and slate. In the Neolithic Period (~ 7.800–4.500 BP – the beginning of the II millennium AD), stone sculpture was created mainly by the technique of upholstery, followed by small, steep retouching. Obsidian, flint, chalcedony, and basalt were used in its manufacture. Throughout the Neolithic period, the ancient artist depicted figurines of fish, which were probably used in fishing ceremonies. A variety of zoomorphic sculptures appeared in the Middle Neolithic era (~ 4,000 – 1,500 BP), which may have been associated with the formation of a new fauna around 4,800 BC. At the same time, anthropomorphic sculptures in the form of figurines of women, men, a child. Zoomorphic and anthropomorphic figurines could be used both in ritual activities and to depict characters of myths and fairy tales among the Itel'men, the indigenous population of Kamchatka.

Keywords: Neolithic, zoomorphic and anthropomorphic figurines, Late Paleolithic, Kamchatka peninsula, mobile art

Untying the bundle: Neolithic cultural traits seen from a (global) hunter-gatherer perspective

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Abstract: In linear models of European prehistory, the Neolithic constitutes one of the main periods defined. Underlying dualist concepts rooted in the “Global North” backgrounds of many researchers distinguish between an inanimate nature, and human societies at who’s disposal nature is to exploit. In such a mindset, the transition to farming is perceived as a major evolutionary step, often named the Neolithic (or agricultural) revolution. It is the farming economy that is regarded foundational to everything complex across the socio-political, economic and ideological spheres, from sedentary lifeways to hierarchical society structure to hereditary leadership. In this talk I will discuss alternative views on socio-economic dynamism, exploring the field from a hunter-gatherer perspective. Concerning “Neolithisation”, hunter-gatherers in a way have remained “people without history”, although it was actually them who were the driving force behind many of the transformations now regarded as “Neolithic” traits. Discussing evidence of technological innovation, economic intensification and socio-political developments in hunter-gatherer societies from various prehistoric, ethnohistoric and contemporary contexts, I suggest that rather than evolutionist, agricentric notions of “Neolithisation” as a global horizon, a different mindset is necessary to truly grasp the diversity across the historical spectrum as well as underlying more universal patterns. I will argue for the incorporation of alternative ontologies into archaeological inquiry, questioning agricentric models and emphasizing the role and agency of hunter-gatherer societies in past and present.

Keywords: agricentric models, evolutionism, hunter-gatherer perspectives, Neolithisation concepts

Neolithisation and natural disasters: Jomon settlement pattern shifts in Kyushu, Japan (ca. 11,500-7,000 cal BP)

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Abstract: Recent investigations suggest that, comparing with Near East, the Neolithisation was a prolonged and historically contingent process of cultural change in East Asia. In the Japanese Archipelago, Neolithisation aligns with the cultural trajectories during the Jomon era (ca. 16,500-2,300 cal BP), commencing with the early emergence of ceramic technology during the Last Glacial Period. Settlement patterns throughout the Jomon era were notably unstable, fluctuating between two primary types: a more centralised, clumped pattern characterised by large-scale settlements serving as regional hubs, and a dispersed pattern indicative of broader cultural and trading networks. The long-term societal and cultural trajectories of the Jomon period are best described as cyclical shifts between these settlement patterns, underscored by a persistent absence of a farming economy. This study explores the factors that may have driven these cyclical changes, including environmental fluctuations, natural disasters, or cultural shifts in societal and economic structures. Focusing on Southern Kyushu Island in the early Holocene (ca. 11,500-7,000 cal BP), this paper examines the primary drivers behind these settlement dynamics. The period began with the emergence of large settlements, exemplified by sites such as Uenohara and Jozuka in Kagoshima Prefecture, where many residential pits were arranged in a circular pattern. However, these settlements were later abandoned, and smaller sites became sporadically distributed. This research considers the potential links between these settlement trajectories and contemporary natural disasters, such as frequent volcanic eruptions and climatic disruptions, including the Kikai-Akahoya (K-Ah) super-eruption (7.3ka) and the 8.2ka-event.

Keywords: Disaster, Settlement pattern, Jomon Japan, the 8.2ka event, volcano

Understanding “Long Neolithic” in the Far Northeast of Asia

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Abstract: The Early Holocene in the Far Northeast of Asia sees the spread of the Sumnagin culture, based on the microblade technology of production and composite tools. Representatives of this culture hunted ungulates in the taiga and tundra, fished on rivers and lakes, hunted polar bears on the Arctic coast, and bred sled and hunting dogs. This period is characterized by early traces of maritime adaptation. The Neolithic Revolution brought ceramic technology to the Arctic regions. The cultural traditions of the Syalakh, Bel’kachi and Ymyyakhtakh people in the 5th–2nd millenium BC spread far beyond Central Yakutia, including North America. At the turn of the 2nd–1st millennium BC in the polar regions of Taimyr and Yakutia the first metallurgical factories appeared. The smelting of copper and bronze, the manufacture of metal tools, the cultural exchange of raw materials and finished metal products marked the transition to the Paleometal Epoch in these distant territories. The economy of the tribes of the Far Northeast of Asia remained appropriative, although the differentiation of coastal and continental hunters, fishermen and gatherers can already be traced. In the I–II millennium AD, the Old Bering Sea culture on the Arctic coasts of Chukotka and Alaska gave the basis for the spread of the cultures of sea beast hunters Thule Inuit, whose representatives inhabited the Arctic territories from the Bear Islands in the East Siberian Sea in the west to Greenland in the east. These cultural traditions continued to remain Neolithic in appearance, although their representatives were familiar with metal.

Keywords: Yakutia, Syalakh, Bel’kachi, Ymyyakhtakh, Far Northeast of Asia

Small-scale Millet Agriculture as Possible Marker of the Life Support Sustainability in the Late Neolithic of the southern Russian Far East

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Abstract: The Late Neolithic of Primorye (southern Russian Far East) is represented by sites of the Zaisanovka cultural tradition (ZCT), dated to ca. 5000-3600 BP. Its origin is associated with migration processes in Manchuria, which were partly triggered by cooling and drying ca. 5400-5200 BP. Populations with new technologies and skills, including millet farming, began to spread to Primorye from Eastern Manchuria from ca. 5000 BP. The magnitude of these migrations is not still clear. At least two directions of migrations along large river (Suifen and Tyumen) valleys could be traced archaeologically. As a result of adaptation to local conditions of Primorye, the ZCT was formed. At the moment, we have identified several local chronological variants of the ZCT. Archaeobotanical data systematically collected at ZCT sites show that: •millet agriculture was small-scale; •it was an indispensable component of the ZCT subsistence strategies not only in continental regions, but also on the coast; •during the ZCT period, agriculture remained one part of the multicomponent subsistence systems of these populations, although it did not becoming the basis of the economy, and did not disappear even during a period of climate deterioration 4700-4200 BP. Our data thus prove the long-term existence of hunter-gatherer communities who practiced small-scale millet agriculture in the Late Neolithic of Primorye. Apparently, the rich natural resources ensured a stable existence for these populations even without intensive farming. The small-scale agriculture, which persists under these conditions, indirectly indicates the sustainability of their subsistence systems.

Keywords: Russian Far East, Late Neolithic, millets, archaeobotany, small-scale agriculture

No Farming Needed? Resource Intensification, Social Complexity, and Long-Term Resilience in Maritime Hunter-Gatherer Societies

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Abstract: An important question confronting contemporary studies of Neolithic societies concerns the large gap between early experiments with domestication and the emergence of fully-fledged farming communities. In some cases, this “long-Neolithic” spanned 4000 years, confounding still-popular evolutionary narratives that see farming as an adaptive and progressive development that paved the way for storage, sedentism and social hierarchy. To understand why certain societies might choose not to farm, it is important to build a comparative database of examples from around the world where many of the characteristics of Neolithic life developed and persisted without the use of farming. This paper will explore these questions through two case studies of maritime hunter-gatherer societies: the Chumash of southern California and the Pitted Ware Culture of the Scandinavian Neolithic. In California, landscape management through forest burning coupled to intensification of marine resources provided a resilient subsistence base that supported long-term sedentary societies. Furthermore, well-documented archaeological and ethnohistoric data show that these communities had a long history of intensive trade with maize-agriculturalists from the American Southwest. In Baltic Scandinavia, the Pitted Ware Culture were also in close contact with Neolithic farming communities, yet also chose not to adopt farming as a way of life. For both cases, I argue that these choices were due to a combination of factors including the success and resilience of their fisher-forager lifeway together with an understanding and rejection of the social changes that the adoption of agriculture would entail.

Keywords: Hunter-Gatherer, Marine Resources, Regional Interaction, Social Complexity

Hormonal intervention as a mediator in human-reindeer relations beyond the wild

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Abstract: Reindeer complicate the debate about domestication and Neolithic shifts. Reindeer herding and pre-reindeer herding cultures do not fit well into the traditional Neolithic templates, and reindeer do not follow the traditional domestication model. In Fennoscandia, large-scale pastoralism in which reindeer became mostly used for meat production, arose only very recently. Even before small-scale reindeer pastoralism became adopted in the high North, humans and reindeer had already lived together for extended periods of time in intimately connected and domesticating constellations. In the most incipient human-reindeer relationships beyond the wild it is thought that reindeer were used by nomadic hunter-gatherers primarily for working purposes. Through the integration of Traditional Knowledge of reindeer herding with domestication theory, this presentation focuses on past domesticating human-reindeer relationships in Fennoscandia before and during the rise of pastoralism. It is argued that castration is a hormonal intervention, or rather, mediation, that made incipient and following domesticating human-reindeer relationships possible. As a domesticating act, this traditional practice brings into agreement the needs and nature of the human community and the needs and nature of the individual reindeer, the herd, and in context of the rest of the environment in a way that enables resilience and flourishing. Castration has been an intentional transformation of reindeer behaviour and physique which also transformed broader human-environmental relations. It is characterized by mutually reinforcing relations like control, care, domination, subjugation, mediation, growth, respect, and partnership.

Keywords: reindeer domestication, Traditional Knowledge, ethnoarchaeology, Sápmi, pastoralism

Between North and South: Borders and Contacts Between Early Neolithic Cultures in The Gulf of Finland Region

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Abstract: The appearance of pottery in the Early Neolithic forest zone of Eastern and Northern Europe gives us a unique key to understanding of cultural borders and identifying contacts between cultural communities. The eastern part of the Gulf of Finland region is the place where two cultural worlds met: the “northern” Sperrings and Sär 1 ceramic traditions, with the temper of crushed granite and dense stamped ornamentation, and the “southern” one, primarily the Narva Ware, with shell temper and sparse shallow decoration. Recent studies have shown that this border is not that stable and persistent as previously thought, and the cultural groups here are much more mosaic than a simple opposition of two traditions. To these two we should add the Early Asbestos Ware in two variants - Kaunissaari and Sperrings Ware with asbestos, as well as the hybrid type between Sperrings and Narva. The Karelian Isthmus region is not just a peripheral zone of several cultures. In the Early Neolithic, a certain group of population with its own specific ornamental tradition was formed here. This group maintained contacts both with the northern territories - the Lake Saimaa region with its asbestos imported to be used as a temper, as well as with southern ones. The survey of the Vuoksenranta Sintola site where Sperrings Ware, Kaunissaari Ware and porous hybrid pottery were identified in a homogeneous Early Neolithic settlement context with the stone hearths, provides us new information for understanding the cultural mosaic of the region.

Keywords: pottery, Early Neolithic, Gulf of Finland, cultural contacts

Phenomenon of the Neolithic Asbestos Ware in the Eastern Europe forest zone

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Abstract: Asbestos Ware appears in the 1st half of the 5th ka. BC in the Saimaa area in Finland, but after 3600 BC it spreads throughout a huge territory from Northern Sweden to Arkhangelsk region in Russia. This is the only known long-term stable tradition of making pottery intentionally tempered with asbestos. Recent studies have shown that in the early stages of the development of the tradition the use of asbestos was not aimed at improving the technological properties of pottery. In the Early and Middle Neolithic the symbolic role of asbestos temper is most likely. In the second half of the 4th – 3rd ka. BC Asbestos Ware spread over vast territories many hundreds of kilometers from natural asbestos outcrops. At this time the admixture of asbestos apparently acquires aesthetic significance. Shiny pottery is becoming one of the elements of a prestigious economy formed among the hunter-gatherer population of the Eastern Europe forest zone. This is just one of the archaeological evidence of complex socio-cultural transformations of the Neolithic population in the middle of the 4th millennium BC. Other evidences were the emergence of specialized workshops for the manufacture of products for exchange with the population of remote territories, the formation of stable channels of interregional exchange. Perhaps the desire to use the technological advantages of asbestos temper contributed to the improvement of the heat treatment of vessels, and allowed the creation of technologies for processing copper.

Keywords: Asbestos Ware, prestigious economy, specialized workshops, Eastern Europe forest zone

Neolithic saltmaking - a booster for transformations

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Abstract: Besides salt as an essential mineral component needed for the human body, it had a unique value for food preservation in ancient societies (salting or fermenting fish, meat, vegetables). Making food provisions manageable was a basic requirement for sedentary lifestyle. Subsequently: long-lasting food provisions enabled people to go on long distance journeys (like seafaring), coming in contact with strange cultures, reflecting upon unknown traditions, exchanging exotic goods, adopting new technologies. Archaeological remains give proof of Neolithic saltmaking by evaporating or boiling brine. Saltboiling in a big scale required huge amounts of firewood. Cutting trees resulted in vegetation change (typically from forest to open landscape), smoothing the way or going hand in hand with the Neolithic transformation from foraging towards agriculture, permanent settlements, food production and stockpiling. However, salinity of seawater and many saline springs is low and needs enrichment to save fuel in the heating process. A very clever technology of “brine enrichment by leaching saline soil” is often overlooked, although being groundbreaking. How does it work, where and when did it start, how did it spread, how to recognise it? Amazingly: the mentioned ancient saltmaking technology has survived, is here and there still practiced, and can be studied to understand the archaeological context. This presentation will draw parallels between Neolithic saltmaking and today’s traditional saltmaking as experienced in the Gangetic Delta. The most relevant counterparts are man-made earthen mounds (consisting of leached soil), pits, filter constructions, kilns and vessels for heating the brine.

Keywords: Brine Enrichment Leaching Saline Soil

Should the historical process in the Amazonian SW during the medium Holocene be called Neolithization?

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Abstract: In hegemonic archaeological literature, the appearance of new technologies such as ceramics, plant domestication, and sedentarization were configured as important markers of Neolithization. These elements, in the archaeological record stand as evidence of an intense process of socioeconomic changes, understood as a linear process of development of human societies. Nonetheless, the data generated by the Alto Madeira Project since 2008 questions the Neolithization process as a linear and inexorable history. Along the Madeira River valley in the southwest of the Amazon, archaeological sites with dates that span the entire Holocene present a non-linear archaeological scenario for the emergence of these innovations. Also, they do not seem necessarily correlated with each other. Archaeological sites excavated by the Alto Madeira Project have demonstrated the antiquity of plant domestication (9000 BP), a technology related to hunter-gatherer groups. Early evidence for the emergence of Amazonian Dark Earth (ADE) in the archaeological record emerge around 6500 BP, which is indisputable evidence of sedentarization and intensive management of the environment by Amerindian populations. Ceramic technology did not become predominant until at least the third millennium before the present, evidencing a long-term history that was complex and incompatible with large models. The new data from the sites excavated by the project in the last decade allow us to question Neolithization as an hegemonic concept, as it does not apply to the actual development of the Amerindian populations in the Madeira River valley.

Keywords: amazonia, holocene, ADE, sedentarization

Subsistence patterns and cultural shifts in the Neolithic sequence of Dehesilla Cave (Southern Spain)

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Abstract: The Iberian Peninsula is located in the far south-western regions of the European Neolithic expansion. The earliest Neolithic sites are consistently dated shortly after 5600 cal BC, and are attributed to the arrival of small groups of Mediterranean origin. Their subsequent development is, however, far from homogenous. A key site in southern Spain is Dehesilla Cave, with a Neolithic sequence spanning 2500 years. In this presentation, we will highlight the distinctive traits of the phases of this “long neolithic” (mid-6th to 4th millennium cal BC), with emphasis on significant correlations between shifts in material culture and subsistence strategies. The first Neolithic at Dehesilla Cave included Mediterranean impressed pottery and domesticated animals (c. 5550 cal BC). Cereals are documented in the following phase, attributed to the regional Early Neolithic, characterized by red-slipped pottery (5300-5000 cal BC). Subsistence at this time was based on a mixed strategy for low-level food production and use of natural resources. Around 4800 cal BC, a major change took place. Cereals became more prominent, and the impact of agriculture on the environment was notable by 4500 cal BC. Discontinuity with the previous phase is further evidenced by pottery, in which two distinctive incised styles are successive. During the process leading up to a typically sedentary and agrarian Late Neolithic (4th millennium), change appears to have taken the form of major shifts, suggestive of discontinuities in which the influence of diverse incoming groups must be considered in the context of the population dynamics of the Western Mediterranean.

Keywords: population dynamics, long neolithic, Western Mediterranean

Neolithic territories of Central Alentejo (Portugal): settlement strategies

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Abstract: The development over the last two decades of systematic archaeological surveys and excavations, combined with measures to minimise negative impacts, as well as research projects, has allowed us to learn more about the areas favoured by Neolithic populations in the interior of the Alentejo, thus refuting the traditional theories formulated in the 1970s and 1980s. The many settlements identified as part of the first Neolithic phases by the artefacts found are located in areas with very specific geomorphological characteristics. In this work, we present a summary of the available information about this region, while defining the main settlement areas and reflecting on their functional materiality and the issues related to their characterization.

Keywords: Settlement; Neolithisation; Alentejo; Portugal

Labour and social Inequality in the Neolithic of the Northern Alpine Foreland

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Abstract: Labour and social Inequality in the Neolithic of the Northern Alpine Foreland. The Neolithic in the northern Alpine foreland (SW Germany, Switzerland) lasts about three and a half millennia. On the basis of the West Asian founder crops, specific adaptations and niche formations took place. The archaeologically described cultures are numerous. Exceptional conservation conditions and a body of knowledge that has grown over a long period of research (keyword: pile dwellings) enable very detailed analyses in temporal high resolution. In addition to short-term events, however, evolutionary processes can also be described and traced on the basis of the large amount of archaeo-botanical data evaluated here. Using ethnographic analogues, it is possible to describe diversities as well as evolutionary constraints. It was not so much the biology of the seeds as the agricultural practice that was subject to the ongoing logic of constant probation. There are repeated signs of optimisation for certain work processes, whereby increasing standardisation and a corresponding decrease in diversity (biological and in agricultural practices) have led to ultimately uncontrolled risks. The development of agricultural technology will be related to that of social inequality. It will be shown how different evolutionary trajectories unfold, end, and begin anew across epochal and cultural group boundaries. The determining factor of all these changes that can be observed here is the limitation of available labour. The ways to use this resource are different, but the underlying structural processes are not.

Keywords: Central Europe, agricultural practices, social inequality, evolutionary archaeology, economic archaeology

The Use and Abuse of Neolithic

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Abstract: In 1968 Marshall Sahlins started a new (not so new!) debate. The basis of Sahlins' argument is that hunter-gatherer societies were able to prosper by desiring little and meeting these needs/desires with what was available to them. Sahlins contrasts this with the Western path to prosperity. Thus, Sahlins argues that hunter-gatherer and Western societies took separate paths to prosperity, with the former achieving prosperity by desiring little and the latter by producing much. He says general principles of economics (principles that reflect western values and emphasize surplus) cannot be applied to hunter-gatherers, nor should one believe that the Neolithic Revolution brought unquestionable progress. James C. Scott's *Against the Grain*, published in 2017, is a book that sets out to undermine what he calls the "standard civilizational narrative" that suggests that humans chose to live settled lives based on intensive agriculture because it made them safer and more prosperous. Instead, he argues that humans were forced to live in early states that were hierarchical, beset by malnutrition and disease, and often based on bondage and slavery. As early as the 1950s, as Neolithic studies gained momentum, anthropologists, Marxist and Anarchist political thinkers alike tried to interpret the new data emerging from the field, all seeking to construct a new "narrative". The ultimate goal of this paper is to summarize and interpret these debates on Neolithic studies (Sahlins, David Graeber et al.), and how they "use and abuse" the concept of Neolithic.

Keywords: Historiography, Political Ideas, Civilization

Understanding the emergence of alternative social-ecological regimes of food production

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Abstract: Progressive models of cultural evolution have long been criticized. Yet, archaeologists sometimes struggle to replace these models with non-linear theories of cultural change that (1) explain the diversity of food production strategies observed over space and time in the archaeological record and (2) provide propositions amenable to empirical testing. In this paper, we explore a non-linear theory of cultural change that predicts the emergence of diverse social-ecological regimes of food production. We use the model to help understand the diversity of low-level food production strategies observed over deep-time in North America. Specifically, we compare the Long-Neolithics evidenced on the Colorado Plateau, where populations integrated maize into indigenous cultivation strategies, and the Edwards Plateau in Central Texas, where populations rejected maize and invested in wild geophyte harvest during the Late Holocene. We document the similarities and differences in population growth, resource investment and social integration in the two regions over their Long-Neolithic trajectories. The comparison reveals a common trajectory of change in place-based infrastructure development and population growth. We speculate that common mechanisms related to social signaling and the production of surplus food by hearth groups/households may underlie the commonalities of these regions' Long-Neolithic trajectories. Conversely, the different potential productivity of geophytes in these regions may have been critical initial conditions that initiated distinct forms of food production and social-ecological incentives for adopting or rejecting maize agriculture.

Keywords: Long-Neolithic, Innovations, Complex Systems, Social-ecological regimes, Food Production

G02 - Early Productive Behaviour, or the Regional and Global Problems with the Terms Neolithic/ Neolithisation

Session Organiser

Hans Georg K. Gebel / Free University of Berlin, Germany

Abstract

The session invites us to test the term Neolithic and conventional understandings and models of Neolithisation processes from regional and global perspectives by reflecting on new findings (such as productive foraging) and confronting them with evidence not fitting.

We always come up against the applicability limits of these terms when they inappropriately reflect the complexity and intricacy of phenomena or evoke misleading generalisations for their local, regional, supra-regional and global variabilities. "Neolithic" phenomena and processes also occurred before or after Neolithic "core periods", were polycentric and polycyclic in various ways and geographically shifting, reversible, failing, behaved acyclic/asynchronous.

The tendency of research to prioritise individual stimuli and/or to negate multidisciplinary holistic approaches reinforces the conceptual problems with the terms.

The session aims to open a global academic discourse to highlight the potential pitfalls of "reductionism" in Neolithic research and to discuss if the world's Neolithics share basic traits and a common nature in creating the new social phenotype characteristic for productive lifeways (as opposed to foraging lifeways).

The productive use of natural and human resources - including the cognitive territories with their skills and dispositions created to serve these purposes – was aimed at control towards security, growth/reproducibility, and defence. Do these characterise all Neolithics to varying degrees, without foraging elements ever disappearing completely?

Each contribution should attempt to give a brief outline of the relevant traits of the regional/ supra-regional Neolithic trajectories (Subsistence modes, Environmental technologies and adaptations, Built territories, Technologies and consumption, Social organisation, Belief/ Cognitive systems, Exchange networks) and outline which research approaches shaped these results. This is in order to approach the question of which interacting systems enabled the sustainable establishment and adaptation of productive environments, impaired them or caused them to fail. Was productive behaviour the common denominator and momentum of these processes, or do the globally different permanent transitions from foraging to producing - from taking to making - include substantially different human dispositions and ontologies?

All these questions are intended to depict the polycentric and asynchronous panorama of early productive humans.

The Neolithic as an Assemblage

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G02

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Abstract: Since the time of Gordon Childe, the Neolithic has been described as a ‘package’, in the sense of an integrated complex of traits that include domesticated plants and animals, artefacts, residential patterns, monumental structures and ritual activities, underlain by a core of economic practices. However, it has often been objected that there is considerable variability from region to region, and the composition of the Neolithic phenomenon is anything but inflexible. Yet a particularist approach fails to explain the causal relationships involved in the dispersal of Neolithic things and practices across the Old World. How do we overcome this conflict between overgeneralised and overly specific conceptions of the Neolithic? In this contribution I will suggest that we should replace the notion of the ‘package’ with the concept of ‘assemblage’, as introduced by Deleuze and Guattari, and think of the Neolithic as an emergent process which was continually in motion, and not explicable in terms of a determining infrastructure and determined superstructure. While I seek to present an argument that is of broad significance, I will illustrate it by discussing the emergence of the British Neolithic in the context of northwest Europe.

Keywords: Neolithic, Assemblage Theory, Britain, Archaeology, Prehistory

Cognitive and neurological bases of the domestication of Mind

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Abstract: This presentation will consider the possibilities to deal with the domestication of Mind at a cognitive and brain (neurological) dimension. While avoiding any form of brain or mentalist reductionism, we think there are certain ways through which the development of symbolic and economic domestication can be revised at the level of the cognitive effects and neurological footprint that they produce. Processes of concept formation, abstract thinking, creation of metaphors and substitution of analogical reasoning by homologies and conventional categories, which are a fundamental part of the domesticated thought and practice, can be studied at the level of neuronal functioning. They all involve complex cognitive dimensions that can be explained by adopting a paradigm of Active Inference (or Predictive Processing) and have neurological correlates. This paper is part of the XSCAPE project on Material Minds, and ERC Synergy Grant that explores the interactions between predictive brains, cultural artefacts, and embodied visual search.

Keywords: domestication, Mind, cognitive processing, concepts formation, Active Inference

Searching for a beginning

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Abstract: The Neolithic is variously discussed as both a process and a phase. The two uses do not quite map onto one another, especially where the process is autochthonous as in Southwest Asia, where the transition takes a long time and follows different trajectories. I am concerned with the start of this process: the beginning of a new way of life. Traditionally hunting and gathering and farming societies were seen as opposites, with a difference deeper than subsistence – an entirely different way of looking at the world, the giving world of the hunter-gatherer to the farmer’s controlled production. Yet, the portrayal of hunter-gatherers as ‘other’, which inevitably creates dichotomy, was founded in modern (or colonial) perspectives. For us, the question is whether we can see ancient hunter-gatherers as having a genuinely different world view and relationship with the world from farmers. As much as many Neolithic societies maintained hunter-gatherer traits, late Pleistocene hunter-gatherers are often granted a transitional role – whether through the use of small seeded plants at Ohalo II, or in Natufian increasing signs of sedentary behaviour. While these may be novel in the late Pleistocene, they fall within modern hunter-gatherer behaviours. We need to be cautious about attributing any kind of Neolithic origin status to such behaviours. Accepting that no late Pleistocene hunter-gatherer planned to become ‘Neolithic’, at what point can we argue that some form of world shift has happened and what is it that makes the difference?

Keywords: Hunter-gatherer, transition, Beginning

Childe's 'neolithic revolution' and its relevance to the archaeology of Southwest Asia

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Abstract: Early food-producing communities are frequently described as 'Neolithic' in the Western academic tradition, regardless of the scale or intensity of production. The transition from foraging to farming is widely seen as a watershed moment and the most important 'revolution' in human history, a view championed by V. Gordon Childe (1892-1957) in his 1936 synthesis *Man Makes Himself*. In this seminar, I will look at the historical context for Childe's 'Neolithic Revolution' and the multiple theoretical threads that influenced his writing at a time when few Neolithic sites were discovered in Southwest Asia. While Childe's 'oasis theory', based on Pumpelly's excavations at Anau in modern-day Turkmenistan, appears to be largely obsolete, his narrative of agricultural origins, which makes no distinction between the emergence of plant and animal domestication and the spread of farming economies, still has merit. What relevance does Childe's 'neolithic revolution' have today, considering recent archaeological findings in Southwest Asia?

Keywords: Gordon Childe, Neolithic revolution, Historiography, Southwest Asia

Neolithic Food Production Hunting Technology in Arid Landscapes Across the World

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Abstract: A food production subsistence economy is asserted to be the fundamental characteristic of Neolithic societies, and one vital production technology was the foundation of Neolithic groups inhabiting past and current arid landscapes that would not sustain agriculture except in confined niches: mass slaughter of herds of wild herbivores that thrived in perpetually arid environments, a technology based on the construction of guiding walls that led to traps for hundreds of animals: kite hunting technologies that produced surplus animal protein resources. These technologies were communal activities that involved large groups of people to construct and maintain the kite traps, participate in the slaughter, process the meat of the prey, and transport the “harvest” to settlements that were the “homes” of the hunting teams. This scenario was typical of 7th millennium and later Neolithic groups in southwestern Asia, but the technology was also used in territories far removed from this region, including central Asia, North Africa, and even the arid regions of North America. Kite construction involved different architectural designs, construction materials, and the kinds of prey that were exploited. Kites were also used and modified long after the familiar Southwest Asian Neolithic time frame, including such hunts recorded in frescoes detailing onager hunting on the walls of the 8th century CE Umayyad hunting lodge of Qusayr Amra near Azraq Jordan. The widespread distribution of the use of kite structures demonstrates very well Gebel’s concept of “polylinear incursions and autochthonous adaptations” in the evolution of the Neolithic and subsequent temporal periods.

Keywords: Neolithic food production, communal, kite, surplus, arid lands

Neolithic Foundations and Neolithic Dispersals Across Asia: Some Comparative Considerations

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Abstract: The emergence of Neolithic socio-economic systems across Asia can be divided into three broad categories: in-situ Neolithic establishment; migrant Neolithic establishment; adoptive/adaptive Neolithic establishment. Variations of these three categories play out in a diversity of straightforward, complex and unexpected ways across Asia. As noted by scholars of the Neolithic (e.g., Benz et al. 2017) the process of 'Neolithisation' required fundamentally new forms of social, economic and cultural life, coupled with changes in cognitive commitment. However, how essential or specific these adaptations were depended on the establishment of settled communities. The wider Asian Neolithisation process does not always demand this. This paper will present and discuss a broad range of 'Neolithisation strategies' across Asia illustrating varying regional and cultural responses to shifts from a hunter-gatherer society to another socio-economic model engaging partially or wholly in management of domesticated plants and/or animals. (M. Benz, H.-G. Gebel, T. Watkins 2017. The Construction of Neolithic Corporate Identities. Introduction. Pp. 1-9 in Marion Benz, Hans Georg K. Gebel, Trevor Watkins eds, Neolithic Corporate Identities. Studies in Early Near Eastern Production, Subsistence, and Environment 20, Berlin, ex oriente.)

Keywords: Asia, Neolithic strategies, Cultural responses

"Neolithic Eve": Personal view on the local and global perspective

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Abstract: Large-scale researches at the end of the XXth - beginning of the XXIst centuries significantly expanded the source base on the archaeological period traditionally known as the "Neolithic". This, on the one hand, led to a significant increase in the number of artifacts and data available for study, but on the other hand, it also created a more complex theoretical discourse surrounding the understanding of the significance of this period in human history. The different approaches to this debate can be attributed to both objective factors, such as differences in archaeological material due to natural and climatic variations, as well as subjective factors reflecting the specific methodologies and perspectives of different scientific schools and archaeological communities concentrated on the regional archaeological materials. Among the various topics of this discussion are questions of terminology, chronology and markers, such as "What signals indicate the start of the Neolithic period, and are they all visible archaeologically?" It is clear that progress in this discussion can only be achieved through the widest dialogue between specialists from all regions of the world. The obvious statement that "Neolithic was everywhere" is followed by an equally obvious clarification: "Neolithic was different in each region". The authors' experience working at the Final Paleolithic-Neolithic sites in Siberia, in the Russian Far East, Mongolia, Japan, Southeast Asia (Philippines, Indonesia), and South America (Ecuador, Peru) allows to present a number of insights into the peculiarities of the "Transition period," or, figuratively, of the "Neolithic Eve" in different parts of the world.

Keywords: Neolithic, Siberia, Russian Far East, Pacific

Neolithic Hunter-Gatherers? Rethinking “Neolithic trajectories” through a Siberian case study

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Abstract: Irrespective of specific regional traits at the onset of the Neolithic, the period is widely assumed to signify an important step towards increased social complexity. This “Neolithic trajectory” towards complexity is believed to have begun prior to the advent of agriculture, within pre-farming hunter-gatherer groups. This is further underscored when examining hunter-gatherer societies that exhibit a package of traits commonly associated with the Neolithic period, such as food production, the construction of monumental architecture, reduced mobility, and an increased propensity for warfare and socio-political inequality. However, despite these developments, in most of the regions associated with this “hunter-gatherer complexity”, agriculture failed to take root and the foraging subsistence remained prevalent. One such region is Western Siberia: Around 6000 cal BC, the introduction of pottery marked the beginning of significant changes, including the emergence of mound-like ritual structures, new lithic technologies, pit-house architecture, and defensive structures around settlements. Based on statistical investigation, inequality measurements revealed oscillating phases of higher and lower social inequality, accompanied by architectural adjustments within the fortified settlements, showcasing the creation of enduring built landscapes and the manipulation of the social environment over millennia. However, despite being associated with hunter-gatherer societies, this period marks the onset of the Neolithic according to the terminology used in this region. This observation not only challenges broad heuristic and dichotomous classifications like those of (complex) hunter-gatherer societies, showing that foraging and producing are not opposed to each other, but also prompts a critical reassessment of the term “Neolithic” itself.

Keywords: West Siberia, hunter-gatherer, complexity, Neolithic trajectories

When Neolithic began in North China: A Debate on Divergent Interpretations of Early Neolithic

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Abstract: In China, we used to classify the period of 9000-7000 BP as the Early Neolithic, marking the beginning of China's Neolithic Age characterized by sedentism, agricultural economy, and widespread use of pottery and polished stone tools. However, recent discoveries reveal that pottery, polished stone tools, and domesticated crops have been sporadically found in some sites dated between 15000-9000 BP. It led some scholars to revise the Neolithic staging scheme, defining 15000-9000 years as the Early Neolithic. Still, some others adhere to the traditional classification, considering 9000-7000 years as the start of the Neolithic. This study explores this academic debate by analyzing the contextual use of the Neolithic concept in different studies and archaeological discoveries between 15000-7000 BP in North China. It argues that the view of 9000-7000 BP as the beginning of Neolithic stems from treating the Neolithic Age as an integrated cultural adaptation system distinct from the Paleolithic, which is characterized by nucleated sedentary villages and more intensified exploitation of local resources. The perspective of 15000-9000 BP as the Early Neolithic, however, emphasizes tracing the embryonic period of the constituent elements of this new cultural adaptation system and believes that this embryonic period represents a new cultural development trend. The debate behind these two staging schemes reflects the complexity and graduality of Neolithisation in North China, where the technological, social, and cultural elements constituting the Neolithic lifestyle did not emerge simultaneously and flourish all of sudden, but budded at the time when Paleolithic lifeways still retained.

Keywords: North China, Early Neolithic, Staging scheme, Cultural adaptation system

Production and Reproduction: the mingled infrastructures of the Neolithic Social (R)evolution

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Abstract: Because the Neolithic period sees the evolution of human societies from the stage of itinerant hunter-gatherers to that of sedentary farmers and herders, it is first and foremost from a sociological perspective that the archaeological data ought to be addressed. A society is a complex system primarily conceived through its two basic infrastructures, production and reproduction, organically bound together in an operating entity, but evolving at different path throughout the Neolithisation process, thus creating humongous inner contradictions. Indeed, while the former is entirely disrupted by the advent of farming, as well defined by specialists, the latter, regrettably largely ignored in the literature, ends-up totally reshuffling the reproductive structure through the opening of marital unions to the outside world ('complex-type'), that is, beyond the inner community. This humongous contradiction between outward looking production and inward looking reproduction (marital system) will reflect in many and varied ways, for example in the rapid domestication of animal domesticates (bride-price), in the constitution of mega-sites (Çatalhöyük, Ain Ghazal etc.) or in the monumental dualist symbolism. This inner social conflict will not resolve before the spread of small farmsteads in the Chalcolithic. Similar archaeological features are briefly reviewed in other Neolithic periods in the world to show that such reactions are not local cultural specificities, but widespread structural responses to the advent of agriculture. It is thus in such social terms that we propose to redefine the concept of Neolithisation.

Keywords: archaeo-sociology, Neolithic (re)production, kinship, megasite, Çatalhöyük

Long-Term Neolithisation Processes in Central Asia: The Key Role of Mobility, Territories and Interactions

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Abstract: The study of Neolithic phenomena in Central Asia presents a significant challenge, given the diversity and complexity of Neolithisation processes that have been identified. This is especially so when one considers the original characteristics of these “Neolithic” societies, which diverge from the models commonly accepted, such as in the Near East region. Thus, there are not one but several “Neolithics” in Central Asia, each with its own distinctive cultural, economic, cognitive and probably symbolic dynamics. An overview of the defining characteristics of these Neolithic trajectories, relating to various Neolithisation processes that originated at the end of the Pleistocene, will provide insight into the emergence of a specific cultural geography, ranging from steppes to oases, which became evident in Central Asia at later periods. In most cases, foraging appears to be on ongoing lifeway, but with a focus on targeted resources or ecological areas. The introduction of productive elements remains limited or occurs later, given the long duration of these Neolithisation processes. However, beyond the economic aspects, it is also important to consider the strategies adopted to establish control over a chosen territory, particularly in terms of mobility, and the reasons underlying these choices. In addition, a further key to a more comprehensive understanding of the early Holocene societies in Central Asia lies in the examination of the relationships and interactions between different communities.

Keywords: Territory, Central Asia, Mobility, Exchange Networks, Technologies

Choice in the Face of Change. How 'Neolithic' Were Cyprus and the Greater Syrian Desert in the 7th and 6th Millennia BC?

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Abstract: The concept of a 'globalising' Late Neolithic has gained traction in Near Eastern Neolithic literature. It has been proposed that the Halaf and 'Ubaid periods were characterised by an interconnectivity that brought people, materials and ideas into networks of relationships across a wide region. These relational networks were facilitated by effective means of transport and communication that enabled goods, technologies and ideas to circulate more efficiently. However, this new interconnectivity was not entirely homogeneous, and in some regions was in tension with cultural identity. The level of tension between interconnectivity and cultural identity differed according to a variety of social and economic factors, so that the archaeological record at this time appears as a sliding scale of similarity and difference. There is mounting evidence that this connectivity spanned not only the relatively well-watered 'Levantine corridor', but also its onshore and offshore 'margins'. Superficially disparate, the greater Syrian desert and island of Cyprus display clear convergences in their respective 7th- and 6th-millennium archaeological records that may be characterised as combinations of 'go-fast, go-slow'. Deeply rooted in their environments, hyper-local communities sought to negotiate receptivity and resistance to outside influences and innovations, leveraging relative absences of demographic pressure to maintain lifeways that had been rendered untenable in the 'Levantine corridor'. Reflecting on the extent to which cultural success may be measured in stability rather than change, this contribution critically evaluates the utility of applying exogenous Neolithisation criteria to regions whose enthusiasm for the Neolithic experiment seems to have been, at best, ambivalent.

Keywords: Cyprus, Syrian Desert, Networks, Receptivity, Stability

The Neolithic in north-west Algeria

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Abstract: The Neolithic Age witnessed important changes in human life and lifestyle. It was the last period of the Stone Ages that witnessed the process of transition from hunting and gathering food to settlement and the emergence of the first agricultural villages. And the associated transformations in intellectual, economic and social terms, as environmental change and the abundance of natural resources helped in the emergence of some industries such as pottery, polished tools, grinding tools, and the domestication of animals and plants, this period was characterized by the appearance of pottery, the domestication of animals, and the practice of collecting wild plants before domesticating them. This was helped by the movement of peoples in north Africa, which is a mixture of eastern and western trends and influences that played an effective role in the development of the northern regions of Algeria by integrating local cultures, this period was characterized by a favorable climate through which the Neolithic culture with a cage base spread in the east of the country and the Ibero-Moroccan culture in the western side. Chronologically, this era precedes the epipaleolithic in Algeria, which developed according to the chronology of most sites between the seventh and fourth millennium BC. Through this intervention, we will try to address human reconstruction by highlighting the features of the Neolithic hills of the northwestern regions of Algeria, specifically, the Oran region is a model.

Keywords: Neolithic; Algeria; Oran region; archaeological remains

The Central Anatolia Neolithic – a globalization perspective

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Abstract: The Neolithic in southwestern Asia is a highly complex phenomenon. The commonly used categories do not adequately capture its heterogeneity. This is largely due to the hitherto dominant one-sidedness of theoretical perspectives that focus on either diachronic or synchronic characteristics of this phenomenon. I would argue that globalisation theory offers a heuristically viable perspective that effectively captures the character of developments in different regions across southwestern Asia by placing them in the context of historically situated trajectories of their emergence and their embedding in contemporaneous regional and pan-regional dependencies. In my paper, I intend to situate the emergence and subsequent persistence of Central Neolithic Anatolia within the theoretical perspective of globalisation. I argue that it must be seen as a distinct Neolithic phenomenon that emerged at the beginning of the process of granulation of the core Neolithic from the Fertile Crescent. The transformation of local Central Anatolian foraging communities was triggered by religious ideas originating in Upper Mesopotamia. The emerging Neolithic suffered from a lack of building power and became a short-lived phenomenon. It ended abruptly, leaving Central Anatolia as a peripheral region within southwestern Asia for millennia.

Keywords: globalisation, Neolithic, spread, Central Anatolia

Reassessing Regional Economy During the Neolithization: Nevali Cori and Yumin from the Fertile Arcs of Western and Eastern Asia

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Abstract: As typical sites during the key neolithic transition at the emerging stage of agriculture in their own regions, Nevali Cori in southeastern Anatolia Plateau and Yumin in Inner Mongolian Plateau shared a common environmental context of relatively wide and opening landscape of "hilly flanks" with mountains back or around. Regarding the tempo turning to sedentism, it has been demonstrated that Nevali Cori had experienced a decreased mobility and increased dependence on domesticates during the early to middle PPNB, while more detailed chronological change on the diet and possible cultivating strategy of Nevali Cori people are still unclear. We hope to shed more light on these subsistence related questions by our new data. In addition, our future work on Yumin site in "the Eastern Fertile Crescent Arc" will be based on the materials including zooarchaeological, archaeobotanical and human remains and we also expect more potential offered by isotopic approaches. This presentation will explore the similarities and differences of two typical neolithic sites, reevaluating the regional economy pathways and modes. We value and expect more insights by comparative research between the two hotspot districts which are key to how the prelude of agriculture in both ends of the Asian continent unfolded and developed.

Keywords: the Fertile Crescent, Neolithization, Early Agriculture in Northern China, Stable isotopes, Pre-Pottery Neolithic in Southwest Asia

The Neolithisation in Northwestern Hebei Area, China

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Abstract: The complete progression of neolithization in northwestern Hebei area last for 10000 years. From 17000 a. BP, people came from northern area occupied sites in Nihewan basin year after year to hunt large and medium-sized herbivorous mammal animals. In 15000 -14000 a. BP, pottery and milling stone tools appears here, showing the preliminary attempt for broad-spectrum subsistence economy. But the subsequent Younger Dryas event broke this tendency in 14000-11000 a. BP. People returned until 11000- 9000 a. BP, scattered in this area, adapted to local environment and developed local resources. Resident house and cemetery appeared in this period. In 9000-7000 a. BP, neolithic settlements flourished in everywhere of this area, developed different kinds of broad-spectrum subsistence economy. The progression of neolithization in northwestern Hebei area is a dynamic process. Ancient people from different areas--Siberia and far east, Mengo highland, Northeastern China, southern Shanxi and Hebei participated this process. The professional hunters became local residents gradually in this progression.

Keywords: Neolithisation, Northwestern Hebei area, dynamic process.

Is the Jomon culture “Neolithic”?

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Abstract: The term “Neolithic” has been defined empirically since the 19th century based on archaeological evidence from Western Eurasia, notably Europe and Southwest Asia. However, as archaeological research has progressed worldwide, the term has come to function as a global term that provides a measure of the transition from hunter-gatherers to early farmers. Does the regional reality revealed over time necessitate a change in our definition of the West Eurasian Neolithic? Rather, I would regard it as a valuable opportunity to interpret the “Neolithic” of Western Eurasia in a larger context of human history. In this presentation, I will provide an overview of the current debate on Jomon Culture in the Japanese archipelago at the eastern end of Eurasia, which has evoked arguments on the Neolithic definition. The Jomon culture developed in the late Pleistocene and early-mid Holocene at the east end of Eurasia exhibits a number of elements such as sedentarization, pottery and polished stone tool production, development of complex society, and construction of monumental buildings, which are often interpreted as hallmarks of the Neolithic culture in the West. Interestingly, the region of Southeast Anatolia, accommodating a series of important Neolithic sites of Göbeklitepe and Karahantepe, corresponds to Honshu Island in the central part of the Japanese Archipelago in latitude (cf. 3000-km-North-South long archipelago).

Keywords: East Asia, Terminal Pleistocene, Sedentary hunter-gatherers, Horticulturalists

New Discoveries at Nanzuo Site and the Dawn of Early State in the Loess Plateau, China

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Abstract: Since 2021, a very developed and complex Neolithic-Chalcolithic 6 million m² mega urban site of Nanzuo in the Loess Plateau by about 3000 BCE has been re-excavated with significant discoveries of the largely plastered “palatial” rammed-earth building complex centered with the over 720m² single main hall F1 and the “Nine Platforms” ritual complex with each rammed-earth platform has 1600m² in the 0.3 million m² Core Area, a huge urban settlement with waterway system and Yaodong (窑洞) residential districts, and a rich amount of rare cultural remains. The well-designed and planned rammed-earth architectural complex in the Core Area are the earliest buildings with Chinese palatial characteristics has ever found, with clear central axial planning and hierarchical order, and use of abode and fired bricks. Some excavated artifacts are characterized as “ritual objects”. Black, white and white-slipped potteries, cinnabar-dyed artifacts, turquoise, and huge volume of rice deposits, reveal the far-distance interregional material and cultural relations between Nanzuo of the Loess Plateau, and Lower Yellow River Valley and Middle and Lower Yangtze River Valley in eastern and southern parts of China. Extensive plastering phenomenon and use of abode and fired bricks does not exclude the possible relations with the influences from the western part of Eurasia. These new archaeological discoveries are very significant to refresh our understanding of the formation of early civilisation in the Loess Plateau of China.

Keywords: Nanzuo Site, China, the Loess Plateau, Early State, palace

New insights on the cultural, social, and economic domestication of Sicily

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Abstract: The neolithization of Sicily, the largest of the Mediterranean islands, conveniently placed at the crossroads of the communication routes from North to South and from East to West of the basin, has been a relatively recent issue within the global debate on the topic. The narrative for the beginning of the Neolithic in Sicily has long suggested it took place only in an advanced phase, with the arrival from the eastern Mediterranean of the 'Neolithic package' already developed, through the cultural mediation of south-east Italy or directly from the East. Only after excavating some key sites in western Sicily, such as Uzzo and Kronio caves, has an early Neolithic phase been defined, although controversially interpreted. But crucial aspects such as the different modes of production, interaction with the environment, and social structures have yet to be fully addressed. The classificatory perspective still adopted to interpret the Sicilian prehistory further constrains the discussion, leaving room for the acritical acceptance of a rigid conceptual dichotomy: societies classed as hunter-gatherers did not have domesticates, while any societies with domesticates had agriculture. In the contribution we aim to explore the possible existence in the island of a "middle ground" through an analytical enquiry into the late Mesolithic and the early-middle Neolithic (7000-5000 cal BCE). Starting from a review of the available 14C dates, the paleoclimatic and bioarchaeological data, and the cultural changes in lithic and pottery production, we rediscuss the process of domestication of Sicily within the larger framework of the central Mediterranean Sea.

Keywords: Mediterranean, Neolithization, Paleoclimate, Lithic technology, Radiocarbon dates

G03 - Foraging to Food Production and The Consequences: A Global Review

Session Organiser

Peter Bellwood / The Australian National University, Australia

Hsiao-chun Hung / The Australian National University, Australia

Abstract

This session examines six major regions, located around the globe, of transition from foraging to food production. Presenters are asked to give their current opinions, for their regions of expertise, about the following basic issues:

- a) trajectories of animal and plant domestication;
- b) trends in settlement sedentism and patterning;
- c) changes in human population density;
- d) trends in human population history, acknowledging current debates in genetics and linguistics.

Were the transitions driven mainly by indigenous enterprise, or did they involve contact with, or immigration by, food producing populations from external sources?

Presenters should outline what we think we know at present, and suggest important goals for future research. The aim of the session is to generate broad multidisciplinary and comparative perspectives.

Taking stock is important, and we will invite speakers both from the Scientific Committee and from beyond to express succinctly (in 20-minute bursts) how they perceive their region of expertise.

Suggested regions:

1. Southwest Asia
2. East Asia
3. Africa
4. New Guinea
5. Mesoamerica
6. South America

Introduction to Session G03: Foraging to Food Production and the Consequences

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G03

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Abstract: In this introduction to Session G03 we will discuss the rationale behind this session, this being to examine several major regions, located around the globe, of transition from foraging to food production. Presenters have been asked to give their current opinions, for their regions of expertise, concerning some or all of the following basic issues: a) trajectories of animal and plant domestication; b) trends in settlement sedentism and patterning; c) changes in human population density; d) trends in human population history, acknowledging current debates in genetics and linguistics. Were the transitions driven mainly by indigenous enterprise, or did they involve contact with, or immigration by, food producing populations from external sources? Presenters are asked to outline what we think we know at present, and suggest important goals for future research. The aim of the session is to generate broad multidisciplinary and comparative perspectives that pertain both to the origins of food production as a category of human economic behaviour, and to the origins and migrations of those populations who were the first in many regions to develop a food producing way of life.

Keywords: transition from foraging to food production

The world's oldest forts? Amnya and the acceleration of hunter-gatherer diversity in Siberia 8000 years ago

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G03

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Abstract: Archaeological narratives have traditionally associated the rise of social and political 'complexity' with the emergence of agricultural societies. However, this framework neglects the innovations of the hunter-gatherer populations occupying the Siberian taiga 8000 years ago, including the construction of some of the oldest-known fortified sites in the world. In this talk, the authors present results from the fortified site of Amnya in western Siberia, including new radiocarbon dates as the basis for a re-evaluation of the chronology and settlement organisation. Assessed within the context of the changing social and environmental landscape of the taiga, Amnya and similar fortified sites can be understood as one facet of a broader adaptive strategy. Coinciding with a sharp increase in population, these sites emerge as part of a broader package of change that took hold in the taiga c. 6000 cal BC. This package encompassed innovations in technology (including pottery), subsistence, ritual practice and socio-political organisation, broadly resembling the main pillars of the 'Neolithic package' typically linked with the expansion of early farming. This horizon of innovation suggests stark transformations in the socio-political structures of Early Holocene hunter-gatherer populations living in the taiga, including greater group cohesion, increased sedentism and territoriality, and a rise in inter-group social tensions and conflict.

Keywords: West Siberia, 8.2 ka event, fortification, hunter-gatherers, territoriality

Interbreeding And Demic Diffusion In The Spread Of The Neolithic In Europe

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Abstract: The Neolithic spread across Europe along two main routes. The inland route includes the Balkans, central Europe and Scandinavia. The coastal route refers to the northern Mediterranean coast. Along the inland route, the spread rate was about 1 km/yr which implies that demic diffusion was responsible for at least 52% of the spread rate. Along the coastal route the spread rate was much faster, about 9 km/yr, which suggests migration distances of about 300 km per generation and that demic diffusion was responsible for at least 79% of the spread rate. The cline of mitochondrial haplogroup K makes it possible to refine these estimations substantially, leading to a demic effect of 98-99%. Thus the spread was overwhelmingly demic at the continental scale, although regional deviations may have taken place. Moreover only about 2% of early farmers would have interbred with hunter-gatherers. Recent data make it possible to analyze this genetic cline separately for both routes, leading to the conclusion that the interbreeding behavior of farmers and hunter-gatherers was strikingly the same along both routes.

Keywords: Neolithic spread, Europe, demic diffusion, cultural diffusion, interbreeding

The Southwest Asian Neolithic transition seen from Cyprus

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Abstract: The intense archaeological fieldwork carried out in Cyprus over the last thirty years has modified the general picture of the Neolithic transition in Southwest Asia. Two major sites - Klimonas, a short duration PPNA village occupied around 8,800 calBC, and Shillourokambos, which provided a long succession of PPNB phases from 8,500 to 7000 calBC - unfold on the island two millennia of Prepottery Neolithic As in the Levant, a phase of hunters-cultivators villages organized around a communal building (Klimonas) is followed by a rise in agriculture and stockbreeding (Shillourokambos). Several species of plant and animal were introduced along this process, some of the latter released to the wild to be hunted and then domesticated (wild boars, goats) in parallel to their domestication in the mainland. The lithic industries also follow the main trends of evolution as on the continent, with however more and more marked local Cypriot characteristics. The insularity of Cyprus offers the opportunity to discuss local factors separately from regional trends, to raise the question of prehistoric sailing, and to better understand the role of knowledge and know-how transfer within the Levantine pre-pottery capacity for innovation.

Keywords: Neolithic transition, Southwest Asia, PPN, Cyprus

Marginal? The roles of grasslands in the establishment of Middle East's Neolithic lifeways

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Abstract: The transitional Pleistocene-Holocene evolution of extensive steppes in the „peripheries“ of the Middle East's moderate/ favoured Neolithic “core areas” was a continuous backup for regional aberrations or failures in the sustainable establishment of Neolithic lifeways: Though also affected by major and minor climate oscillations throughout the millennia of the Neolithic Evolution, the relatively reliable steppes' rich plant and animal protein resources functioned as a stable and safeguarding backbone of Neolithic developments; they likely even initiated the productive behaviour becoming characteristic of Neolithic lifeways and the related control of natural resources. For long, the steppes' prospering late hunter/ gatherers communities offered their alternative socio-economic and cognitive paradigms to the innovative polycentric and polycyclic trajectories of Neolithisations in the Fertile Crescent's “core areas”. Only by the advent of incursive pastoralism and hydraulic management did the steppes witness the absorbing/ merging pasto-venatorial lifeways; their transgressive and highly productive land use (including niche agriculture) was chiefly carried on by types of demic diffusion. The consequences of the productive exploitation of the steppes increased their climatic vulnerability, affecting their herbivore populations, pastures and water tables, despite their long-term ecological resilience potential. Grasslands contributed to the cognitive diversity of the Neolithic ethos and created the Middle East's mobile/ settled dichotomy. The contribution refers to the different steppe types that established different socio-economies and suggests similar processes may have been in effect in the Neolithisation of Eurasia, North Africa and North America's Great Central Plains at different times.

Keywords: foraging and productive grassland use, cognitive diversity, split mobile/ settled lifeways

The Bantu Expansion and Low-Level Food Production in Central Africa

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Abstract: In this paper, we review direct archaeological and indirect linguistic evidence for early food production from the Lower Kasai region (DRC). Most archaeological evidence comes from forest species that were possibly foraged, e.g., cooked arrowroot, tubers, and fruit/nuts. Multiple Early and Late Iron Age sites yielded evidence of oil palm exploitation and Musaceae and Cucurbitaceae phytoliths indicate that squashes/gourds and Ensete may have been accessed. At some Late Iron Age sites, charred Poaceae grains and Asteraceae achenes suggest the exploitation of grasslands. These habitats were probably the result of human clearance and cultivation, as the Commelinaceae weeds found at some of these sites are known to favor anthropogenic vegetation communities (Eichhorn et al. 2010). Lexical reconstructions from Proto-West-Coastal Bantu are more decisive in favor of food production because they refer to food crops whose centers of domestication are distant from the Lower Kasai homeland, i.e., different yam species, Bambara groundnut, pumpkin, squash, okra, pepper, amaranth, pearl millet and plantain (see also Bostoën & Koni Muluwa 2017; Van Acker et al. 2021). Before West-Coastal Bantu speakers started to expand towards the Atlantic coast, early Bantu speakers settling south of the Congo Forest relied on domesticated food plants for their subsistence. This does not mean that they had become full-blown farmers whose principal or only source of plant food procurement and production consisted of domesticated crops. Within the middle ground between hunting-gathering and agriculture, their mixed subsistence economy can probably best be characterized as “low-level food production with domesticates” (Smith 2001:15).

Keywords: Bantu Expansion, Central Africa, food production, language dispersal, Iron Age

Thinking globally: the Neolithization of the Nile Valley.

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Abstract: There is little consensus on the use of the term “Neolithization” in an African context, and food production is usually described using terms which underline the nature of the subsistence system. To date, all of Africa, the Nile valley included, is simply seen as a land of shepherds and pastoralism. This view has been challenged but most Africanists tend to affirm the uniqueness of the continent in the development of its food-producing economy and in isolation from the surrounding regions. Although the Nile valley and Mediterranean North Africa may have had a shared role in this process, this has hardly been studied. Knowledge of the Nile valley region during the Early-Middle Holocene is patchy, vast areas have been only sporadically explored and none systematically. Inhospitable deserts, once part of the Green Sahara belt, provide evidence which cannot be chronologically interpreted in isolation. Bioarchaeological remains, whether faunal, botanical, or human osteological, are frequently affected by post-depositional processes and do not always provide identifiable elements. Moreover, fieldwork methodologies are highly uneven, further impacting on the quality of the data and interpretations. However, many of the limits posed by the poor preservation condition of the archaeological proxies can now be overcome by alternative methods of investigation, providing insights into the fundamental issue of Neolithization. This new analysis of data relating to the Nile Valley aims to illustrate the state of art and develop a more global thinking as to the evolution of this region in relation to the neighbouring Near East.

Keywords: Nile Valley, Early-Middle Holocene, Neolithisation, Global review

Late Pleistocene Ethiopian Hunter-Gatherer Origin of Afroasiatic Peoples and the Role of Food Production in Holocene Dispersals

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Abstract: We draw upon new and reinterpreted archaeological and historic linguistic data to develop a unified theory for the geo-economic evolution of Afroasiatic peoples. During the Last Glacial >15kya, eastern African hunter-gatherers aggregated into southwest Ethiopian tropical highland refugia where Proto-Afroasiatic (PAA) emerged. PAA bifurcated ~15-10kya into: Omotic, whose foragers focused on tropical highland foods (e.g. enset) and remained hunter-gatherers into the late Holocene; and Cushitic whose hunter-gatherers spread into surrounding diverse habitats including the Nile Basin. By 8000bp climatic/social perturbations plus Southwest Asian (SWA) domesticates fragmented Upper Egypt Cushitic: Egyptians developed agriculture, Berber pastoralists dispersed to the west and Semitic herders migrated into the Levant. Later, regional Cushitic food production systems emerged further south. Nile-Cushitic differentiated into Chadic as agro-pastoralists dispersed west, while Northern-Cushitic (Beja) pastoralists occupied the Red Sea area. By 5000-4500bp Southern-Cushitic pastoralists dispersed through southern Ethiopia into Kenya, then Tanzania, followed by Eastern-Cushitic herders who also spread into the Ethiopian/Afar Rifts and eastern Horn. In the northern Ethiopian/southern Eritrean highlands, Central-Cushites developed agro-pastoralism. After 5500 BP core Mesopotamian Semitic split into North/Central/South branches, then Epigraphic Old South Arabian (EOSA) in Yemen. By 3000bp EOSA Sabaeans introducing new architectural/agricultural methods, and Pre-Aksumite agro-pastoralists utilizing SWA/African domesticates, established Ethiosemitic. After ~2000BP Ethiosemitic and ard-based t'eff farming characterized Aksumite and subsequent "Solomonic" kingdoms. All contemporary Ethiosemitic peoples derive from these polities except the Gurage who may represent an independent expansion of transhumant rift-highland agro-pastoralists who adopted enset farming and permanently settled in the south-central Ethiopian highlands prior to Ethiosemitic incursions.

Keywords: Afroasiatic Origins, Foragers, Food Production, Ethiopia Africa, Archaeology
Historical Linguistics

The origins of agriculture in southwest Asia: a regional overview

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Abstract: Two are the models that have been traditionally put forward to explain the shift to agriculture in southwest Asia: one that considers it a short revolutionary event that occurred in a specific region (e.g. southeast Turkey); and the other one that views it as a protracted and multi-regional process. In this presentation we confront these two models to provide fresh new insights into this fundamental change in human history. We first discuss the key concepts commonly used in the literature (e.g. cultivation, domestication, agriculture), and highlight the methodological limitations we face to recognise these in the archaeological record. We then provide a regional overview of the archaeobotanical evidence available to date, with a particular focus on cereals (wheat and barley). Our dataset includes a total of 84 sites dated from the Early Epipalaeolithic to the late Pre-Pottery Neolithic B (23-8.5 ka cal. BP) and located across the region. Acknowledging current gaps and methodological limitations, we show regional and chronological patterns in the exploitation of cereals, with a marked increase in their exploitation occurring during the Pre-Pottery Neolithic A in the southern and northern Levant, and later in other parts of the region. We conclude that despite decades of research, our knowledge about the origins of plant food production in southwest Asia is still biased and incomplete; that not a single, but most probably multiple “core-areas” for plant domestication existed; and that the management and domestication process of plants other than the traditional “founder crops” remains still to be elucidated.

Keywords: Domestication, Pre-Pottery Neolithic, Epipalaeolithic, Cereals, Plant management

The Formation and Early Development of Farming Society in the Yangtze Valley, Southern China

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Abstract: Recent archaeological findings and archaeobotanical studies over the past decades have progressively elucidated the process of rice domestication and the consequent formation of agricultural society in the Yangtze Valley. Significant Neolithic technological innovations began to appear after 20,000 cal. BP, most notably the emergence of pottery at several cave sites. Additionally, sparse evidence of rice phytoliths has been reported from sites such as the Diaotonghuan shelter and Yahuai cave. The most reliable early evidence of rice utilization stems from the Shangshan culture in the southern part of the lower Yangtze Valley, which is contemporaneous with the advent of sedentary lifestyles, dating approximately to 10,000 cal. BP. Clear signs of rice domestication are evident by around 9,000 cal. BP. Besides this region, the Liyang plain in the middle Yangtze Valley is also considered a potential origin center, though targeted research in this area remains sparse. By around 8500 cal. BP, rice appears to have spread to various surrounding regions, as evidenced by findings from sites such as Baligang, Jiahu, and Shunshanji. However, from 8000 to 6000 cal. BP, agricultural development and population growth in most regions of the Yangtze Valley progressed very slowly, likely hampered by varying environmental challenges. It was not until around 6000 cal. BP that substantial agricultural expansion and population increases occurred in most areas, ultimately leading to the emergence of early complex societies in the middle and lower Yangtze Valley, exemplified by the Shijiahe and Liangzhu cultures.

Keywords: rice domestication, farming society, population growth, Yangtze valley, Southern China

The Neolithization Process in Northern China: Emergence of Pottery, Sedentary Societies and Millet Agriculture

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Abstract: The East Asian region is commonly considered as a typical model of neolithization, in which the introduction of pottery precedes the establishment of sedentary agricultural communities. This study aims to explore the applicability of this developmental framework by examining archaeological evidence encompassing early potteries, microlithic and grounding stone tools, fauna and botanical remains, as well as signs of sedentism in the northern China. Drawing on the recent archaeological findings at Xinglong 兴隆 and Sita 四台 sites, the paper delineates the shift from settled foraging societies to millets farming communities in the Bashang 坝上 region, located at the southeastern periphery of the Mongolian Plateau. This discourse delves into the concept of the "agricultural origin at the periphery" and highlights the importance of the transitional zone between the Loess Plateau, the North China Plain, and the Northeast China Plain as a crucial locus for the origin of millet agriculture.

Keywords: North China, millet agriculture, Neolithization Process, Sedentary society

Rethinking the Emergence of Early Village Life in North China: Perspectives from the Recent Archaeological Discoveries

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Abstract: The transition from mobile foraging societies to settled agricultural communities is a critical period in human history. The origin of agriculture is a long-standing but unresolved question in Chinese archaeology. Recently a series of archaeological sites including Sitai 四台, Xinglong 兴隆 and Simagou 四麻沟 have been excavated, they provide us an opportunity to rethink the emergence of early village life in North China. By integrating new archaeological discoveries, this paper combines evidence from settlement patterns, plant and animal remains and tool assemblages to reveal the socio-economic changes during the trajectory from mobile foraging society to settled agricultural communities. We propose that the emergence of early village life in North China was not a linear or uniform process, but a complex interplay of environmental, cultural, and technological factors. Contrary to earlier models that emphasized a rapid shift due to agricultural advancements, our findings suggest a gradual and region-specific transition, influenced heavily by local environmental conditions and cultural exchanges with neighboring regions. During the process, public ritual activities played an important role in integrating the community as a whole.

Keywords: North China, food production, sedentism, early village life, social organization

A Neolithic of the New Guinea region and its relevance to global discussions of the human past

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Abstract: For decades the Neolithic in the New Guinea region has been exclusively associated with large scale immigration of Peoples from Island Southeast Asia who introduced pottery, domestic animals, and adapted root crops into island-based agricultural systems from around 3300 years ago, defined as the Lapita Cultural Complex. It has long been established that agriculture developed independently of external influences in highland valleys of Papua New Guinea from at least 7000 years ago, with augmentation of garden systems occurring over subsequent millennia. However, there has been limited resolution of settlement and social life in archaeological records over the same time period across highland, lowland and island environments that has effectively limited the inclusion of the New Guinea region in global discussions relating to the possible influences of agriculture on the trajectories of population histories. A key issue at the forefront of discussions is the relevance of Neolithic as a heuristic framework for interpreting human pasts in the New Guinea region. This talk will critically outline recent archaeological evidence for human settlement in the New Guinea region, drawing also on genetic, linguistic, and biological research to highlight the complex dynamics of the human past. It is argued that Neolithic is relevant but needs to be explicitly considered in the geographic and cultural contexts of the New Guinea region rather than from a Eurasian perspective.

Keywords: New Guinea, Neolithic, Holocene, Pacific region

The Origins and Spread of Agriculture in Mesoamerica, Central, and South America: Where Are We Now?

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Abstract: This paper reviews agricultural origins and diffusions in Mesoamerica, Central, and South America. The empirical evidence in all regions is increasingly multi-proxy with micro-botanical plant remains (phytoliths and starch grains) joining with macro-fossils and isotopes, and results coming from a variety of cultural remains such as human teeth and artifacts. Present evidence indicates that between 10,500 and 9000 cal BP dedicated systems of food production composed of a variety of seed, root, and tree crops were established in the forested humid lowlands and mid-elevations of Mesoamerica and South America. Crops included maize, manioc, lerén, a number of species of squashes, probably Phaseolus beans, peanuts, chile peppers, and avocados. In South America, food production origins were diffuse involving areas from the north to the south of the continent and indicating independent developments in them. Early domesticated plants and sometimes incompletely domesticated versions of them, such as maize and peanuts, spread quickly, indicating early sustained cultural interactions and exchanges of crops and/or human demographic movements, the latter revealed in some regions by ancient DNA data. Agriculture in the dry highland regions of South America is currently dated later than in the lowlands, but much more evidence is needed. A deeper understanding of the How of plant domestication is being uncovered by attention to the influence of phenotypic (developmental) plasticity on wild progenitor morphological traits. Future work should include emphases on understudied regions of the lowlands and highlands, cultural exchanges and population movements, and aDNA analysis of crops and their cultivators when possible.

Keywords: Agricultural origins, Mesoamerica, Central, and South America

Maize Domestication and Dispersal in the Americas

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Abstract: Research during the last four decades has transformed our understanding of maize domestication and dispersal in the Americas. Here we synthesize current genetic, paleoecological, and archaeological data regarding the development of this globally important crop. Evidence indicates initial domestication from teosinte (*Zea mays*, ssp. *parviglumis*) in the Balsas region of southwestern Mexico by ~9,000 BP. This was followed by early cultivation in this region and rapid dispersal through Central and South America soon afterward. Recent genetic evidence suggests a subsequent wave of expansion after admixture with a second wild teosinte in the highlands of Mexico. The earliest cobs from the highlands of Oaxaca (6,250 BP) and Tehuacan (5,300 BP) are small and aDNA indicates the domestication syndrome was not fixed. Secondary improvement occurred in South America and Mesoamerica by at least ~6,700 and ~4,300 BP, respectively, with larger, multi-rowed varieties appearing when isotope studies show consumption as a dietary staple. Genetic data suggests subsequent gene flow between Mesoamerica and South America during this interval. Maize was introduced into the southwestern US from the arid highlands of Mexico by 4,000 BP and temperate adapted varieties emerged by 1,900 BP promoting the late dispersal into eastern North America.

Keywords: Domestication, Agriculture, Demography, Americas, Maize

New advances in understanding the early adoption of plant-based diets in the northern neotropics

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Abstract: Despite a century of research into the lives and diets of the northern neotropics' earliest populations, understandings of the impact of food production and consumption on diet remains impoverished in some regions. Our investigations at two rockshelters in the Maya Mountains of southern Belize are fundamentally changing the view of early human cultivation strategies in what became the Maya speaking lowlands. We identify formal grinding stones by 9,500 Cal. BP associated with a large plaster floor dating before 10,000 Cal. BP that may have been an early domestic space, suggesting new subsistence practices were associated with new lifeways. Microbotanical starch grains extracted from ancient dental calculus and grinding stones show a diet with a variety of root, tuber, and seed plants such as Dioscorea, Heliconia, and palms by ca. 8,300 Cal. BP. Domesticated chili peppers were being consumed by that time. By 7,500 Cal. BP Zea mays and a domesticated Cucurbita sp, arrived in the region. Changes in chipped stone tools, including the abandonment of bifacial blade manufacturing technologies, suggest that foraging strategies with high residential mobility ended before 8,000 Cal. BP, as people increased investments in extensive plant cultivation, particularly along alluvial terraces and wetland margins. Gradual demographic growth after 5,000 Cal. BP follows the arrival of more productive varieties of maize into the lowlands, including those with larger cobs and more seed rows. Niche construction related to intensification of farming these improved maize varieties provide the subsistence context for explosive population growth between 4,000 and 2,700 Cal. BP.

Keywords: Origins of farming, Subsistence patterns, Neotropics, Neolithic, Human Behavioral

On the two-step Agricultural Demographic Transition in Mesoamerica

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Abstract: Populations in ancient Mesoamerica underwent a two-step agricultural demographic transition. Both steps were associated with village life and the use of well-fired ceramic containers in at least parts of what would become Mesoamerica. The initial stage of the transition, during the second millennium BC, was widely scattered in occurrence but of limited impact in terms of spatial scale. The subsequent stage occurred mostly during the early-to-mid first millennium BC. Its impact was dramatic, yielding a rapid proliferation of farming villages in one region after another throughout Mesoamerica. This paper describes the model of a two-step transition, assesses the degree to which it might be explicable in relation to the changing productivity of maize, and notes evidence for regional variability in the timing and character of the stages.

Keywords: agricultural demographic transition, Mesoamerica, Neolithic, maize, Formative

Forest Islands, Anthrosols, and Drained Fields: Foraging to Food-Production Trajectories in Amazonia

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Abstract: Amazonia was peopled during the end of the last Ice Age by at least 13,000 years before the present by foragers with a generalised subsistence combining palms, tree fruits, and underground tubers with medium and small mammals, amphibians and fish. From the outset, humans have markedly altered the landscape, with lasting repercussions for habitat heterogeneity and species conservation, underscoring the strong relationship between landscape and plant domestication that took place in Amazonian environments. Amazonia was an early centre of plant cultivation and the birthplace of globally significant crops such as manioc, yams, and sweet potatoes, to mention a few. During the mid-Holocene, Amazonian people domesticated cacao in the montane forests of the Ecuadorian Andes ~5,000 years and rice ~4,000 years in the wetlands of the Guaporé-Itenéz River. Several millennia will pass from the beginning of plant domestication to the settled agricultural societies of the late Holocene. During the late Holocene, Amazonian people began to transform the landscape at a scale not seen before. Vast expanses of seasonally flooded savannahs were transformed into raised-field agricultural landscapes while Amazonian anthrosols, the Amazonian Dark Earths (ADEs). Polyculture agroforestry in ADEs through soil fertilisation, closed-canopy forest enrichment, limited clearing for mixed cropping and low-severity fire management supported large populations, leaving an enduring legacy on modern forest composition. The late Holocene witnessed hierarchical urban-scale societies organised in regional polities and made major investments in physical infrastructure for food production. These major hallmarks of Amazonia are presented and compared globally.

Keywords: South America, Amazonia, Plant Domestication, Food Production, Anthrosols

Domestication of Earth and Sky in Later Holocene Amazonia

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Abstract: This paper considers the scale and variation of Indigenous knowledge and technologies of land management and food production over the past several millennia in Amazonia, in comparison with other forest civilizations in the Americas and Global South. Food production systems in tropical areas, including semi-intensive forest and wetland management, emphasis on roots and fruits, and resource extraction within environments marked by natural and human-induced hyper-diversity and abundance, are like the alter-egos of the Old World Neolithic. In several parts of Amazonia, complex systems of land management, based in precise engineering, cylindrical and astronomical knowledge, peaked in the terminal Holocene, ca. 1350-1500 CE, before disruption, depopulation and rapid forest rebound during the Little Ice Age (ca. 1500-1800 CE). These systems included complex forest and fish farming, elite ritual and prestige goods economics, and complex zoning and traffic patterns in integrated networks in the later Holocene, which resulted in forest to forest conversion rather than conversion of forest to open farmland. These systems emphasized organic technologies and industrial plants, as critical as food plants in land management systems and overall impact on forested landscapes. Evidence suggests that dynamic change in these socio-ecological systems may have been in part linked to intentional interventions to promote forest resiliency during the Medieval Warm Period (ca. 1000-1350 CE). This has important implications for the southern transitional forest ecoregion in the Current Warm Period, as ground-zero to the Amazonian tipping event witnessed today, informing sustainable forest and wetland management and foregrounding Indigenous heritage rights.

Keywords: Amazonia, forest farming, garden cities, forest and wetland resilience, food and industrial crops

G04 - Population Dynamics in Pre-state Farming Societies

Session Organiser

Peter Turchin / Complexity Science Hub Vienna, Austria

Daniel Kondor / Complexity Science Hub Vienna, Austria

Abstract

While theorists originally assumed that population dynamics of early farmers can be described by a logistic S-shaped curve, evidence is accumulating that initial increases were often followed by population declines. This pattern is evident both in population proxies based on archaeological indicators, and in regional and continental-scale studies of aggregated radiocarbon (^{14}C) dates.

In the session we want to address the question whether boom/bust cycles are a universal feature of early farming societies, and if not, what is the relative frequency of such dynamics?

We welcome comparative studies, either among different regions, or among different population proxies in the same region. To facilitate a meaningful discussion and debate, we also highly encourage the participation from scholars whose work shows evidence against boom/bust patterns in any region.

In line with the above, we aim to have a session that covers the following topics in a balanced way:

- Case studies of estimating population numbers and main conclusions.
- Case studies from outside of Europe specifically Africa would be very welcome.
- Studies that perform a systematic comparison among world regions and argue for or against universal patterns.
- Studies that compare ^{14}C -based results with other proxies; studies that take a multi-proxy approach and estimate population numbers from a combination of evidence.
- Studies that build and present large-scale databases of available evidence and develop methodology for preprocessing, processing and analyzing the data in them.
- Studies that present and evaluate possible causes of population declines.

A Paradigm Shift in Understanding Human Population Dynamics

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Abstract: Researchers on human populations have conceptualized population dynamics as either boundless growth or growth to an equilibrium. The implicit assumption underlying these paradigms is that any feedback processes regulating population density, if they exist, operate on a fast-time-scale, and therefore we do not expect to observe population oscillations in human population numbers. I argue that population processes in historical and prehistorical human populations are characterized by second-order feedback loops, that is, regulation involving lags. The implication for understanding population change in pre-industrial populations is that what may appear as inexplicable, exogenously driven reverses in population trends may actually be a result of feedbacks operating with substantial time lags. A survey of a variety of historical and archeological data indicates that slow oscillations in population numbers, with periods of multiple centuries, are observed in a number of world regions and time periods. These empirical findings lead us to the next big question: what are the second-order processes that generate boom-bust cycles in human population numbers?

Keywords: dynamics, cycles, population

A multi-scalar study of population growth dynamics in small-scale societies

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Abstract: Archaeological data synthesis now reveals that small-scale societies often experienced cycles of population growth and decline during the Holocene. These cycles may occur at multiple time-scales, but are not universal across all time-scales. In this paper, we evaluate the hypothesis that where farming practices spread into a region as a developed package, populations grew and filled space quickly, generating an inertia of labor intensification and competition for resources that more quickly results in population cycles. Conversely, where populations adopt farming practices incrementally over centuries through experimentation, populations fill space more slowly, experience more continuous innovations in infrastructure, and display a more S-shaped long-term trajectory of population growth with less violent oscillations. We test this hypothesis by stratifying regions along a continuum from the slow, in situ adoption of farming through experimentation to the initial spread of a well-developed farming package. We develop a multi-scaled analysis by comparing cases from the Americas, Africa, and Eurasia, and by zooming in on the deserts of North America. Our analysis integrates multiple types of data that estimate changes in resource consumption, social integration, and population density. We propose that the spread of a mature infrastructure package into a region creates fast development, but the momentum of the system may make it harder to innovate new infrastructure packages in the future. Testing this hypothesis contributes to understanding why some archaeological regions experience repeated cycles of growth and decline, while other regions may display long-term trajectories of growth more similar to an S-shaped curve.

Keywords: Population dynamics, Cultural Evolution, Innovation, Adoption of Agriculture, Multiple Proxy Integration

Estimating the Prevalence of Post-Agricultural Population Declines through the Global Radiocarbon Record

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Abstract: “Boom and bust” population dynamics are inferred to have followed the emergence or introduction of agriculture in several parts of the world. However, it is not currently understood whether this trend is intrinsic to prehistoric agriculture or contingent on other factors. Here we show how two large recently-available open archaeological datasets—XRONOS and ArchaeoGLOBE—can extend the geographic scope of previous analyses and reach an estimate of the global prevalence of post-agricultural population declines. XRONOS is a global database of radiocarbon dates and other chronometric information, which can (with several caveats) be taken as a population proxy. ArchaeoGLOBE contains estimates of prehistoric and historic land use in different regions based on an expert consensus model. Combining these sources provides a measure of demographic development relative to regional agricultural onset, on a (near-)global scale. Our preliminary results show evidence of post-agricultural population declines in multiple discontinuous regions, in line with previous findings. However, they are not seen everywhere, and where they are the magnitude and temporality of the trend varies significantly. We suggest that this variance indicates that the “boom and bust” dynamic must be contingent on other, local factors, and offer some tentative indications of what these might be. We also discuss the limitations of this methodology—in particular the uneven coverage and quality of the global radiocarbon record, the lack of purely empirical estimates of agricultural onset for many regions, and reliance on aggregated radiocarbon data as a single demographic proxy—and suggest some ways it could be refined in future work.

Keywords: demography, radiocarbon, agriculture

Population densities and social levelling mechanisms: from small to mega-sites

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Abstract: The reconstruction of population densities within European prehistory has repeatedly identified cases in which population reduction as well as population consolidation can be recognised as a means of creating social equality. Based on two local examples (Tell-site and Mega-site), demographic developments at the meso- and macro level will also be presented, which have socio-economic causes.

Keywords: archaeodemography, neolithic, mega-sites, tells, socio-economy

ESTER: Estimation of the prehistoric population of Eurasia based on a large number of records

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Abstract: Understanding population trends over the past 12,000 years is key to unraveling social development complexities. Population size impacts social structures, exchange systems, environmental interactions, cultural transmission, and societal resilience. Current global population estimates since the 1970s rely on limited data and deductive methods, complicating accurate prehistoric assessments. However, regional studies, new data sources, and innovative methods, such as the XRONOS database, offer new possibilities. The ESTER project employs hierarchical Bayesian modeling and data assimilation techniques to integrate diverse big data into population development models. This approach evaluates data reliability, compensates for missing information, and provides regional estimates, balancing varying data availability. Focused on Europe and Western Asia from 12,000 to 2,000 BP, the project aims to provide the first big-data-based regionalized population estimate. ESTER introduces a novel methodology for investigating cultural and social configurations dependent on population numbers, offering confidence intervals, 50-year temporal resolution, and absolute population numbers. These results can test causal relationships with climatic changes and volcanic eruptions. Beyond archaeology, they provide indicators for human impact and land use, aiding palaeosciences in exploring human-environment relationships with unprecedented quality and reliability, enhancing our understanding of the past and its connection to ongoing global change. This presentation will introduce ESTER's approach and the first results of a pilot study, showcasing the project's methodologies and implementation to the research community.

Keywords: Hierarchical Bayesian Modeling, Regional Population Estimates, Human-Environment Relationships

Approaching population proxies from a modeling perspective

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G04

¹Complexity Science Hub

Abstract: The transformational events during the Neolithic have a profound importance as the most likely starting point of long-term scaling-up processes in terms of human social, political and economic organization. A better understanding of group-level behaviors and the political dynamics of this period will be crucial in addressing long-standing questions about cooperation and competition among humans. However, testing hypotheses and models built to represent these require good quality data and an awareness of methodological limitations. In this presentation, I will give a short overview of theoretical questions that we aim to study with agent-based modeling, and our efforts to be able to inform and test models based on the limited amount of data available from human prehistory. Based on our experience of approaching population dynamics in Mid-Holocene Europe, I will review the data needs for computational modeling and discuss how these correspond to currently existing types of archaeological indicators, proxies and datasets. I will conclude with reviewing a set of outstanding questions and possibilities to connect them to data via computational modeling.

Keywords: agent-based modeling, population proxy, population dynamics

Reconsidering arguments for Near Eastern Neolithic high population density, population growth, and early urbanism

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Abstract: Population density is a fundamental parameter in modeling human ecology, population dynamics, and social complexity, and yet it has remained difficult to measure. Population density underpins our modeling and understanding of the emergence, evolution, and abandonment of Late Pre-Pottery Neolithic / Pottery Neolithic village systems. Drawing upon ethnographic, geoarchaeological and archaeological studies, we argue that researchers have historically relied upon spatial information, such as settlement area and architecture, to develop population estimates, but have applied this uncritically. Moreover, demographic analysis of Late Pre-Pottery Neolithic / Pottery Neolithic villages has avoided direct exploration of human population density, generally assuming that villages were characterized by high population density and many people. Critically evaluating historical demographic analysis, in this presentation we argue that the trajectory of Pre-Pottery / Pottery Neolithic villages do not reflect an explosive population baby boom, and high population density. This new analysis has implications for modeling of the evolution and collapse of Neolithic villages.

Keywords: Demography, Neolithic population density, Population growth, Early urbanism

Modeling Cultural Responses to Disease Spread in Neolithic Trypillia Mega-settlements

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Abstract: Infectious diseases are among the strongest selective pressures on human genetic evolution. An “epidemiological transition” of infectious diseases likely began thousands of years ago, with early farmers living in close proximity to each other along with animals and their waste. As zoonotic diseases such as salmonella, measles, tuberculosis, viral hepatitis, cholera and typhoid co-evolved with early agriculture, social distancing within dense human settlement could have conferred a selective advantage in terms of infection risk. Here we consider the case of Trypillia mega-settlements (ca. 4,000–3400 cal B.C.), as virulent diseases began affecting humans across 300,000 km² of the forest–steppe interfluvium between the Bug and Dnieper rivers of west-central Ukraine. Through epidemiological (SIRS) models situated on clustered networks and on a site plan of a Trypillia mega-settlement (Maidanetske) we show the adaptive benefits of decreasing either occupation density or the frequency of interactions with other communities across the settlement. We then explore critical thresholds in these parameters that may shed light on the fluctuations of population densities at Trypillia mega-settlements. Our findings suggest strongly that disease was likely a significant driver of human settlement patterns in early Neolithic times.

Keywords: Trypillia mega-settlements zoonoses burning Neolithic

Population dynamic in the southwestern Baltic during the Neolithic and Bronze Age

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Abstract: In recent years, there have been several attempts to reconstruct the population size of prehistoric societies. Understanding demography is essential for comprehending socio-cultural transformations, as demographic patterns have long been recognized as major drivers of social change and complex dynamics. This paper aims to study population dynamics and land-use patterns in the Southwestern Baltic region during the Neolithic and Bronze Age. The methodology applied here integrates heterogeneous data sources and various scales of analyses, addressing data uncertainty and homogenization issues common in large-scale studies. The study identified patterns of growth and decline in absolute demographic estimates. These patterns align with the boom-and-bust phases identified in the literature for many European regions. However, each region exhibited distinct patterns in terms of absolute change and the timing of peaks, which cannot be observed at regional or supra-regional scales. Despite these differences, global population trends across sub-regions were identifiable, with a general demographic increase during the Early Neolithic, peaking in the Middle Neolithic, followed by a period of lower population densities during the Younger Neolithic. The patterns for the Late Neolithic and Bronze Age varied depending on the region. Comparisons with other studies indicate that while general global trends were accurately identified, some trends are either smoothed out or incorrectly identified in large-scale studies, underscoring the importance of a localized and formal approach to studying past population dynamics.

Keywords: Prehistoric demography, Neolithic, Bronze Age, Spatial Statistics

Moving on? Early Neolithic Population and Settlement Potential in Central Europe (LBK; 5400 – 4950 BCE)

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Abstract: The LBK (Linearbandkeramik; 5400 – 4950 BCE) constitutes the earliest Neolithic in Central Europe. As one of the best-studied cultural phenomena of European Prehistory, it is used as model case study for a “boom and bust” cycle in population dynamics. Alas, LBK settlement development is not well understood. First, the limited number of case studies prove to be complex on closer examination. Additionally, the internal demographic trajectories are superimposed by a second dynamic. The LBK can be divided into two phases, the oldest and the younger one. In the latter, the settlement areas were not only enlarged considerably, but also new regions were incorporated into the system. It is unclear to what extent this was a result of demographic growth within the consolidated oldest LBK and how much a new wave of population from the area of origin contributed. Within a case study of the HESCOR project, the respective settlement potential for the two phases is modelled. The model, derived from the “Human Existence Potential” (HEP) developed for the Palaeolithic and adapted to farming societies, takes into account environmental variables (namely climatic factors and soil fertility) and couples them with site distribution. The results are related to available data on settlement development, demographic estimations and land use, shedding a new light on the diachronic development within the LBK. The study offers insights into the population dynamics in Central Europe at the beginning of the Neolithic and the influence of environmental factors behind demographic developments.

Keywords: LBK, demography, settlement potential, population dynamics, Central Europe

A multiscale approach to understanding boom-bust dynamics in European Neolithic societies

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Abstract: An increasing number of studies focus on population boom-bust dynamics in Mid-Holocene societies. While the phenomenon is reasonably well described and accepted, the potential triggering or forcing factors of these dynamics are still widely debated. In our studies, we use a simple basic template of cycling social cohesion, extracted from social information coded on ceramics, based on matching the typo-chronological ordering of ceramics to population proxies. This allows us to formulate narratives on a local and regional scale in which endogenous and exogenous factors interact. At first, beneficial climate/environment circumstances lead to population rises, societies formed based on a shared social identity and strong cohesion between sub-groups. Eventually a still little understood social tipping point leads to an increase in social violence, sometimes warfare within and between entities. Societies in such terminal phases drift towards strong social cohesion within sub-groups, increasing competition between sub-groups, along with increasing rigidity and violence. If this degenerate phase is paralleled by adverse climate, the bust is accentuated. Such boom-bust-cycles also appear on continental scales, revealing predominant patterns shaped by large-scale social processes like population movements.

Keywords: boom-bust dynamics, social cohesion

Exploring the population gap of the transition period from the Stone Age to the Bronze Age in Estonia with radiocarbon data

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Abstract: The transition from the Stone Age to the Bronze Age in Estonia presents an important yet understudied phase in the region's prehistory, characterised by significant population dynamics. During the 3rd millennium BCE, Estonia was inhabited by the Comb Ware culture and the Corded Ware culture. These groups had different material cultures, genetic origins and subsistence systems, with the first following hunter-gatherer lifeways while the former introduced agriculture to the region. However, by the beginning of the 2nd millennium BCE, both cultures had markedly declined, leading to almost a millennium-long period with sparse archaeological evidence, followed by Bronze Age societies with new genetic origins and material culture. This study employs summed probability distributions of radiocarbon dates to investigate the population trajectories of these societies, giving a new perspective on the old research question. Using the method, we pinpoint the period of decline in the archaeological record and relate it to available archaeological evidence. We integrate multiple proxies, including pollen studies and archaeological finds, to reconstruct human activity and settlement patterns during this critical transitional period. The data enables us to explore the potential effects of taphonomy versus population size. We study Estonian population proxies within wider geographical contexts. This research contributes to the broader understanding of Neolithic population dynamics by highlighting the unique pathways of cultural and demographic change in Northern Europe. By addressing the relative frequency and causes of population declines, our study seeks to provide a new perspective on the population dynamics of early farming communities.

Keywords: population dynamics, radiocarbon dating, early farming societies, radiocarbon summed probability distributions

Reconstruction of population dynamics in early farming societies using Bayesian modelling of C14 settlement data. Case study from Morava River basin, Central Europe

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Abstract: The aim of the paper is to explain the settlement and population dynamics in the Neolithic and Eneolithic Central Europe (c. 5400 - 2500 BC) with focus on the Morava River basin region. The analyzed time span starts with the first agricultural settlements, characterized by Anatolian-related ancestry and unified material culture (traditionally labeled as Linear Pottery culture), and ends with a diversification of ceramic traditions and the presumed first migratory waves of populations with steppe-related ancestry. To reconstruct the population dynamics in this region, we use Bayesian modelling of radiocarbon dates (e.g. KDE) from several thousand farming settlements, validated by counts of settlement sites in each time period. Then we compare the modelled booms and boosts of regional population dynamics with the changes in the typo-chronological development of pottery (i.e. the traditional indicator of archaeological cultures), as well as the development and decline of distribution networks, settlement breaks, and migrations of populations that may be associated with the emergence of new technologies, material culture styles, or burial rites. Such an approach will show using quantifiable data is important for explaining spatio-temporal phenomena and seems to be an adequate alternative to categorization in the form of archaeological cultures.

Keywords: settlement dynamic, Bayesian modelling, C14

Prehistoric Progress: Innovations, Population Growth, and Human Well-Being among Cucuteni-Trypillia Societies

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Abstract: The Neo- and Eneolithic Cucuteni-Trypillia societies, flourishing between 5050 and 2950 BCE in the forest-steppe between the Carpathian Mountains and the Dnipro River, present a compelling case where the introduction of innovations in an "innovation horizon" catalyzed significant population growth and sustained human well-being. The emergence of Trypillia megasites, some of the largest settlements in prehistoric Eurasia, underscores this unique dynamic. Key social and technological advancements, including animal traction and potentially the plough, advances in textile production, updraught pottery kilns, and the very early appearance of community buildings during Precucuteni times, facilitated the establishment and growth of these extensive communities. By examining human development indicators for communal participation and social inequality, we show how the fruits of innovations were not seized by an elite but instead resulted in a prolonged period of prosperity and equality. Finally, this case study provokes a crucial reevaluation of the interplay between innovation, population dynamics, and human well-being in ancient societies.

Keywords: Innovations, Megasites, Demography, Human well-being, Social inequality

Population, subsistence, and wealth dynamics in three precocious, non-state North American societies: Exploring and Enhancing Malthus-Boserup models

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Abstract: We disentangle causality during the agricultural demographic transition (ADT) in North America to understand the relationships between the adoption of domesticated plants, changing fertility rates, energy throughput, and inequality in the Upland Southwest, Desert Southwest, and Midwest. We proxy these variables using macrobotanical data, juvenility indices, radiocarbon (and dendrochronological) time-series, and wealth inequality data derived from Gini coefficients calculated on disparities in size of residential units, respectively. Drawing inspiration from Malthus-Boserup models, subsistence innovations resulting in high rates of population growth eventually lead to increased wealth inequality, treating wealth inequality as one symptom of the increasing costs of social integration as populations approach resource limits (or perhaps innovation ceilings). High population sizes increase the lagged impact of humans on wild and domesticated resources, eventually leading to large population busts, which (in the cases at hand) were exacerbated by climatic downturns affecting agricultural production. High wealth inequality (HWI) tends to be concentrated in the same population centers that are the engines for innovation. HWI in conjunction with high population may aggravate societal schisms that promote violent conflict, which may in turn lead to increased population fluctuations either directly through mortality or indirectly through reduced growth if innovation centers are depopulated.

Keywords: North America, wealth inequality, population dynamics

Demography in Non-state Farming Societies Is More than Just Population Size

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Abstract: Attention to demography in non-state farming societies has conventionally focused strongly on population growth and decline, but how population is distributed also plays a pivotal role in the dynamics of social and economic change. Interaction within local communities is especially sensitive to residential density (household spacing). In particular, the intense and frequent interaction required for much productive differentiation and economic interdependence in the basic necessities of daily life is greatly facilitated by (and strongly encourages) high residential densities. The well-integrated local economy such a situation represents can open a door to the accumulation of wealth in the hands of a few and the emergence, in the process we have called "chiefdomization," of strongly hierarchical social organization based on resource control. But it does not always work this way. Sometimes households are spaced far apart, as in settlement systems consisting of dispersed villages or scattered farmsteads. Under these circumstances, the costs of intensive interaction rise, and productive differentiation tends to be less and local economies, less integrated. Chiefdomization can still produce strongly hierarchical social organization, but it tends to center on ritual-based prestige rather than wealth. And strong hierarchy is not the inevitable product of chiefdomization, even in high residential densities. Some trajectories with very close household spacing and well-integrated local economies, nonetheless follow a pathway with minimal wealth accumulation and extremely weak hierarchy.

Keywords: Residential density, Productive differentiation, Wealth, Prestige, Local economy

G06 - Climate Change as a Pacemaker of Neolithic Cultural Change: Global Perspectives

Session Organiser

Neil Roberts / University of Plymouth/ University of Oxford, UK
Catherine Kuzucuoğlu / CNRS Emeritus DR1, France

Abstract

The idea that changes in climate have acted as a stimulus for events in human history is a long-standing one. Some of this work sees the relationship as a deterministic one, in which climatic adversity prompted societal decline or collapse, often inferred from archaeological evidence of regional site abandonment. But whether determinist or possibilist in character, the relationship between climate and society has generally been envisaged as one in which periods of favourable climate would expand the food supply and hence allow human populations to grow. By the same logic, adverse climatic conditions, such as major droughts, have been linked to societal and demographic crises, as the food supply shrank and human populations exceeded the available resources.

In regions such as southwest Asia it has long been hypothesized that the beginnings of Neolithic agriculture were connected to the major shift in global climate at the end of the last Ice Age from cold (and generally dry) to warmer and generally wetter. This session will explore the links between climatic changes and the emergence and spread of early farming societies in different geographical settings where agriculture and sedentary life developed, from Mesoamerica, through Africa and Europe to South and East Asia. It seeks to explore research that critically evaluates the available evidence and is genuinely interdisciplinary in character.

"Noah's Flood" in the Black Sea and the Spread of Neolithic into Europe: Quo Vadis?

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Abstract: Last year we celebrated 30 years since Bill Ryan of Lamont Doherty Earth Observatory at Columbia University, with collaborators from the US and the Former Soviet Union, undertook the research cruise that was to super-charge geological and archaeological research in the Black Sea for decades. In a series of papers, media articles and a popular book they envisioned that the isolated fresh "Black Lake" of the last glacial was catastrophically flooded in the Holocene. The "new" salty Black Sea appeared almost overnight as the level rose by over 100 m, flooding vast areas of previously fertile lands, and chasing Neolithic agriculturists away into Europe. This catastrophe remained preserved in humanity's mythologies as "flood stories" such as Noah's of the Bible. The proposal was met with high enthusiasm and as strong resistance. Here I will review the status and future research directions on the geological plausibility of a catastrophic reconnection of the Black Sea to the global ocean and its potential effects on the spread of Neolithic westward via the Danube Valley, the main migration corridor where Old Europe and Neolithic Farmers interacted.

Keywords: Old Europe mesolithic, First Temperate Neolithic, Danube delta, Iron Gates, Bosphorus

Around the Black Sea: the spread of Neolithic settlements before and after the cooling event 8.2 KY BP

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Abstract: The scale of the impact of the 8.2 KY BP rapid climate event on Neolithic societies is still under discussion. The cooling event probably became one of the reasons for ‘a chain’ migrations from Anatolia to the Northern Black Sea, which were traced to the increasing number of Neolithic sites in the West and North Black Sea region. The climate changes strengthened the already existing processes of human migration and the spreading of agriculture and stockbreeding. Here I concentrate on the spatial and chronological distribution of settlements around the Black Sea region, broadly defined to include the territory of the Ukrainian steppe- and forest-steppe area, the plains at Bulgaria and Romania, the Southern coast of the Black Sea separated by the Pontus Mountains, the Pontus and Taurus mountains and Anatolian Plateau, the Caucasus mountains and the Kuban-Priazov plain. The research aims to follow the dynamics of changes in settlement distribution from 8700 to 7000 years BP. Thereby, we can trace the spreading of the Neolithic sites before the 8.2 Ky BP event – 8700 – 8200 y BP, during the event 8300 – 8100 y BP, and after the event 8100 – 7500 y Bp, and 7500 – 7000 y BP. Mapping of radiocarbon dates around the Black Sea suggests that farming might disperse to the territory of Bulgaria, Romania and Ukraine more actively following the 8.2 ky event.

Keywords: spreading of the Neolith, migration around the Black Sea, GIS mapping

3000 years of climate change impact on early 'pile-dwelling' farming communities around the Alps: New tree-ring-based archaeological and paleoclimatic proxies.

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Abstract: Climatic changes have immediate strong effects on the landscapes in Central Europe, where glaciers, rivers, lakes, and bogs are hydrologically entangled. Their social impact is well documented for the modern era. For the Neolithic, however, climatic changes and social response capabilities are still poorly understood. The dendro-dated 'prehistoric pile dwellings around the Alps', that were labeled UNESCO World heritage in 2011, offer an outstanding research potential to better understand climate change related social vulnerabilities and resilience capabilities. The reconstruction of Holocene climatic changes in the Alps, however, is very complex due to the diverse topography and the geographic location between the Mediterranean and the continental plains. Here we evaluate whether causal relationships might have existed between climatic changes and an observable decline of settlement activities on the shores of the large pre-alpine lakes. Beside well-known proxies, we will explore new temporarily high-resolved tree-ring based paleoclimatic proxy data of $\delta^{18}O$ and $\delta^{13}C$ isotopes from alpine conifers and combine them with tree-ring based reconstructions of settlement frequencies. Statistical significance tests on these archaeological and paleoclimatic time series are used to question the correlation and causality. The hypothesis, that periodically rising lake levels led to the relocation of settlements to the hinterland will be tested by drawing on palynological records. In addition, we examine if observable transformations in pottery styles are chronologically correlated with changes in settlement activities and climate variability – or not.

Keywords: Holocene climatic changes, wetland sites, pile dwellings, lake level fluctuations, tree-ring based paleoclimatic proxies

Changes in LBK settlements correlate with fluctuations in climatic conditions. A palynological view on the Neolithisation of Central Europe

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Abstract: Discussions about the Neolithization of Central Europe have long focused on determining the balance between the spread of new technologies among hunter-gatherers and the migrations of groups of farmers. Although the latest research on aDNA and stable isotopes seems to determine the decisive role of migration, it will be up to palynology to provide data that will determine the scope, intensity and pace of this process. And they will also test the relationship with climate change, which is still an underestimated migration factor, especially in relation to the demographic pressure factor. We present a palynological profile with a high-resolution record of settlement changes on the northern fringes of the Linearbandkeramik (LBK) settlement range. During the period under study (5600-4800 BCE), there were three migrations separated by two drastic population declines. They show a correlation with climate changes that influenced the living conditions of the oldest agricultural communities. The first phase of colonization (5660–5540 BCE) was marked in sedimentation by the presence of cereal pollen grains (*Triticum-t.* and *Hordeum-t.*) and strong traces of anthropopressure that appeared 200-300 years earlier than the expected beginning of agricultural colonization. This provides the basis for a new look at the conditions in which the Neolithization process of Central Europe took place.

Keywords: climate change, Neolithization, Central Europe, Linearbandkeramik

Paleoclimatic Changes on The Southern Kahramanmaraş Region During The Neolithic Period: The Macrophysical Climate Model Approach

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Abstract: As a dominant worldwide phenomenon, climate change has increased in importance. Its multifaceted impacts transcend geographical boundaries, significantly reshaping ecosystems, environments, and human societies. An epoch known as the Holocene began with the end of the Younger Dryas characterized by cold and dry climatic conditions. A gradual warming of the Earth led to the melting of ice sheets, rising sea levels, and a changing in vegetation patterns during this period. This warming trend enabled suitable living conditions and transitioned of hunter-gatherer lifestyles from nomadic to sedentary during the Neolithic Period. Kahramanmaraş is located in the east part of the Turkish Eastern Mediterranean region and borders with Eastern and Southeastern Anatolian regions. This geographical position is amidst the intersection of the road networks running in four directions. Surveys and excavations conducted in this area have clearly shown evidence of inhabitation in southern Kahramanmaraş since the Paleolithic Age. In particular, the region of South Kahramanmaraş came into prominence with the presence of Domuztepe, the largest and centered settlement in Kahramanmaraş and its environs during the Neolithic. This research focuses on the paleoclimatic changes observed and how they affected the region and its inhabitants directly or indirectly during the Neolithic. In this context, a pioneering holistic approach is utilized to reconstruct the region's paleoclimate, integrating proxy data (obtained from regional archaeological and geological studies) and results of the Microphysical Climate Model and GIS analyses. This study seeks to pave the way for further interdisciplinary studies in this region.

Keywords: Paleoclimatic Changes, Neolithic, Climate Modelling, Kahramanmaraş, Domuztepe

Climate as a driver of Neolithic human-environment dynamics on the Konya plain, south central Anatolia

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Abstract: What was the role of climate in the emergence of Neolithic farming communities in southwest Asia? Here I synthesise different lines of evidence from on-site (e.g., excavated floral and faunal remains) and off-site (e.g., sediment cores, proximal and distal) on and around Türkiye's Konya plain. This diverse evidence can be reconciled by recognising that Neolithic environmental conditions were dynamic spatially and temporally. Prior to ~6800 BCE the landscape was a mosaic of seasonally flooded wetlands and drier marl plains, linked to a climate that was wetter than today and, until ~7500 BCE, relatively stable. This was sub-optimal for cereal cultivation but provided a wide variety of natural food resources (fish, marsh plants, wild cattle...); consequently, domesticates did not predominate until the late aceramic Neolithic. By the mid-7th millennium, a drying climate, alluvial infilling and human land use created a more homogeneous landscape, with reduced wet-dry seasonal variability. Diminished wild resources and increasing reliance on domestic crops and livestock narrowed the economic basis but allowed population growth, notably at Çatalhöyük. Its productivist economy came under threat at the end of the 7th millennium BCE as the 8.2 ka climate event brought drought conditions. Rather than leading to site abandonment, this prompted new Early Chalcolithic adaptations that included shifting from a nucleated to a more dispersed settlement pattern, with relocation of Çatalhöyük from the East to the West mound. Climatic and environmental changes thus represent necessary, but not sufficient, conditions to explain the transition to farming in south central Anatolia.

Keywords: Konya, Çatalhöyük, climate, farming, adaptation

Archaeological and palaeo-environmental evidence for the 8.2k cal BP climate event at Çatalhöyük

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Abstract: Humans both contribute to and are impacted by climate change. Understanding these interactions has become a major goal of the archaeology of early farming societies in the Near East. The paper scrutinizes the process of cultural, social, economic and symbolic transition between the Neolithic and Chalcolithic in Central Anatolia as revealed at the Çatalhöyük East and West Mounds (ca. 7,000 cal BC – 5,500 cal BC). It will discuss both archaeological and palaeo-environmental evidence for the 8.2k cal BP climate event and its impact on long-term socio-economic changes in the Konya plain. The key hypothesis is that the inhabitants of Çatalhöyük adapted to the rapid environmental changes in a complex and multifaceted way providing foundations for the persistence of the settlement at Çatalhöyük and other settlements in the Konya Plain for more than 500 years. Çatalhöyük offers a microcosm that may help us unlock some of the key questions surrounding this time period. At Çatalhöyük, settlement gradually shifted from the East to the West Mound around this time which offers the exceptional chance to analyse human responses to this event on a micro-scale and give us the possibility to answer the question of why and how does the shift from the East to the West Mound take place at this time, and why all known settlements in the Konya Plain end around 5,500 cal BC. Once we understand the regional process, we can widen our lens and try to determine the broader effects the shift had across the Near East.

Keywords: Climate Change, Neolithic, Chalcolithic, 8.2k cal BP, Çatalhöyük

Environmental and Climatic Factors Affecting Settlement Location Selection in the Lake District (Turkey)

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Abstract: Various relationships between lakes and Neolithic settlements in the Lake District of southwestern Anatolia are determined by geographical, climatic, and social factors. These relationships effectively determined the Neolithic communities' choice of settlements and shaped their lifestyles. The Lake District has a rugged geographical structure except for the basins in which the lakes were formed. During the Holocene Period, the water level of these lakes gradually began to recede. Neolithic inhabitants settled around the lakes and used these flat areas, formed by the receding lakes and fed by many small streams, for agriculture. On the other hand, in this rugged geography, the 'Lake District' basin constituted the necessary routes along which the roads connecting the settlements passed. The microclimate characteristics formed around the lakes during the Holocene Period also provided favourable conditions for agriculture. The data obtained from the drilling studies in the region indicate that the areas around the lakes must have become more attractive during the Holocene period when the climate was drier and colder. Within this framework, it is evident that the lakes and wetlands, whose water level decreased during the Neolithic period, played a critical role in the site location of Neolithic settlements. Archaeological excavations, surveys, and paleoclimate studies in the Lake District have provided an understanding of its cultural characteristics and environmental conditions and revealed the existence of multidirectional relationships in the environment-climate-culture triangle.

Keywords: Neolithic, Lake District of Southwestern Anatolia, Climate Change, Lake Environments

New evidence from Epipalaeolithic-Neolithic Abu Hureyra, Syria, for the development of agriculture in Western Asia

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G06

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Abstract: Abu Hureyra, Syria, was excavated in the 1970s. The site was founded by hunter-gatherers c. 13,500 calBP who soon adopted farming. The excavations documented the inception of this new way of life and its development through a continuous sequence of Epipalaeolithic and Neolithic occupation. Analysis of the plant remains demonstrated that the transition to arable farming coincided with the onset of the Younger Dryas c. 12,800 cal BP, a 1,200 year episode of severe cold, dry climate that interrupted the progressive improvement of the environment during the Late Glacial. Many questions remained open, however, concerning the cause of this climatic disruption and its effects on human settlement and economy at Abu Hureyra. New research in the last decade has affirmed that the onset of the Younger Dryas was sudden and likely caused by a catastrophic event. The evidence for this has come from numerous geological sites across the world. It caused drastic changes in climate and vegetation. In response the inhabitants of Abu Hureyra turned to arable farming as one way of overcoming the challenges posed by the new environmental conditions. Our latest findings indicate that they also began to pen sheep, initiating their domestication. Thus, it appears that at Abu Hureyra the cultivation of crops and tending of animals began at the same time, c. 12,800 cal BP. This was the beginning of the development of the mixed farming economy that was to spread across Western Asia and beyond into Europe and Africa later in the Neolithic.

Keywords: agriculture, domestication, Younger Dryas, Syria

A Neolithic that fails: The Maltese Temple Culture and climatic instability

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Abstract: A Neolithic that fails: The Maltese Temple Culture and climatic instability. The small Maltese islands in the central Mediterranean supported a remarkable, if late Neolithic civilisation, expressed in the form of complex megalithic buildings and art. Through the application of interdisciplinary sciences undertaken by the ERC funded FRAGSUS project, significant insight has been gained about the economic and social strategies that enabled the Temple Culture (c3800-2450BC) to flourish for about 1500 years, whilst environmental studies reveal trends that brought about its demise. The paper explores many aspects of Neolithic Malta which provide new data. These include a large buried population examined through dietary isotopes, chronological studies, bioanthropological trends and ancient dna. These have been coupled with studies of the palaeoeconomy, soil history, settlements and artefacts. The results bring new understanding of the fragility of small island cultures faced with catastrophic environmental change over millennia.

Keywords: Malta, Megaliths, Temples, palaeoeconomy, bioanthropology

G07 - Neolithic Processes in the Tropics

Session Organiser

Stephen Rostain / CNRS -French National Center for Scientific Research, France
Geoffroy de Saulieu / IRD - Institute of Research for Development, France

Abstract

Archaeological research was slow to start in the tropics. However, it has often known important developments, especially in recent years. The archaeology carried out along the equatorial belt shows specificities that distinguish it notably from that practiced elsewhere. It has been the source of original and fruitful theoretical and methodological approaches, in which interdisciplinarity has generally played an essential role. Contrary to what has long been believed, tropical societies have had very different social and political experiences from our own. If the opposition between hunters-gatherers and farmers seems less important there than in other parts of the world, social developments have nevertheless experienced a significant diversity whose mechanisms are not yet well understood and which are already present with the Neolithic processes. These initial developments show specificities that are not found in temperate regions and that goes beyond the simple fact of not breeding animals. Thus, the question of the tropical centers of plant domestication and birth of agriculture has recently given the tropics their rightful role. Similarly, several major inventions that have marked human history over the last 10,000 years have taken place in the tropics. More than elsewhere, the relationship between man and his environment has been posed, and shows how much the current equatorial environments are the result of complex interactions between societies and their landscapes, in short, the result of a history in which these tropical worlds have entered and whose effects on the environment, as well as on non-European knowledge, are exceptional.

Domestication, landscape management, food production systems, and societies in lowland South America: Insights from a major crop, manioc

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G07

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Abstract: Manioc (*Manihot esculenta*, Euphorbiaceae) is among the earliest plants domesticated in Amazonia and has long played important roles in food production systems in lowland South America. Studies from archaeology, ethnobiology, ecology and genetics have shed light on the early domestication of manioc, the traits that the plant evolved under domestication, the coevolution between these traits and the practices of cultivators, and how this coevolution has contributed to shaping the organization of manioc-cultivating societies. This research shows that the domestication of manioc was embedded in a broader context of landscape management and that domestication processes involved the complex interplay of conscious and unconscious human selection and natural selection in cultivated environments. The plant's reproduction is only partly controlled by humans. Cultivators propagate the plant vegetatively, planting stem cuttings of selected clones. However, native Amazonians also incorporate volunteer seedlings, issued from the plant's uncontrolled and highly outcrossed sexual reproduction, as new clones. This incorporation is highly selective, and these plants are also subjected to intense natural selection in complex managed landscapes. The selective incorporation of sexually produced seedlings is widely distributed among linguistic groups. This wide distribution, and several traits of the plant's domestication syndrome, suggest that the practice is an ancient feature of manioc cultivation. Manioc landraces show great variation in their content of cyanogenic glucosides, a trait shaped by both cultural and natural selection. Bitter landraces with high cyanogen content require time-consuming processing, with important implications for the organization of societies that specialize in cultivation of bitter manioc.

Keywords: evolution under domestication, vegetatively propagated crops, coevolution, lowland South America, mixed clonal/sexual reproduction

Far From Being Marginal: The Cultural Cradle of Amazonia

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Abstract: The Amazon is too large and varied to be reduced to a single entity. Far from the constructed image of chlorophyll monotony, this region is characterized by great biological, socio-political and cultural variety, both during the ancient period and since contact with Europeans. Yet the latter have brought with them a mode of environmental management and geo-political conceptions radically different from those put into action for millennia by the Amerindians. Far from being a marginal area devoid of innovation and in debt to outside influences, Amazonia has been a hotbed of dynamic creation since the earliest human settlements. The Holocene was punctuated by notable technological and cultural inventions. But, rather than a series of successive revolutions, the occurrences of Neolithic development were spread over long periods. Similarly, there were marked differences between regions. It would be illusory to reduce the Amazonian Neolithic to a single model. Three crucial Neolithic phenomena overlapped in ancient societies: sedentarization, plant domestication and the birth of ceramics. Yet these developments were characterized by a wide variety of distinct scenarios. It is this plurality that archaeologists are beginning to reveal. The fact remains that the Amazon Neolithic was at the origin of innovations that would determine the course of American Indian human history. So, for at least 13,000 years, Indigenous have been writing their history in the earth, stone, flora and invisible world of Amazonia.

Keywords: Amazonia; Indigenous; plant domestication; diversity

Parallels and divergences: the complex occupation of the coast of Rio de Janeiro (Brazil) as an example of the specificities and particularities of tropical regions.

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Abstract: Systematic studies do not support that the first Brazilian coastal groups followed a classic Neolithization process. However, some parallels may be relevant to the discussion of the particularities and specificities of the groups that lived in these tropical environments and other South American Low-lands. Known as sambaqui, these sites date back from c. 7000y BP, and their builders were part of a social-cultural system that had prevailed, especially in South and Southeastern Brazil, for around 6000 years. We discuss data about occupational dynamics in the current state of Rio de Janeiro, where the oldest sambaquis are located and the traditional model points to the long-term maintenance of fisher-hunter and gatherer strategies, with a collapse around 1000y BP, overlapping with the presence (and later dominance) of horticultural-ceramicist groups. However, recent archaeological research has changed this perspective. Food production, a long-term territorial basis, and a complex system of spatial distribution of the mounds, many of them with only funerary features, reveals a complexity that moves away from the traditional model. Data about the presence of the ceramicist groups traces back to around 3000y BP suggesting that, during a significant amount of time, the two cultural traditions co-existed in close areas in the same broad environment. Considering these data, which leads to a more complex scenario, the territorial dynamics can not be reduced to a simple substitution model. They highlight the need for new proposals to better understand sambaqui culture and its interactions with other groups.

Keywords: Shell-matrix sites, Food production, Brazilian Coastal Archaeology, Sambaqui

Diet And Food Production of The Brazilian Shellmound Builders

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Abstract: During the last decades, innovative techniques and changes of perspective in archaeobotanical investigations have shown that plant domestication and cultivation occurred in the Neotropics just as early as in Eurasia, but the spacial patterns were more diffuse, with multiple centers of crop diversity. Today, the forests of South and Central America are recognized, together with the Andes, as among the principal and independent domestication centers of the continent. The analysis of microbotanical remains is an excellent tool to investigate the use and consumption of plants in the past, especially in contexts of poor preservation of non-carbonized macrobotanical remains, as is the case in many tropical archaeological sites. In Brazil, the pioneer microarchaeobotanical analysis of dental calculus from shell-matrix sites (sambaqui) builders were fundamental in understanding their plant diet and food production. These were the first populations along the Brazilian coast and had previously been considered to be fisher-gatherers, but these recent studies determined that they consumed a wide variety of plants, both wild and domesticated. These data, combined with anthracological and macrobotanical studies for sambaqui of different chronologies, indicate that these groups also practiced horticulture and plant management, living in a system of mixed economy. Here we present an overview of the archaeobotanical studies of sambaquis and discuss the idea of their builders as a “middle ground society”, a concept that describes a variety of ways of life and moves away from the “foraging vs farming” dichotomy.

Keywords: microbotanical remains, sambaqui, horticulture, brazilian archaeobotany

The Pre-Columbian Green Revolution of the Bolivian Amazon

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Abstract: Between 1600 and 600 years ago, the Casarabe culture transformed a portion of the Bolivian Amazon into a complex system of hundreds of monumental mounds interconnected by canals and causeways, known as the Monumental Mounds Region (MMR). This represents one of very few known examples of low-density urbanism in the Amazon. Archaeological evidence suggests that the MMR was densely inhabited for approximately 1000 years. However, although pre-Columbian agricultural fields have been documented in various regions of the Bolivian Amazon, there have been no reports of agricultural fields or other food production systems in the MMR. This raises the question of what subsistence system the Casarabe culture developed to sustain large populations and a complex social organization. We show how the Casarabe culture significantly modified the landscape to the extent that they could control local hydrology throughout the year. A large-scale analysis of micro botanical remains shows that these modifications of the savannahs were aimed at improving the cultivation conditions for maize, as this was, by far, the most cultivated crop. Overall, we conclude that the Casarabe culture managed to put into place a pre-Columbian green revolution, becoming the only example of a Neolithic-like transition in the Amazon presently documented.

Keywords: pre-Columbian, Bolivian Amazon, Maize, Agriculture, Monumental mounds

The Rise of Monumentality in Eastern Amazonia and its link with the Neolithization Processes in South America

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Abstract: Following the successful colonization of the globe by our species, new waves of human expansion happened during the Holocene, reshaping cultural, linguistic and genetic landscapes worldwide. Such expansions may have been triggered by the emergence of the Neolithization process. The demographic and technological advantages offered by the onset of agriculture as drivers of Holocene cultural expansions are also supported by the appearance and distribution of new ideological forms of display, such as monuments. Here I want examine the relationship between population dynamics and cultural diversity in Northeastern Amazonia with the emergence of monumentality in this region, offering a long-term perspective of monuments the study region, in a period between 3,000 BP, the beginning of the Amazonian “Neolithic”, where the general rule seems to be the use of shallow pits with single burials accompanied by rare and scanty grave goods, until 1,500 BP, when death is associate with highly elaborated funerary urns deposited on earth mounds, ditch enclosures, and megalithic monuments. It can be argued that those monuments containing funerary pits appeared suddenly on the landscape from 1,100 BP signalling a significant change, with the beginning of a new labour investment that effectively marked the cultural landscape for the future. I will argue that the people that built such funerary structures sought more elaborate forms of expression of identity and group affiliation and, for this reason, not only different types of monuments, but also stylistically hybrid ceramics, with high aesthetic appeal, started to dominate the archaeological landscape of the region.

Keywords: Neolithization processes, Monumentality, Archaeology of Landscapes, Lowland South America Archaeology

Social Implications of domestication in the Tropics

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Abstract: What did the emergence of agriculture among intertropical hunter-gatherers change? The plant care (managing Sunshine and fertility, fight against Weed competition, and Predators) probably led to an overall increase in work. Some archaeologists have long believed that the causes were lying in the production of alcohol for feasting. Whatever the case, it seems inevitable that the increase in work has primarily affected women. This led to an increase in the value of matrimonial services, which had to deal with the following question: can a young bride be allowed to leave with her husband, and under what conditions? The institution of marriage became particularly important to the social life of the now village community, as it was now necessary to compensate for the departure of a woman, either through compulsory work (case of the “bride service”), or by providing goods (wealth, this is the case of “bride price”) to replace her.

Keywords: hunter-gatherers, bride price, bride services

Tropical cereal agriculture: domestication and dispersal rates compared in Africa

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Abstract: Much of our expectation about cereal domestication processes and the emergence of agriculture has come from better studied regions such as western Asia and China. Recent work has provided new data on the domestication of Sorghum and Pearl millet in the eastern and western Sahel. This presentation will review this evidence in terms of the rate of morphological evolution during domestication and the processes of dispersal of cereal farming and diversification of crop systems. While slow domestication processes were comparable to those of better studied cereals (e.g. barley, rice), they began later (Middle Holocene rather than Early Holocene). Once domesticated, however, they dispersed very quickly, much faster than wheat, rice or barley. They also spread initially as single cereals and pastoralism, with diversification of crop repertoires taking place later. This paper will conclude with some hypothesis about the potential role of productivity and agricultural diversity in affecting slower or more rapid dispersal of farming cultures.

Keywords: Archaeobotany, Africa, Cereal, Domestication, Diffusion

Unveiling linked stories between humans and the environment in Palawan Island, Philippines.

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Abstract: The economy of indigenous groups who live in Palawan Island combines hunting, gathering, horticulture and rice slash-and-burn agriculture. Many of these communities live in forested highlands rich in biodiversity. To preserve that biodiversity, the Philippine government and NGOs are often encouraging them to relocate and abandon their traditional practices. What remains very little understood though is how much the landscape that we want to preserve is actually the fruit of interactions with humans. So far, we know that the size of pili nuts (*Canarium hirsutum*) increased progressively during the past 14 000 years at the sites of Ille and Pasimbahan, in the North of the island, revealing human selection of a tree previously considered as wild. To fill a gap in our knowledge about humans-environment interactions during the Holocene, including possible protection, management, and domestication of plant and animal species, we are exploring the cave of Guri, in the South of the island. Excavations from 1960's and the 1970's delivered dates ranging between 13,000 and 3,000 years ago. Our team is excavating in situ deposits rich in cultural and organic material showing a heavy reliance of past populations of the forest and the sea. On-going analyses should help unveil anthropogenization processes of species and landscapes.

Keywords: Philippines, Forest, Sea, Anthropogenization

Animal taming, translocation, and the punctuated Neolithisation of island rainforests

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Abstract: Animal taming and translocations had major implications for biodiversity, with humans sometimes deliberately increasing tropical island diversity, and other times leading to knock-on extinction horizons owing to interspecies competition and direct predation by invasive animals. As such, around the Pacific, these translocations were an important aspect of a long and punctuated Neolithisation process, whereby humans shaped their tropical niches. Here, we use archaeological evidence and agent based modelling to test whether humans introduced forest wallabies (*Dorcopsis muelleri*) to the Raja Ampat Islands from New Guinea (northern Sahul) sometime prior to the Terminal Pleistocene. Zooarchaeological analyses show that these animals were hunted throughout the Terminal Pleistocene and Early Holocene. Zooarchaeology by mass spectroscopy (ZooMS) of bone artefacts indicate they may have persisted until the Late Holocene, with the skeletons being reused for bone point manufacture. We argue that these dispersals may have resulted from captive animals being moved and traded between rainforest forager groups, reflecting expanding networks of maritime interaction throughout Island Southeast Asia and the Pacific after the Last Glacial Maximum.

Keywords: Zooarchaeology, Southeast Asia, Oceania, Tropical forests, Islands

G08 - Biomolecular and Stable Isotope Windows on Lifestyles, Environments and Evolution in the Neolithic

Session Organiser

Melanie Roffet-Salque / University of Bristol, UK

Richard Evershed / University of Bristol, UK

Abstract

The most significant developments in the past 30 years in the study of Neolithic people have been the emergence of biomolecular and stable isotope proxies. The most widely applied approaches include stable isotope analyses of skeletal remains and lipids preserved in pottery vessels. The use of these proxies is underpinned by extensive investigations of reference materials and experimental studies, as well as analyses of thousands of finds from prehistoric cultures around the world. Likewise, ancient DNA is delivering important levels of understanding of human, animal and plant origins and relationships, and aspects of their evolution. Beyond these a number of new proxies are in the offing, notably proteins in pottery and dental calculus, which are set to add new dimensions to palaeodietary reconstructions. Even when used alone these biomolecular proxies have achieved spectacular new levels of understanding of Neolithic cultures. This conference session will explore the future potential offered by existing and emerging new biomolecular and isotope proxies for Neolithic studies. Contributions are encouraged that present new proxies, address the validation of existing proxies and demonstrate the integration of different lines of evidence. Multi-proxy studies, and the development of “big data” and statistical approaches to explore more deeply complex phenomena underpinning the adaptation of humans, animals and plants to new environments and the living of sedentary lifestyles are especially welcomed. We are particularly interested in receiving contributions presenting new biomolecular or stable isotope proxies for environment and subsistence stressors, such those related to crop failures, zoonotic diseases and climate change/deterioration.

A Critical Assessment of Stable Isotopes as A Proxy for Neolithic Mobility: Lessons from the Tessellated Neolithic (Geo)environments of the Southern Levant

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Abstract: The Near East was a dynamic locus of innovation where people first cultivated plants, husbanded livestock, and participated in new forms of settlement and social organization. These innovations transformed how people acquired their food and interacted with the landscape, but how these developments shaped Neolithic mobility and emplacement remain only superficially understood, indirectly inferred from archaeological data sets documenting settlement patterns and investment in the built environment. However, the recent addition of skeletal stable isotope data to the portfolio of mobility proxies has generated much excitement, promising unprecedented detail in human movement at the scale of the individual and new insights into how sedentism and mobility configured Neolithic communities. Here, I critically examine how strontium, oxygen and carbon stable isotope ratios measured from bones and teeth are used to evaluate scales of human and animal movement in Pre-Pottery Neolithic communities in the southern Levant and proximal regions. The intersection of geospatial equifinality in the distribution of bioavailable strontium across landscapes, complex topographies influencing environmental oxygen isotopes, and marked seasonality affecting carbon isotopes at the floral base of the foodweb in this region makes the use of stable isotopes anything but a straightforward analytical proxy for tracking human and animal movement. This raises important questions about the degree to which stable isotopes can be used to capture intra- and inter-regional movements, elucidate the roles of individual and residential mobility in facilitating the exchange of technological knowledge, and how mobility may have shaped Neolithic communities of practice.

Keywords: stable isotopes, mobility, sedentism, southern Levant

Tracing Anatolian Neolithic Foodways Through Isotopic And Biomolecular Proxies In Organic Residues From 7th And 6th Millennium Pottery Vessels.

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Abstract: The 7th millennium BCE is a period marked by the generalisation of pottery containers in the farming communities of Anatolia and Northern Mesopotamia. The wide expansion of these groups outside core neolithic areas led to the development of new sedentary lifestyles in the shores of the Mediterranean, Marmara and Black seas. The advent of ceramic containers accompanying these farmers also implied the development of a wider range of techniques to prepare and serve food. In the last decades, isotopic and biomolecular lipid proxies have been established to trace the preparation, transformation and consumption of several foodstuffs in pottery vessels. This study demonstrates the future potential of integrating large datasets of such proxies with well-defined stratigraphies to reveal wide trends associating different environments and periods with unique neolithic foodways. A set of around 2000 vessels from 25 seventh and sixth millennium neolithic sites including more than 500 instances of preserved residues were characterised after sustained work in the laboratories of the Archaeometry centre at Boğaziçi University, Koç University, Hacettepe University and the TÜBİTAK MAM and UME research centres from 2008 to 2023. Results, evaluated using Bayesian mixing models, convolution of posterior probability densities and geostatistical techniques, were used to map preferences in the preparation of meals and explore the existence of foodways interlinking dairy products, non-ruminant fats, plant waxes and other foodstuffs with the diverse environments of Anatolia and Northern Mesopotamia, spanning from the Upper Tigris and the Anatolian plateau, to the Mediterranean and the shores of the Marmara and Black seas.

Keywords: Organic Residue Analysis, Bid Data, Anatolia, Northern Mesopotamia, Foodways

Unveiling Neolithic Cooking Practises: Organic residue analyses of the Initial Neolithic pottery from the 7th Millennium BCE, Sumaki Höyük in the Upper Tigris Basin

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Abstract: Pottery emerged in the first quarter of the 7th millennium BCE and became an integral part of daily life in Southwest Asia. Despite differences in cultural elements among sites throughout the Northern Levant and Upper Mesopotamia, the initial pottery has similar features: these are mineral tempered (generally volcanic minerals), hole-mouth-shaped, well-burnished, and include mostly dark-surfaced vessels with lugs close to the mouth on both sides. Because of its morphological characteristics and lugs, which could be used for placing and lifting pots on fire, it has been suggested that the initial mineral-tempered pottery was quite suitable for cooking and even probably made for that purpose. On the other hand, in the second half of the 7th millennium BCE, Plant-tempered pottery traditions appeared and spread to much wider regions. These plant-tempered pottery traditions differ from the previous period's initial ones regarding the choice of temper, paste colour, surface treatments, form, size, and, hence, the purpose of use. This study is based on the findings of Sumaki Höyük in the Upper Tigris Basin, one of the initial Pottery Neolithic sites. The site demonstrates the technological development of pottery in the 7th millennium BCE and gives new insight into pottery production and use. The presentation focuses on changing food-consuming and cooking practices using organic residue analyses, biomarkers, isotopic proxies, and technological aspects of different pottery traditions through the first thousand years of pottery production in Southwest Asia.

Keywords: Neolithic, Upper Tigris, Pottery, Organic Residue Analysis

The Emergence and Evolution of Dairying in Neolithic Northwest Anatolia: Insights from Barcın Höyük

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Abstract: Dairying represents a pivotal secondary innovation in early agricultural communities. While this practice showed significant regional differences, analysis of the residues in pottery from the Marmara Region of northwest Turkey yielded high proportions of milk, highlighting the potential role the region may have played in the adoption of dairy-based products. This paper provides background on the emergence and adoption of dairying based on the results of an extensive analysis of over 800 pottery sherds from the northwest Anatolian site of Barcın Höyük. A careful study of the development of pottery shapes and styles throughout the centuries of occupation at the site from 6600 to 6000 BCE and isotopic identification of adipose fats, dairy lipids, and plant residues, provides insights into the ways in which pottery was used for cooking and serving food. Lipid analyses reveal that dairy products were processed in bowls from the earliest levels onwards and four-lugged pots, starting around 6200 BCE. The latter form likely facilitated activities like churning, enhancing the production of dairy products. The results obtained from lipid analysis will be compared with results obtained from $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ analyses of bulk collagen from bones of domesticated animals like sheep and cattle. Overall, the picture emerging at Barcın Höyük underscores the importance of dairying in the Neolithic subsistence strategy and its potential role in the spread of Neolithic practices westward.

Keywords: Dairying, Organic Residue Analyses, C and N isotopes on bulk collagen

A Multi-Proxy Geoarchaeological Investigation of an Early Holocene Soil Feature at the Page-Ladson Site (Florida, U.S.)

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Abstract: A 2022 excavation of Page-Ladson, a U.S. multicomponent site based in northwest Florida, exposed a curious sediment feature that dates to ~10,000 Before Present. It was unclear if the feature was cultural or natural. The soil transition was diffuse but there was an increase in charcoal and faunal content. Limestone and wood were haphazardly scattered. Several Late Paleolithic - Early Archaic projectile tools surrounded the feature. Although many of these burn features had been previously excavated in this stratum, all had been characterized as hearths despite their ambiguous nature. This research reconstructs the processes that created the 2022 feature as well as the environmental context of the associated stratum to determine the cultural or natural origins of the burn. A multi proxy geoarchaeological analysis was used for this reconstruction to investigate two possible conclusions: the burn is a hearth or a natural feature impacted by pond margins. The following methods were applied to two separate sediment cores: $\delta^{15}\text{N}$ and $\delta^{13}\text{C}$ isotopic analysis, Loss on Ignition, Magnetic Susceptibility, fossil pollen analysis, and faunal, charcoal, and lithic distribution. The results indicate that this is a unique cultural burn feature, informing the livelihoods of the Early Archaic people of Page-Ladson.

Keywords: isotopic analysis, americas, geoarchaeology, page-ladson

Biomolecular approaches to investigating wild resource exploitation in Neolithic Europe

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Abstract: The Neolithic in Europe marks a period of significant change in human subsistence, from hunting, fishing and gathering to farming. Early farming communities did still make use of wild resources around them, although which resources were exploited and to what extent varied across time and geography. These variations provide insights into key aspects of Neolithic life: cultural shifts, adaptation to different environments and reactions to climate change. However, these practices can be difficult to identify, especially if they were carried out infrequently. Faunal and archaeobotanical remains are often used to inform on hunting, gathering and fishing, but these are subject to taxonomic bias and require good organic preservation. Biomolecular approaches can therefore provide supplementary or entirely new lines of evidence for exploring wild resource exploitation in the Neolithic. Here, molecular, stable isotope and radiocarbon analyses of absorbed lipid residues from pottery are employed to investigate freshwater resource exploitation and the use of other wild resources such as beeswax and birch bark products in two Neolithic case studies from Europe. Firstly, the integration of lipid residue analyses, including compound-specific radiocarbon analyses, with an extensive archaeozoological study provided new insights into the way wild animals were exploited at the large LBK settlement of Cuiry-lès-Chaudardes in the Paris Basin. The second case study focused on sites around Leipzig (Germany) where organic preservation is particularly poor. Molecular and stable isotope analyses were used to provide the first evidence of Neolithic subsistence practices in the region and to explore diachronic changes in wild resource exploitation.

Keywords: Lipid residue analysis, Diet, Pottery

Stable isotopes reveal animal management practices at the LBK settlement of Těšetice-Kyjovice, Czech Republic

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Abstract: Domestic animals, such as cattle, sheep, goat, and pig, formed an essential component of the Neolithic package that originated in the Near East. As these animals were introduced to Central Europe, their management practices had to adapt to the temperate climate and changing seasons, which likely had a significant impact on their biological behavior. This pilot study aims to investigate the management practices of domestic animals at the Linear Pottery Culture (LBK) settlement of Těšetice-Kyjovice (5300-5000 BC) in the Czech Republic. The study seeks to address the following key questions: What type of landscape did the animals inhabit? How were herd management practices structured, and how did they vary throughout the year? What was the composition of the animals' diet? To achieve these objectives, we selected 40 ruminant bones from a lateral pit adjacent to a longhouse at the site. These bones will be subjected to stable isotope analysis of carbon (C), nitrogen (N), and oxygen (O) to provide insights into the animals' diet, habitat, and seasonal management practices employed by the LBK community. This study will contribute to our understanding of animal management strategies during the early Neolithic period in Central Europe. The findings of this study will lay the groundwork for future research in this field, enabling a more comprehensive understanding of the complex relationship between Neolithic communities and their domesticated animals.

Keywords: LBK, stable isotopes, animals, diet, management practices

Into the woods: Exploring the use of wood-pastures in early European animal husbandry practices.

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Abstract: During the 6th millennium BCE, the first farmers of central Europe rapidly expanded across a varied mosaic of forested environments. Wood-pastures until recently were an important part of the herding ecosystem, providing important sources of mineral-rich animal feed and shelter, which prompts the question to what extent did early farmers capitalised on these environments for raising herds. Stable isotopic analysis of faunal remains alongside organic residue analysis of pottery are rich sources of information about past domesticated animal diets and local environments. To answer the posed question, I will review and discuss multi-proxy biomolecular and stable isotopic studies of faunal and ceramic material from early European farming communities. This will shed light on adaptive dynamics employed by humans to raise animals, which may have ultimately shaped their community, animals and surrounding environments. This talk aims to highlight the often-overlooked intricate relationship between early farmers and forested landscapes and the emergence of wood-pastures. Finally, the review will allow us to visualise future interdisciplinary research directions to explore the evolution of wood-pastures and their impact on herd health and development.

Keywords: Stable isotopes, domesticated animals, leafy-hay, bones and teeth, pottery lipids

Plenary Talk: Integrating different data sources: A multi-proxy approach to understanding the evolution of lactase persistence in Europe

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Abstract: The accumulation of scientific data in archaeology has led to considerable advances in recent years, but has also posed challenges in terms of integrating information sources to build a more complete picture of the past. Integrating archaeological proxies for quantities that are not directly observable (e.g. radiocarbon date densities and gene coalescence rates as proxies for population size; domesticated kill-off profiles, β -lactoglobulin protein and fatty acid proxies of milk use; bone pathologies like cribra orbitalia and porotic hyperostosis as proxies for anaemia, low B12 intake or poor vitamin D status) can be particularly challenging. This is because the relationship between such proxies and the potentially explanatory quantities they are thought to represent are often non-linear or confounded by other variables (e.g. radiocarbon date densities can be biased by archaeological interest and activity, and gene coalescence rates are influenced by population structure, as well as population size). One solution to these challenges is to use model-based hypothesis comparison, whereby the relative importance of potentially explanatory quantities of interest in driving prehistoric processes can be assessed using proxy data in a statistically robust manner. We illustrate this approach by considering proxies for a range of hypothesised drivers of natural selection favouring the evolution of lactase persistence (LP) in Europe over the past 10,000 years. We provide detailed distributions of a milk exploitation proxy across Europe over the past 9,000 years; 7,000 pottery fat residues from more than 550 archaeological sites.

Keywords: ...

G09 - Putting Domesticates in their Place

Session Organiser

Melinda Zeder / Smithsonian Institution, USA

Abstract

This session brings together researchers working in different areas of the world to explore the context of initial domestication of plants and animals and their subsequent dispersal. Participants will provide an overview of the ecological setting of domestication and dispersal, as well as the subsistence strategies developed in world areas from which domesticates either emerged or were merged into. Papers will explore questions of the richness and diversity of endemic plants and animals in these different settings, trade-offs between sedentism and mobility, the interaction of resident hunter-gatherers and migrant farmers, and the overall role of domesticates within subsistence strategies of groups with both emergent and introduced domesticates.

Putting Domesticates in their Place: Opening Remarks

Melinda Zeder¹

G09

¹Smithsonian Institution

Abstract: For more than 100 years domesticates have been given a privileged position in the study of Neolithic emergence. Identifying when and how individual currently common crop and livestock species came under domestication and dispersed globally has been given priority over trying to understand the basic context in which these domesticates emerged and spread around the world. But how did these emergent or introduced domesticates fit within the overall subsistence economies that created or embraced them and how did the different ecological and cultural contexts of initial domestication and dispersal shape the process of their trajectories? This session seeks to put domesticates in their place by considering these questions in different regions in which domesticates arose and spread from Southwest Asia, to Africa, to the Far East, Europe, and South, Meso-, and North America. This introductory presentation introduces themes that participants in the session will follow in exploring these questions.

Keywords: domestication, dispersal, environment, introduction

Insularity Syndrome: Exploring the roles of ecological release and habitat islands in driving early domestication

Robert Spengler¹

G09

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Abstract: Archaeologists and geneticists have made major advances in clarifying the timing, locations of, and genetic processes behind the earliest domestication of plants and animals. Not surprisingly, archaeologists have largely focused on evolutionary responses to human innovations, such as sickle harvesting, tilling, and selection for docility. Geneticists have largely focused on specific indicator alleles or processes, such as the reduction of neural crest cell production. However, this leaves room open for studying the specific ecological factors that may have driven parallel evolutionary trends under early cultivation, what is colloquially referred to as the domestication syndrome. For example, the earliest animals to develop anthropophilic traits, notably docility around humans, became a population isolate, as they remained in close proximity to villages and segregated from their wild relatives. Likewise, the saved seeds of a farmer or village of early farmers were insular populations. In this way, early agricultural fields and villages functioned as habitat islands, and, therefore, it would make sense to seek parallels in their evolutionary trends among island endemics. As I discuss in this talk, there are clear evolutionary parallels between the domestication syndrome and the island syndrome in both plants and animals. I also suggest that the main ecological aspect of insular populations that drives parallel evolutionary trends is ecological release. Therefore, we can understand many aspects of the ecology of early domestication by studying island biogeography.

Keywords: Domestication, Insularity Syndrome, Islands, Ecology

Settlement dynamics and the technological context of early harvesting and hunting in the Zagros and Anti-Lebanon

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G09

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Abstract: This paper examines the narratives of changing settlement dynamics, technology, and subsistence on the eastern and western ends of the Fertile Crescent to gain insights into contrasting and unifying aspects of the shift toward Neolithic lifeways. Drawing on surveys and recent, we reconstruct the social economic shifts accompanying the use of wild and later domesticated plants and animals. In the Zagros we can trace this development back to the Middle and Upper Paleolithic, where a six-meter-thick sequence at Ghar-e Boof documents early exploitation of diverse wild botanical and faunal resources. At Chogha Golan, we excavated a relatively complete eight-meter thick, 2000-year record beginning at the end of the Younger Dryas. This sequence documents changing subsistence practices and material culture. Here occupation begins with an extremely rich midden followed closely by the development of substantial rectilinear architecture with multiple kinds of walls, plastered floors and fixed installations. Our research in the Damascus Province of the Central Levant yielded diverse botanical and faunal records together with high quality lithic data and regional survey data documenting distinctive diachronic shifts in land-use from the Middle, Upper Paleolithic, Epipaleolithic and Neolithic. In this context, the shift to more stable small occupations during the Natufian and Khiamian in the high foothills of the Anti-Lebanon was followed by an abandonment of the higher elevations with the rise of major Neolithic settlements in the lowlands.

Keywords: Zagros, Levant, Ghar-e Boof, Chogha Golan

Plant resource diversity and wild cereal harvesting in the eastern Fertile Crescent 80.000 years ago

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Abstract: While the intensive use of plants in the Paleolithic is now generally recognized, many assemblages still show a focus on the gathering of fruits, nuts, and poorly documented roots (so-called USOs), so that the appearance of wild cereals is still associated with the beginnings of agriculture. Although some models of the origins of agriculture emphasize climatic changes at the end of the Pleistocene as causal for the onset of agriculture, in the absence of archaeobotanical evidence from earlier periods of the Pleistocene, these are considered unique and characteristic of all human development during the Holocene. We present the results of an archaeobotanical study of several thousand plant remains from six archaeological layers from Palaeolithic Ghar-e Boof (Iran), covering a period of about 80,000 years and possibly including more than one human species. The results seem to reemphasize the importance of climate for vegetation ecology, thus weakening purely behaviorist explanatory models of human societies.

Keywords: archaeobotany, Iran, Palaeolithic, Neolithic, wild progenitor species

Chogha Golan And The Evolution Of Human-Animal Interactions In The Foothills Of The Zagros Mountains During The Aceramic Neolithic

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Abstract: Chogha Golan (modern Ilam Province, Iran) represents one of the oldest and longest Aceramic Neolithic sequences in the Eastern Fertile Crescent. Excavated in 2009 and 2010, the site consists of 11 archaeological horizons (AH)s, dated between 12,000 and 9,600 cal BP. Here, we present new zooarchaeological data to investigate socioeconomic, cultural, and ecological changes during the Aceramic Neolithic. The inhabitants of the site focused primarily on caprines, namely goats, while hunting gazelles was consistent throughout the sequence. Yet, the proportion of gazelles relative to caprines decreased slightly over time, suggesting an increased reliance on the progenitors of modern domesticates. Moreover, we documented the use of diverse small game taxa, such as tortoises, birds, and fish, though their economic importance also varies throughout time: 1) we found tortoises were overexploited shortly after the beginning of the occupation of the site; 2) fish are more abundant in layers that presents drier conditions. Finally, most small mammal remains were recovered from AH II, and they are dominated by Indian gerbil, which nowadays typically inhabits cultivated fields. We hypothesize that the presence of Indian gerbil alongside domesticated emmer reflects the creation of new ecological niches and opportunities for small mammals resulting from long-term plant management and cultivation. Our study not only highlights the rich interplay between subsistence practices, demography, and environmental fluctuations locally, but also illustrates the benefits of combining different theoretical approaches, to better understand the processes that led to the adoption of animal husbandry and plant cultivation

Keywords: Aceramic Neolithic, Eastern Fertile Crescent, Resource Intensification, Optimal Foraging Theory, Niche Construction Theory

Eco-cultural Settings of Initial Domestication in the Central Zagros

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Abstract: The central Zagros region was the scene of pioneering fieldwork investigating the initial domestication in the world. Nevertheless, the region is still little known in comparison to the Levant and Anatolia. Current regional data suggest that the climate improved at the beginning of the Holocene, providing a rich environment for societies. Interestingly, the earliest settlements also emerged at the same time. It seems that these favorable ecological conditions paved the way for subsequent pivotal cultural changes, including reduced mobility and thus increasing sedentariness, which in turn led to population growth in the 9th millennium BC. The first steps towards 'initial domestication' appear to have taken place in the region from the mid-9th millennium BC. At the moment it is unclear whether this was the result of environmental abundance or depression. In the latter case, it is also not yet known whether such hypothetical stress or depression was itself a consequence of climate deterioration or population growth. In any case, the subsequent socio-economic responses of societies included the management of surrounding environmental resources and eventually innovations in their subsistence strategies, i.e. a gradual transition to initial domestication. This emphasizes the role that the intertwining of environmental and cultural conditions, or 'ecocultural environment', played in the emergence of domestication across the region. This paper compiles the latest regional empirical data correlated with these conditions and discusses the extent to which they can be used in favor of the two main theoretical categories formulated on the basis of environmental richness or environmental depression.

Keywords: central Zagros, initial domestication, environmental resource, socio-economic resilience

Plenty and more: Fish and other aquatic resources in settings of Neolithic emergence in Southwest Asia

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Abstract: Most early Neolithic research focuses on the novel interactions between animals-plants-humans-and landscapes as they pertain to domestication. The continuing role foraging is also discussed, mostly with a focus on hunting gazelles and larger terrestrial mammals. Most Neolithic beginnings, however, and Southwest Asian Neolithic in particular, was water-bound. While people were clearly becoming more interested in cultivating cereals, domesticating animals required water. Moreover, settlement patterns and accumulating zooarchaeological evidence show that aquatic ecosystems were well known to settled communities, and perhaps even managed. The aim of this paper is to explore this evidence and settlement patterns more closely across the region between the beginnings of sheep and goat domestication up until the abandonment of Çatalhöyük East, against the backdrop of climatic and geomorphological changes that are taking place during these millennia. A broad analysis of the role of aquatic ecosystems in early settled life in Southwest Asia during the Early Holocene will bring a fuller perspective to debates on the ecological setting of Neolithic origins.

Keywords: Fishing, Southwest Asia, Early Neolithic, Shellfish gathering, Fowling

Domestication of insular ungulates during the Cyprus-PPNB

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Abstract: Due to insularity, the emergence of farming in Cyprus mostly depended from the introduction of plants and animals from the near continent, all along the 9th and 8th millennia cal BC: wild cultivated einkorn and emmer during the PPNA, ungulates during the PPNB. However, large osteoarchaeological samples from the sites of Klimonas and Shillourokambos, revealed an interesting diversity of processes. Cattle and sheep were introduced as early domesticates, respectively c. 8500 and 7900 calBC., and raised all along the late 9th and the 8th millennia. Yet, short after introduction, early domestic goat went feral and became game, before they were domesticated again 8-10 centuries after. Even more intriguing is the history of the PPN *Sus scrofa* of Cyprus. We have shown that wild boar was introduced long before the PPN and rapidly evolved into an endemic insular sub-species (*Sus s. circeus*), to become the only game on the island from 10,200 to 8500 calBC. We then provided evidences that the PPNB and later Neolithic domestic pig lineages on Cyprus result from the domestication of this anthropogenic endemic sub-species of *Sus scrofa*, without any visible introduction of continental domestic pigs. This diversity of processes highlights the complexity of the dispersal and domestication process at the beginning of the Neolithic, with transfer-acclimatisation components but also with possible trajectories of local domestication.

Keywords: Domestication, Cyprus, Island, Prepottery Neolithic

Highlands vs. Rift: Diverging pathways to food production in adjacent regions of eastern Africa

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Abstract: Southwest Ethiopia (SWE) and northwest Kenya (NWK) sit at the nexus of three major geographic areas: the Nile and adjacent Sahara/Sahel, Lake Turkana and nearby parts of eastern Africa, and the Ethiopian highlands that serve as a 'water tower' for both the Nile and Turkana Basins. Although they are adjacent, SWE and NWK have profound contrasts in physiography, climate, and environment that shaped the two regions' divergent pathways to food production. Whereas the cool, moist, forested highlands of SWE were a crucible for domestication of enset (*Ensete ventricosum*), yams (*Dioscorea* spp.), and other garden crops, the hot, arid rift valley lowlands around Lake Turkana (NWK) were the staging ground for the spread of pastoralism into equatorial eastern Africa. Archaeological sequences for both regions still hold many unresolved points that are vital to the larger issue of whether early food production came about in conditions of plentitude or scarcity, but it is possible to offer some preliminary observations with caveats that can stimulate future research efforts. In SWE, the initial upland cultivation of enset and yams may be regarded as niche construction that increased resource abundance, but may have been chronologically decoupled from selection processes that increased palatability rather than yield. In NW Kenya, chronologies show pastoralism took hold during aridification and lake recession, but it is still unclear whether this economic pivot was driven by reduced availability of aquatic prey for local fisher-hunter-gatherers, by incoming pastoralists being attracted to extra resources around Lake Turkana, or some combination of the two.

Keywords: Africa, Afromontane, Rift Valley, Tuber crops, Pastoralism

Africa's unique domestication processes: early sedentism, indigenous plants, introduced livestock, significant contributions from African aurochs

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G09

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Abstract: The African “Neolithic” emerged in the Sahara-Sahel during the African Humid Period (AHP) 12,500-3500 BCE. Despite northeastern Africa’s proximity to, and episodic introductions of domestic caprines, cattle, and crops from, Southwest Asia, Africa’s domestication trajectories diverge significantly from those of Southwest Asia. These include: intensive harvesting of wild indigenous grains, their bulk storage, and sedentism during the first five to six millennia of the AHP; the pre-agrarian invention and widespread diffusion of ceramics across the “Green Sahara” from 7800 BCE onward, doubtless facilitated by interconnected waterways across the Sahara and into Nilotic Africa; despite continued wild harvesting, domestic morphology native grains did not emerge until the 3rd to 2nd millennia BCE, and settled farming using a “package” of grain, legume, and root crops only emerged in the 1st millennium BCE. As monsoonal weather systems retreated south, Saharans increased their mobility and innovation, penning and managing indigenous Barbary sheep 7725–6770 BCE in Libya, adopting domestic caprines by several routes – including maritime – in the early 6th Millennium BCE, adopting arguably Southwest Asian cattle by the 5th-6th Millennia BCE, swiftly developing dairying, and domesticating indigenous wild ass populations. Genomics of modern African cattle breed y-DNA strongly suggests North African aurochs admixture, which may contribute to these breeds’ superior resistance to uniquely African livestock diseases. We propose that, in addition to their deep history of delayed-return foraging and wild animal management, Saharans’ long-term reverence for African aurochs inclined them ideologically toward cattle pastoralism, as evidenced in Saharan and Nilotic rituals and representations.

Keywords: Africa, domestic animals, domestic plants, ecology, ideology

Plant Evidence of early crop cultivation from the Xiaogao site (9000-7500B.P.), Shandong province, eastern China

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G09

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Abstract: Early cultivation of broomcorn millet, foxtail millet, rice and soybean in the Haidai region, eastern China remained unclear owing to limited archaeobotanical data. In our research, macro plant remains dating to 9000–7600 BP were obtained from the Xiaogao site (excavation in 2017) at the northern edge of Shandong Highlands. The results indicated that millets had been cultivated and soybean been intensively used about 9000 years ago. Rice remains were found since 7500 BP. In addition, acorns and other wild plants were comparatively abundant. The early crop cultivation and agricultural practices at the Xiaogao site provide important evidence for understanding of the origin of agriculture in Northern China.

Keywords: origin of agriculture, millets and rice, soybean, early Neolithic, China

Intensive exploitation of pheasants at the Early Holocene site of Xiaogao in Northern China

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G09

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Abstract: During the Early Holocene, northern China witnessed revolutionary changes, such as the emergence of sedentary lifestyles, the domestication of animals and plants, the spread of pottery making, and a radical restructuring of social relationships. During this period, the avifauna became an increasingly significant component of the diversified small game resources. This paper presents the results of a study of remains of pheasants, assigned to Phasianinae, recovered at the Xiaogao site in Shandong Province, northern China. The data show that the occupants of Xiaogao seasonally hunted pheasants with a male preference, not only for the meat but also for their feathers. During the process, the early Neolithic occupants became familiar with the ecology and ethology of pheasants, and they were able to consciously and purposefully intensify the utilization of pheasants to a maximum foraging efficiency. Animal exploitation behaviors are manifestations and results of niche-construction efforts by human societies. This emphasizes humans' capacity to actively exploit wild animal and plant resources and modify the environment and ecosystem to produce stable and sustainable subsistence economies.

Keywords: Bird remains · Pheasant · Early Holocene · Northern China · Human niche construction

Conceptual bridges between biological domestication and early food globalization

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Abstract: The domestication of plants and animals is among the most significant transitions in human history, and its continuing impact resonates with challenges facing today in food security and planetary health. It is a scientific domain that has generated a range of interdisciplinary contributions, drawing for examples upon anthropology, archaeology, biology, genetics, ecology and quaternary science. Significant progress in the field nevertheless highlights the need for a general theoretical structure to bridge the temporal and spatial gaps and the necessity to consider underlying cultural conditions in which the domestication process arose and endured. Our current view of the problem is clouded by an intellectual legacy of envisioning domestication as a highly localized and short-lived event, a view which has been challenged by newly emerging evidence. In the last 15 years, researchers have demonstrated that plant and animal domestication in a range of species entailed a more gradual transition spanning millennia, challenging previous views that domestication was a rapid process. The last decade has also seen growing documentation of the translocation of domesticated species across the globe, in some cases thousands of years before the fixation of domestication traits. What is missing from our repertoire of explanations is a conceptual bridge between the protracted process over millennia and the multiregional, globally dispersed nature of domestication. This paper draws attention to their cohesiveness. By doing so, we envision domestication as extended, not only in time, but also in space.

Keywords: Domestication, Globalization, food, Millet, Cooking

The social ecology of the spread of farming in the Adriatic: new insights from the Mesolithic to Neolithic transition

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Abstract: The last 20 years of research have provided new insights on Mesolithic foragers and early Neolithic farmers in the Adriatic. Excavations, material analyses, and the application of new methodologies have characterized a diversity of late Mesolithic and early Neolithic lifeways and the role of trans-Adriatic interactions for the spread of farming. Discoveries of underwater sites have also highlighted some of the taphonomic challenges for Mesolithic and Neolithic sites presented by post-glacial environmental change. This paper summarizes our current understanding of the Mesolithic to Neolithic transition in the Adriatic and the roles played by foraging populations, social interactions, and environment for the spread of farming beginning in the 8th millennium BP. The archaeological record in this region is diverse. Evidence comes from caves, rock shelters, and villages; and regional records include densely populated regions like Puglia where farming takes hold early, to more disperse farming villages on the Dalmatian coast, and chronologically later transitions in some regions like the Po Valley or Istria. High resolution chronologies and evidence for different types of social and economic interaction suggest that once established, early farming populations created new ecological and social niches that helped structure subsistence strategies throughout the region, and that this spread was neither uniform, structured, nor inevitable. Ultimately this paper explores the current evidence for the processes underlying the eventual dominance of domestic plant and animal-based subsistence in the region.

Keywords: Adriatic; Impresso; zooarchaeology; Neolithic

Voyagers in search of land and resources: the early agricultural colonisation of Britain and the West Mediterranean

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G09

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Abstract: Archaeology and aDNA both indicate that the earliest farmers in both the West Mediterranean and the British Isles were immigrants. Colonisation of both areas took place by boat. In both areas the immigrant farmers practiced intensive agriculture including milking their stock. In the West Mediterranean waves of immigrants moved along the coasts. They remained within the Mediterranean ecological zone, and carried with them the Near Eastern agricultural package, which continued with few changes. They searched out pockets of arable land and leapfrogged past hunter-gatherer enclaves. They continued up the Atlantic coast of Iberia until they encountered the temperate zone. Britain was colonised by several pulses of farmers from the near continent, who not only crossed the Channel but also passed rapidly up the east and west coasts as far as northern Scotland. The agricultural package here was modified to suit the temperate conditions, with cattle replacing sheep as the most important animal, and a much reduced suite of cultivated plants. There are indications that hunter-gatherers may have continued their existence alongside the earliest farmers for a couple of centuries. Britain may also have seen leapfrog colonisation: relatively few Early Neolithic traces are known from northern England, so perhaps this region was bypassed.

Keywords: Neolithic Britain Mediterranean agriculture farmers

The northern Frontier of European farming, Evidence from Southern Scandinavia

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G09

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Abstract: The dispersal of domesticates in southern Scandinavia represents a case of farming spreading into an area populated by indigenous hunter-gatherers. However, studies of human DNA indicate an almost complete replacement of the indigenous people by the migrant farmers. Only a short overlap between the two populations is revealed in the genes of a handful of persons. Settlement patterns likewise suggest a brief period of parallel use of the two subsistence strategies. Thus, the long and fervent discussions on the role of the local foragers in a gradual development of agrarian societies and the significance of poverty or plenty in terms of resources in adopting a new lifestyle has been replaced by clear evidence of a colonization by southern farmers from central Europe. What spurred the immigration is unknown, perhaps population growth in central Europe? In this paper we will try to assess whether different types of ecological stress impacted the life of the local foragers including the density of the population in the late 5.th millennium. The intensity and kind of early farming at the beginning of the 4.th millennium is illuminated by studies of early Neolithic plant economy and animal husbandry using direct AMS dating of domesticates as well as studies of isotopes and lipids. Considering how fast and comprehensive the changes appear to be at the transition to the Neolithic, non-ecological reasons such as prospecting for stone raw materials and aspects of social organization may also play a role in this dramatic change in Scandinavian prehistory.

Keywords: Southern Scandinavia; 4.th millennium; advance of domesticates; immigration; local foragers

The Environmental Context for the Adoption of Agriculture in the Tehuacan Valley of Mexico

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Abstract: The Tehuacan Valley of Puebla, Mexico represents a unique opportunity to explore long-term trends of human-plant coevolution as the dry climate of the valley has resulted in exceptional preservation of organic materials dating from the late Pleistocene through the Holocene epochs. Excavations by Richard S. MacNeish and the Tehuacan Archaeological-Botanical Project in the 1960s revealed a long sequence of human occupation that spanned the transition from mobile hunting and gathering societies to sedentary agricultural communities. This presentation provides an overview of the archaeological and genetic research for the early adoption of maize agriculture in the valley and presents the results of multi-isotope analyses of faunal and human bone samples. The faunal data provide a record of environmental change over time, and the human data provide a quantitative proxy for the intensity of maize agriculture at discrete temporal phases. The presentation integrates the isotopic data with the archaeological record to explore the strategies and behaviors that people employed that ultimately led to the widespread adoption of maize agriculture. In particular, we assess the notion that maize could be considered a “fallback food,” a dietary item that was consumed during periods of scarcity when preferred foods were not available. The implications of research in the Tehuacan Valley are considered within the broader context of discussions on plant domestication across the globe.

Keywords: Mesoamerica, maize, corn, Mexico, agriculture

Other "Neolithics" were possible: the case of Northwestern South America (Colombia) in the context of the New World.

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G09

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Abstract: In the Americas, the origin of cultivation and domestication of plants was a process that initiated at the beginning of the Holocene, coinciding with new environmental conditions and archaeologically with an increase in the number of sites, which has been interpreted as an expansion of the human. The "Neolithic" in the Americas has several features: 1) independent domestication processes took place in different places (Southeast North America, Central America, Central Andes, Northwestern South America and the Amazon); 2) domestication processes did not have a profound impact on people's cultural life as in other regions of the world; 3) the rapid spread of key plants such as maize or cassava from their centres of origin. This paper presents data from Northwestern South America (current Colombian territory), a region that is little known worldwide, but which shows the above-mentioned process. Plant cultivation was a local process carried out by hunter-gatherer groups in different regions (highlands and lowlands), as part of adaptive strategies to the high diversity of this part of South America. These early groups managed resources including early plant cultivation, adopted exogenous crops early (maize, cassava) and did not immediately become sedentary as in other regions of the world. All this took place in the Archaic period, (~10-4 ka cal BP), before the Formative, a period before the emergence of the metallurgical chiefdoms.

Keywords: Archaic period, South America, Colombia, Plant cultivation

Considering plants as people in the process of domestication: A view from eastern North America

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Abstract: The idea that plants are people is very common in Indigenous North American worldviews. In the context of these relational ontologies, plants are people because they are capable of participating in reciprocal relationships. Many Indigenous societies conceive of particular (often domesticated) plants as kin, with attendant expectations of mutual care. Relational ontologies are common worldwide and were more so in the past, so it is likely that many of the humans who domesticated plants in ancient times understood plants to be relational beings. The idea that plants can interact is not limited to non-Western knowledge systems; the study of plant behavior and communication goes back at least as far as Darwin and is a hot topic in 21st century ecology. What happens to scholarly theories of plant domestication if we accept the premise that plants are people, in the sense that they are capable of reacting, interacting, deciding, communicating – in short, relating? I will first explore the mounting evidence from biological sciences, including my own experimental research, that plants are people in this relational sense. Next, I will show how this conception of plants as people can enrich our understanding of the ecological and cultural context of plant domestication in eastern North America. Finally, I will argue that prolonged, attentive interaction with living wild relatives of domesticated species is a necessary and underdeveloped methodology in domestication studies.

Keywords: plants, domestication, relational ontology, plasticity

G10 - The Palaeolithic Antecedents of the Neolithic Revolution: Insights from Hunter-Gatherer Archaeobotany

Session Organiser

Ceren Kabukcu / University of Algarve / ICArEHB-Interdisciplinary Center for Archaeology and the Evolution of Human Behaviour, Portugal

Eleni Asouti / University of Liverpool, UK

Abstract

Pre-agricultural traditions of plant food preparation are often overlooked in archaeological and anthropological discourses portraying culinary innovations as corollaries of 'Neolithisation', particularly in the context of Southwest Asia and the Mediterranean basin. This session brings together researchers using novel, cutting-edge archaeobotanical methods to explore the deep time histories and evolution of regional hunter-gatherer plant-based subsistence strategies. Recent archaeobotanical discoveries clearly demonstrate that the plant food consumption practices of late Palaeolithic and Epipalaeolithic/Mesolithic hunter-gatherers were complex, diverse and often included multiple steps of labour-intensive processing. Such practices have long been perceived by prehistorians as the hallmarks of Neolithic food producing societies and the origin of cuisine as we understand it today. These discoveries point to a much deeper and longer ancestry of culinary practices, predating the start of agriculture by thousands of years, and open new frontiers in hunter-gatherer archaeobotany beyond reconstructing plant resource choice. More significantly, they also question long-standing paradigms about the nature of the transition from foraging to cultivation and farming, including exploring homologous developments in pre-agricultural plant management and uses in Southwest Asia and the Mediterranean basin during the Pleistocene-Holocene transition.

Plant use and subsistence practices during the Epipalaeolithic and Pre-Pottery Neolithic in the eastern Fertile Crescent

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G10

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Abstract: The origins of agriculture and the process of plant domestication remain amongst the most debated topics in Southwest Asian prehistory. After nearly five decades of rigorous archaeobotanical research there are still significant gaps in our knowledge, particularly regarding long term development and shifts in plant uses and subsistence practices predating the Neolithic transition and crop domestication. Additionally, in the latter half of the 20th century, greater emphasis had been placed on identifying the 'earliest' domesticate morphotypes, and the site where these appear. Which likely resulted in a concentration on the western Fertile Crescent. More recent work in southeast Anatolia and northern Zagros have begun to shift the focus away from core regions and earliest domesticates by bringing evidence of idiosyncrasies and nuance in plant subsistence practices during these key periods. In this talk I will present the results of recent archaeobotanical research in this region, tracing evidence of plant use through the Epipalaeolithic and early aceramic Neolithic. In the Eastern Fertile Crescent, the available archaeobotanical evidence points to the persistent use and exploitation of select vegetation habitats and associated pre-agricultural plant staples reflecting long-term reliance on both the ancestors of 'founder' crops, as well as a range of wild taxa which also form part of later prehistoric assemblages.

Keywords: Archaeobotany, origins of agriculture, hunter-gatherer plant use, Southwest Asia

Plant food choices and culinary practices in the transition to food production in southwest Asia

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G10

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Abstract: Some authors suggest that food could have been a major trigger in the transition to food production in southwest Asia. It is said that the consumption of cereals and food products like bread and beer played a fundamental role during the Epipalaeolithic, leading hunter-gatherers to cultivate plants for the first time. But the lack of direct evidence to understand plant-food selection practices, and the impossibility to identify food products in the archaeological record has prevented the evaluation of these hypotheses for more than 20 years. In this presentation we focus on a new field of research that has evolved in the last decade: the study of archaeological food remains. Carbonized remains of prepared plant-foods not only inform on the plant ingredients used in the past, but also on their processing, and final consumption, opening unprecedented opportunities to characterize little-investigated aspects of past subsistence. We here share the initial results of two large-scale European projects that comprise the study of more than 10 sites distributed across the Levant, dating from the Epipalaeolithic (c. 23 ka cal BP) to the Pre-Pottery Neolithic B (c. 10 ka cal. BP). The more than 300 food remains analyzed so far offer an unprecedented information about the diet of the last hunter-gatherers and first farmers in the Levantine area. We confront our results with those recorded by traditional archaeobotanical analyses to better understand the selection of plant-foods and culinary practices, and so doing contribute to decipher the role that food played in this fundamental transition.

Keywords: Carbonized plant-food remains, Hunter-Gatherer transition, Plant cultivation, Epipalaeolithic, Cuisine

Before farming. Management and use of plants by hunter-gatherers of the western Mediterranean

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G10

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Abstract: Plant resources have been essential for all human societies from the Paleolithic to the present. Throughout Prehistory, the uses of plants have varied in intensity and diversity, and these shifts can correlate with human evolution and social complexity. This long relation, which culminated in the domestication of plants, has deep roots because plants have probably been used since the origin of Humanity. However, it is difficult to prove it for the most remote periods. The control of fire was a crucial human achievement since cooking allowed the physical and chemical modification of plant foodstuffs, facilitating their consumption and enhancing their palatability. Moreover, contact with fire enables their conservation in archaeological sites. In this communication, we summarize the available results of the Paleolithic and Mesolithic sites of the Iberian Peninsula. The archaeobotanical data demonstrate: • The sustainable management of some trees, shrubs and herbs since the Paleolithic, such as stone pine (*Pinus pinea*), hackberry (*Celtis australis*), holm oak (*Quercus rotundifolia*), Portuguese crowberry (*Corema album*) and esparto grass (*Stipa tenacissima*), among others. • The frequent presence of fruits (*Maloideae* and *Prunus* sp.), nuts (*Quercus* spp. and *Corylus avellana*) and seeds (*Fabaceae* and *Chenopodiaceae*) as part of the Iberian Paleolithic and Mesolithic diets. • Fire as a tool of transformation. • The most productive ecosystems were the coast and the riversides.

Keywords: Diet, Fire, Iberia, Paleolithic, Plant resources.

“Stonehenge Before Stonehenge” Mesolithic-Neolithic sedaDNA-based Environmental Reconstruction from the Avon Valley and Its Bearing on Hunter-Gatherer-Pastoralists Interactions

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G10

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Abstract: For the last 50 years there has been a vigorous but polarised debate about ‘what came before Stonehenge’. Was the monumentalised landscape that developed from the early Neolithic onwards created de novo in an archaeologically empty space or might there be some relationship to previous inhabitation, resource use or even ritualization by Mesolithic indigenous hunter-gatherers. This paper will re-examine this question using data from the Mesolithic site of Blick Mead and the ongoing ‘Avon Valley Buried Landscapes Project’. This project is also using new approaches to both stratigraphic investigations and palaeoenvironmental analyses. These techniques (direct-push ground sensing, pOSL and sedaDNA) are revealing buried Mesolithic landscapes along the Avon valley that were occupied into the earliest Neolithic. It is also confirming that the Stonehenge area contained partially open landscapes that were ‘pre-adapted’ to early pastoralists as well as being utilized and possibly maintained by hunter-gatherers and large herbivores. Due to the strongly spatially patterned availability of water in this environment, hunter-gatherers and early herders were likely forced to interact. There is also evidence elsewhere in southern England of the incorporation of hunter-gatherer modes of behaviour into the Neolithic. The project is ongoing, but already raises several questions pertinent to our understanding of the Mesolithic-Neolithic transition, and suggests we may be able to replace the polarized former debate with a more informed and subtle approach to cultural interaction at the beginning of farming, at least in the British Isles.

Keywords: hunter-gatherers, sedaDNA, aurochs exploitation, landscape openness, geoarchaeology

Evidence for Millet Consumption in the Lower Amur River Basin during the Early Holocene

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G10

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Abstract: It is considered that in Early Neolithic East Asia the northern boundary of millet agriculture ran along the Liao River. Peoples who relatively densely settled the regions north of this river were hunter-gatherers, but were similar to their southern neighbors in other cultural aspects. This talk presents and discusses new archaeobotanical data from the Early Holocene Yamikhta site located in the easternmost part of the Lower Amur River. They suggest that the site's inhabitants consumed different wild plants, including millet. Two flotation samples collected in 2011 yielded 8 seeds, including 4 caryopses of cockspur (*Echinochloa cf. crus-galli*). All millet caryopses come from a hearth in the lowermost cultural layer along with other finds typical for the Early Holocene sites of the region. Charcoal samples from the hearth returned calibrated ¹⁴C ages of 9,300–9,020 cal BP. Additionally, all millet seeds lacked lemma and palea, which may indicate that they were removed prior to food preparation. Our new data provide the second evidence for the possible consumption of millet north of the Liao River. The first one comes from the Houtaomuga site, Jilin Province, northeastern China. One millet seed was identified in a flotation sample from the early occupation phase of the site, which is dated to 7,675–7,567 cal BP. Both cases highlight that we still know very little about the role of millet and other plants in people's lives before agriculture arrived in these northern regions of East Asia.

Keywords: hunter-gatherers, Lower Amur River basin, Early Holocene, archaeobotany, wild millet consumption

G11 - Choices versus dietary imperative: Food circulation pathways in the Neolithic

Session Organiser

Kamilla Pawłowska / Adam Mickiewicz University, Poznań
Joanna Pyzel / Maria Curie-Skłodowska University, Poland

Abstract

Research into past diet has usually focused on the acquisition, production, processing, and consumption of plant and animal products. Yet foodways can also include food circulation, a so-far under researched topic that is, however, imperative to providing a comprehensive insight into diet in the past.

This session will focus on food circulation in the Neolithic by considering the border between choice and dietary imperative. Food circulation is one cause of dietary diversity, and can occur in many forms ranging from commensality to trade and exchange. However, tracing food circulation pathways and dietary variability poses methodological challenges in archaeology. Various scales of analysis of dietary evidence can be used in methodological approaches, as can a range of sources (animals, plants, bioarchaeological evidence, and material culture). Evidence from Southwest Asia and Europe that touches on these issues in an archaeological and environmental context is welcome.

In particular, we want to consider the following issues: were food choices and circulation the realm of individual or community decisions and to what degree were they the result of cultural traditions? To what extent was choice driven by the availability of resources and the nutritional needs of different consumers, or by other factors such as moral imperatives encoded in nutrition—i.e., the decision of what one should and should not eat? We welcome both studies focusing on the changes that occur along the stratigraphic sequence of a site and studies that compare between sites.

The Importance of Being Malted: Processing Cereals to Make Malt Sugars in the Natufian and the Neolithic

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G11

¹Independent Scholar

Abstract: Any graminae, such as wheat, emmer, rye, oats and barley, can be malted to make sugars. In the academic literature there is confusion between ‘malted’, ‘germinated’ and ‘sprouted’, as if they mean the same thing. Malt is fully germinated, but minimally sprouted grain. This is achieved by turning the grain during germination, confusing the geotropism of the shoot and inhibiting growth. At the Natufian burial site, Raqefet Cave, Israel (13,700 – 11,500 cal BP). Professor Li Liu and her team at Stanford University have identified grain starch granules with erosion pits consistent with germination. The interpretation was for cereal based beer brewing. However, it is possible that they were making a sweet product instead. Charred ‘bread-like’ remains were discovered at Shubayqa 1, northeastern Jordan, a Natufian hunter-gatherer site (14,600 – 11,600 cal BP). The grain is described as having been dehusked and finely ground. With malted grain being so friable and easy to crush, could these charred residues by an ancient hearth represent a sweet product? At the Neolithic site of Çatalhöyük, central Anatolia, a small, round ‘spongy and bread-like’ residue has been found nearby one of the ovens. It was unbaked and fermented. Given the high incidence of caries in the teeth found there, including two deciduous teeth, we can ask whether they were making something sweet and malty. We aim to explore, explain and discuss the possibilities of processing wild cereal grains for malt and malt sugars in the Epi-Palaeolithic and early Neolithic of the Ancient Near East.

Keywords: Cereal Processing, Malt, Malt Sugars, Foodways, Diet

Detecting of commensality in Neolithic Catalhoyuk household: Faunal, architectural and pottery approaches

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G11

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Abstract: We have considered a range of commensality in Neolithic Çatalhöyük using ceramics, animal bones, and architecture. Integrating the data allowed us to capture the change in commensal practices over the Final occupational phase (ca. 6300–5950 cal BC). The shift from community commensality to family commensality is marked by a decrease in the size of jars, accompanied by slight changes in the size of bowls. These types of vessels were used both for cooking, as shown by soot and lipid residue analysis, and for serving, as can be inferred from the more open form, apparent with the bowls. In the case of bowls, this result contrasts with previous findings suggesting that they had relevance for plant foods only. When we consider feasting events, the data on everyday commensal practice can be seen to contrast with this exceptional commensality. In both, the main role is played by cattle, which are the driver of change as the status of the taxon moves from wild to domestic. Changes in culinary and social practices are embedded in architectural changes in the form of growing number of open spaces which served as places where people could share a meal.

Keywords: commensality, multifaceted changes, Neolithic, Çatalhöyük, Anatolia

“Challenging the Conventional View of the advent and Origins of Agriculture” with the harvesting of common Salt and a Sodium Age that shaped the primitive Industry of Early Neolithic Hunters:

David Bloch¹

G11

¹Salt Archive MRBLOCH

Abstract: “Challenging the Conventional View of the advent and Origins of Agriculture” with the harvesting of common Salt and a Sodium Age that shaped the primitive Industry of Early Neolithic Hunters:David Bloch SALT ARCHIVE MRBlochAbstract: This study challenges the conventional view of plant agriculture’s development during the early Neolithic period. Instead, it proposes that Neolithic “Hunters” were adept at processing animal carcasses and tanning hides using salts and osmosis dehydration. The emergence of a primitive abattoir industry was enabled by critical available quantities of common salt precipitated in open brine-irrigated Sabkha fields later facilitated by a technology today known as endhoric basin Qanat (Kariz) aquifers. Additionally, funnel-driven wild animal herds and corralling practices during the Stone Age accelerated this industry. Surprisingly, the growth of common salt crystals in fields and crust plowed pans has been misinterpreted as evidence of advanced plant cereal and crop spatial agriculture. High temperatures and low rainfall conditions led to evaporation and transpiration exceeding precipitation, resulting in capillary action that pulled water containing salts from deep soil to the dry topsoil. As this water evaporated, the once-dissolved salts accumulated in their undissolved salt form in the topsoil. This paper introduces the concept of a much earlier “Metallic Sodium Age,” challenging the traditional Paleolithic Stone Age framework and pre-empting Hesiod’s Copper, Bronze, and Iron ages.

Keywords: Salt harvest agriculture abattoir herding

Early Neolithic diet north of the Carpathians: result of interdisciplinary analysis

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G11

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Abstract: From the second half of the 6th millennium BC vast areas of Central Europe were settled by the first farmers associated with the Linear Pottery culture. In recent years, advancements in specialized analyses have enabled the investigation of various aspects of the daily lives of early farmers. These encompass, among others, organic residue analyses of clay vessels, micro use-wear analysis of stone tools, and anthracological and archaeobotanical studies of plant remains. The use of such interdisciplinary research was possible in several recent excavated sites. Analyses have revealed diverse results regarding consumed products. For instance, it has been established that certain settlements engaged in the production of dairy products, while others demonstrated a preference for exploiting freshwater resources. Disparities in the processing of meat from domesticated animal species are also evident. This was undoubtedly linked to the local environmental conditions surrounding the settlements and the dietary traditions of the respective communities. The basis of existence was agriculture, but gathering and hunting were almost equally important. Domestic animals were bred and cereals, peas and flax were grown. In addition, natural environmental resources were intensively used, i.e. forests, wetlands and streams, catching mammals, fish, mollusks and aquatic crustaceans, collecting fruits, nuts and leafy plants, herbs, grain of certain grass species. Thanks to such diversity, the diet of that time was varied and rich in nutrients.

Keywords: Early Neolithic, diet, Carpathians, Linear Pottery culture, interdisciplinary research

Plant remains from the Early Neolithic sites of southern Poland: the same diet or dietary variability?

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Abstract: Loess-covered regions in southern Poland represent some of the earliest territories inhabited by Neolithic communities, particularly those of the Linear Pottery Culture (circa 5400/5300-5000/4900 BC). These pioneering farming societies introduced cultivated plants to the Polish landscape, alongside a diverse array of wild herbaceous species, predominantly from segetal and ruderal vegetation. Through meticulous archaeobotanical research, the history of both these new plants into the local and indigenous flora can be discerned. It is worth noting that many of these wild plants are not merely weeds or ruderals; rather, they often hold utilitarian value, such as *Chenopodium album*, different species from *Bromus* genus, *Fallopia convolvulus*, *Echinochloa crus-galli*, *Polygonum lapathifolium*, *P. aviculare*, hinting at their potential use for consumption. Our study is centered on the examination of macroscopic plant remains from the Early Neolithic period in Southern Poland (e.g., Biskupice, Morawica, Spytkowo, Zakrzowiec, Łańcut and Zwiężczyca). We analyse these remains from sites associated with the Linear Pottery Culture, as well as those from subsequent periods like the Lengyel-Polgar complex and the Malice culture (circa 4700-4300/3900 BC). Our aim is to discern dietary preferences and their evolution over time. To complement our findings on plant remains, we will also discuss other types of data, for example, lipid residue analysis on pottery fragments. This approach promises to provide a comprehensive understanding of dietary habits in Neolithic Southern Poland, shedding light on the complex relationship between early farming societies, the availability of plants within the vegetal environment and their food choices.

Keywords: Southern Poland, Early Neolithic, Lipid residue analysis, Archaeobotany

The Significance of Variability in Subsistence Patterns in East-Central Europe Between the Late 6th And Late 4th Millennia BC. The Case of Multicultural Site in Miechów, Southern Poland

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Abstract: The subsistence patterns of Neolithic communities in east-central Europe were far from uniform. The most evident transformations are visible around the turn of the 5th and 4th millennia BC, marking the onset of the Eneolithic period. Although it is feasible to distinguish between an earlier (Neolithic *sensu stricto*) and a later (Eneolithic) pattern, internal variations are also identifiable within both Neolithic and Eneolithic periods. To explore these patterns and their evolution, we will examine multicultural site 3 in Miechów (southern Poland), which was inhabited from c. 5200 BC to c. 3100 BC. During the 4th millennium BC, when the site was occupied by groups of the Funnel Beaker culture, notable changes in the food economy occurred compared to earlier settlement phases associated with the Linear Pottery culture and post-Linear groupings. These changes included a decrease in reliance on wild animals, increased importance of small ruminants, the adoption of new cereal storage methods, and a slightly wider variety of cereals. We will discuss these seemingly disparate subsistence models within a comparative framework, considering first and foremost the level of universality of Neolithic-Eneolithic transformations. Subsistence variability within the Neolithic and Eneolithic periods will also be interpreted. In essence, our objective is to assess the adherence to common cultural norms versus the prevalence of independent choices within the food economy of these communities as well as the role of external patterns that potentially influenced local economic development. The research has been conducted as part of the Polish National Science Centre project no. 2016/23/B/HS3/00387.

Keywords: Neolithic, East-Central Europe, Subsistence Variability, Neolithic-Eneolithic Transformation, Miechów

G13 - The Spread of Farming and Herding in Different Parts of the Globe

Session Organiser

Joaquim Fort / University of Girona, Spain

Abstract

This session is devoted to analyzing the spread of farming and herding in different regions of the Earth. We have two main aims. The first one is to cover specific case studies, from several world areas. The second aim is to pave the ground in order to perform comparisons between different regions from several perspectives, not only in this session but also in future work. Qualitative descriptions are welcome, based both on specialized and interdisciplinary approaches. Quantitative estimations will be also addressed, for those regions where they are possible by the data available at present. Among others, quantitative estimations may refer to spread rates, the relative effects of demic and cultural diffusion, interactions between farmers/herders and hunter-gatherers, genetic clines, genomic results, linguistic inferences, etc.

The emergence of farming communities in westernmost Eurasia: New evidence from central Portugal

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G13

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Abstract: Building on a critical review of the dating evidence, including chronometric hygiene and due consideration of site taphonomy, Isern et al. (2017) modelled the spread of farming across western Mediterranean Europe and showed that, given the spatio-temporal patterns and under reasonable demographic constraints, the process could only have resulted from long-distance settlement relocation effected via leap-frogging cabotage, each successive such event carrying over the totality of the Neolithic package to new territories. The simulations also showed that such a rapid spread implied some level of interaction with local hunter-gatherers in the form of cross-mating, acculturation, and mutualism. This model implied a number of predictions in the realms of dating, subsistence, and genetics, which have since been empirically verified. Animal and human stable isotope data from central Portugal spanning the Upper Palaeolithic, the Mesolithic, the Neolithic, and the Copper Age document the abrupt change in diet associated with the first bearers of the Cardial culture. The genomes of Early Cardial individuals from Gruta do Caldeirão reveal 27%-43% Iberian Mesolithic hunter-gatherer ancestry and allow timing of the admixture events involved to within 7 ± 3 generations before their time of living (c. 5400-5500 cal BC). New dating results for the Late Mesolithic shell-middens of the Tagus valley corroborate the long-term persistence in estuarine areas to the south-west of the in-proximity hunter-gatherer communities required for the demic processes involved. These results will be summarised and their broader implications will be discussed.

Keywords: Dating, Subsistence, Genomics

Modeling neolithic demographic transition at the Western Mediterranean by coupling radiocarbon dates, settlement and cultural data

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Abstract: The Western Mediterranean constitutes an outstanding laboratory for exploring demographic patterns in the context of the neolithisation process thanks to the amount of data generated by recent research projects in the region, including high-resolution radiocarbon record and settlement and cultural data related to the last hunter-gatherers and the first farmers and herders. Particularly, the Eastern Mediterranean Iberian dataset lies on extensive programs accounting for survey fieldwork projects at the micro-regional level, and intensive archaeological excavations on several key sites regarding Mesolithic and Neolithic sequences. This has resulted in one of the most complete regional archaeological contexts related to this chronological span. The current state of the art allows us to consider the Neolithic transition explained by demic expansion and acculturation processes as highlighted by archaeological and paleogenomics data. Focusing on demographic fluctuations predicted by the Neolithic demographic transition, and including the boom and bust patterns observed in different regions in Europe and around the globe, we propose to confront diachronic trends from demographic patterns by combining SPD and Bayesian chronological modelling from the cultural phases, based on lithic diagnostic features related to settlement data. To do this, we will build a multiscale approach considering residential data, lithic variability, and the current radiocarbon dataset in a wide temporal span from 9000 to 4000 cal BP. Finally, major social, economic and paleoenvironmental factors will be tested as possible drivers governing the observed demographic trends.

Keywords: Mesolithic, Neolithic, Demography, Demography, Cultural variability

Eastern Sicily environment and Neolithic strategies

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Abstract: Sicily, the largest island in the Mediterranean Sea, situated at the crossroads of routes and continents, since ca. VI millennium BC, has been reached by communities with economies based on agriculture and animal husbandry. There are more than 150 archaeological sites, where the presence of Neolithic artifacts and/or structures has been documented in the eastern part of Sicily. The studies include the environmental context of each of them, revealing the factors that could have a significant impact on neolithisation and settlement strategies. Fertile soils, sweet water sources, caves, as well as the occurrence of deposits and access to natural resources (i.e. volcanic rocks, obsidian, clay, or flint) undoubtedly had importance in the neolithisation process, but other conditions also had to be taken into consideration, such seismicity or Etna's eruptions. In addition, some Neolithic sites were discovered in particular places such close to the mud volcanoes, which shed light on the relationship between man and nature in the New Stone Age and further emphasize difference respect Mesolithic communities living on the island. While most of the previous studies on the Sicilian Neolithic were focused on the typology of artifacts and the sites, the environmental aspects left a gap, which this paper will deal with the approach of geomorphological, geological, hydrological, and pedological analyses.

Keywords: Sicilian Neolithic, neolithisation, Eastern Sicily, environment

The arrival of the Neolithic in Sicily and in the western Mediterranean

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Abstract: Sicily is located in the center of the Mediterranean Sea and, precisely because of its privileged position, has played a fundamental role in the historical dynamics since the Neolithic. Most of the flows came from the Aegean Sea and Anatolia, and therefore the first affected part was the south-eastern part, the current area of Syracuse and Ragusa. The western part of the island was more interested in trade and movement from North Africa. The latest acquisitions give us a sometimes tortuous path, which has led many regions to be affected by cultures from the east of the island, but only in macro-areas, especially in the interior of the island. In particular the western area where anthropization took place according to the model of the Chiefdom, with a hegemonic site with many other small settlements around it. The most important cultures were Stentinello, Tricromica, Serra d'Alto and Diana. In the latter two a very high refinement was reached for the period which ended at the end of the third millennium BC.

Keywords: corleone, neolitico, vintaloro, museo, sicilia

Post-marital residence rules and transmission pathways in cultural hitchhiking during demographic dispersal

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Abstract: Cultural evolutionary processes can often lead to a statistical association between neutral and adaptive traits during episodes of population dispersal and the introduction of a beneficial technology in a geographic region, such as the spread of farming. Here, we examine such cultural hitchhiking processes using an individual-based model portraying cultural and genetic interaction between a migrant and an incumbent population. The two populations are characterised by different variants for their neutral and adaptive cultural traits, with the latter set providing a reproductive advantage for the migrant communities over the incumbent ones. We explore how the neutral traits of the migrant population spread and how this process is conditioned by the following factors: 1) the possibility of transmission of the adaptive traits; 2) the extent of the increased reproductive advantage provided by the adaptive variants of the migrant population; 3) post-marital residence rules; and 4) how and when neutral traits are transmitted. Our results reveal a diverse range of outputs, highlighting the relevance of factors such as the nature of post-marital resocialisation and the specific combination of post-marital residence rules and sex-biased transmission.

Keywords: Cultural Hitchhiking | Sex-biased transmission | Pathways of Transmission | Post-marital residence rules | Individual-based modelling

The spread of ideas, objects and people as a key factor for the coalescence of the Neolithic in South West Asia.

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G13

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Abstract: Once the Neolithic way of life was established in various centers around the globe, it spread to neighbouring regions, bringing about crucial transformations in human societies. This spread was enabled by the mobility and migration of Neolithic communities and the exchange of ideas. However, the key role of transmission of innovations in the coalescence of the Neolithic, focusing on their origins, remains less discussed. Recent research in Southwest Asia highlights the multi-regional nature of Neolithic origins in this key area. Core Neolithic innovations—including rectangular houses, cereal and legume domestication, animal husbandry, various tools and techniques, and ornaments—emerged contemporaneously in distant regions, suggesting a rapid transfer of ideas and objects. This was facilitated by an extensive supra-regional exchange network, which reinforced the innovation capacity and resilience of the process of transition to the Neolithic. This contribution addresses the establishment of new subsistence and socio-economic systems, focusing on debates around building environment, lithic production techniques and use of specific tools (hunting and harvesting), and obsidian circulation within the PPNA and PPNB periods. Analysing these changes will help us understand the expansion of the Neolithic way of life across SW Asia, as its origins and early development reveal the dynamic forces driving this transformative process.

Keywords: Neolithic, South West Asia, Cultural interaction, Exchange

The Near-Eastern Roots of the Neolithic in South Asia

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G13

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Abstract: The Fertile Crescent in the Near East is one of the independent origins of the Neolithic, the source from which farming and pottery-making spread across Europe from 9,000 to 6,000 years ago at an average rate of about 1 km/yr. There is also strong evidence for causal connections between the Near-Eastern Neolithic and that further east, up to the Indus Valley. The Neolithic in South Asia has been far less explored than its European counterpart, especially in terms of absolute (C-14) dating; hence, there were no previous attempts to assess quantitatively its spread in Asia. We combine the available C-14 data with the archaeological evidence for early Neolithic sites in South Asia to analyze the spatio-temporal continuity of the Neolithic dispersal from the Near East through the Middle East and to the Indian subcontinent. We reveal an approximately linear dependence between the age and the geodesic distance from the Near East, suggesting a systematic (but not necessarily uniform) spread at an average speed of about 0.65 km/yr.

Keywords: Neolithic, Agricultural spread

Emergence of food production in southwest Arabia

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G13

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Abstract: Archaeological research since 1980 has developed evidence for the appearance of domesticated plants and animals in southern Arabia during the Middle Holocene. The current faunal and botanical evidence indicates a two-step development of food production in SW Arabia (Yemen and southern Oman), just as in SE Arabia (Emirates and northern Oman). The still scant faunal evidence indicates that ovicaprid and cattle herding appeared perhaps as early as 6000 calBC and definitely by ca. 5000 calBC, both in the interior desert fringe and in the highlands of Yemen. Sites – often just dated hearths but also ceremonial locations–dated to the 6th and 5th millennia calBC are common, but 4th millennium calBC sites are sharply reduced in number; this shift coincides with desiccation across southern Arabia and it parallels the “dark millennium” described for SE Arabia. Near the end of the 4th millennium a suite of Near Eastern domesticated plants appeared in SW Arabia highlands, and soon after water control systems began developing along the interior desert fringe. The timing of these developments again paralleled events in SE Arabia. This paper reviews the evidence for the two-step introduction of food production to SW Arabia in the context of changing climatic and demographic conditions, and explores both the origins and the consequences of these economic changes.

Keywords: South Arabia, Yemen, Middle Holocene, early pastoralism, early farming

Neolithic Neighbours – Populations Dynamics and Material Culture in Northern Arabia and the Jordanian Badia

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Abstract: Recent research in northern Arabia and Jordan's eastern badia has revealed new insights into the population dynamics that underpinned the spread of pastoralism in the Neolithic. These data allow a more nuanced narrative to emerge which charts intense interactions and knowledge exchange between both regions, perhaps related to the uptake of domestic stock and subsequent transhumance movements. Remarkably, cultural traits appear to have been transmitted in both directions. Discovery of early Holocene lithic assemblages in northern Arabia highlight that Levantine stone-tool technologies extended far into the peninsula. Indeed, Levantine typologies can now be traced there over several millennia. On the other hand, northern Arabia is home to a prolific and long-lived rock art tradition which spans the early and middle Holocene. The recent discovery of apparently Neolithic cattle depictions in Jordan now shows that the sphere of overlapping cultural traits was far more extensive than previously thought, a notion supported by emerging architectural similarities between the two regions. Crucially, these data highlight that the Nefud desert was not a barrier. Over several millennia, successive generations maintained regular contact across the desert, navigating episodes of climatic and environmental change that may have afforded different opportunities in the two regions at different times. The Neolithic of the neighbouring regions of northern Arabia and the Jordanian badia thus highlights an extraordinary human ability to rise to the challenges of adverse environments and gives unique insight into the local dynamics that underpinned the Neolithisation process.

Keywords: Population dynamics, rock art, lithic technology, pastoralism, cattle

Modelling population dynamics on the continental route of the European Neolithic expansion

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Abstract: The replacement of the hunter-gatherer way of lives by agriculture represents a turning point in human history. Palaeogenomic studies have revealed that the initial phase of this transition in Europe was triggered by the migration of farmers from Anatolia and the Aegean area, accompanied by admixture with indigenous hunter-gatherers. However, the interactions between both groups are still the subject of debate. We have developed a modelling framework to examine the population dynamics between indigenous hunter-gatherers and incoming farmers using spatially explicit simulations of palaeogenomic diversity. This framework was applied to the expansion of Neolithic farmers into Central Europe from Anatolia, along the continental dispersal route. We tested different interaction scenarios between these two groups, including competition and admixture, with the aim of investigating how these interactions vary in space and time. To assess the validity of the scenarios and obtain estimates of the demographic parameters, we compared the results of the simulations with palaeogenomic data using an Approximate Bayesian Computational framework (ABC). We will present estimates of various population dynamics parameters, such as the spatiotemporal variation of the admixture rate, the level of competition and the ratio of effective population size between Neolithic farmers and hunter-gatherers, and the proportion of long-distance migrations of early farmers. We will also discuss possible links between the evolutionary processes deduced and interactions that may have taken place on a more local scale.

Keywords: Evolutionary modelling, Population genetics, Paleogenomics, Population dynamics, Spatially explicit simulations

The Neolithic on Water: Neolithic Seafarers and the Colonization of Cyprus

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Abstract: For many years, conventional wisdom was that, globally, the Neolithic, when it appeared on islands, was a relatively late phenomenon compared to the mainland. This same reasoning often dispelled the seafaring abilities of pre-Neolithic peoples as well. Over the past several years, however, both of these scenarios have been disproven. We now know that seafaring extended back to Middle Paleolithic pre-homo sapiens voyagers. This appears to be the case in several parts of the world, including the Mediterranean. We also know that Neolithic economies and ideologies, in the Near East at least, appeared on islands much earlier than previously believed. In particular, Cyprus now has a developed Neolithic that is as early as its mainland counterparts. Available data suggest that farming may initially have been less important than herding and deer hunting. This paper reviews the evidence for early Neolithic adaptations in Cyprus, a case study of PPNB Ais Giorkis as well as other early sites. Several issues are relevant to a “seafaring Neolithic,” including technology (e.g., suitable boats, navigation skills, plant and, especially, animal transport, domestication status) as well as ideological frameworks (e.g., desire to explore new regions, formation of island identities, social structures allowing for specialized “professions,” such as boat builders and navigators). I conclude with a call to critically re-evaluate the seafaring abilities of early humans, both during the Neolithic and prior to it.

Keywords: Cyprus, seafaring, island colonization and adaptation

Reevaluating the Neolithic of the Margins: The Case of the Western Sahara

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Abstract: Until recently the Western Sahara has played a marginal role in the inquiry about the adoption and expansion of the Neolithic in northern Africa. This region has been traditionally considered passive from the cultural point of view and chronologically delayed in comparison to the neighboring areas due to its arid conditions and eccentric location in the far west of the desert. However, recent research in the adjacent areas of northwest Mauritania has revealed the particular evolution of the Neolithic in this region, challenging these previous assumptions. In the Western Sahara, rock-art studies have highlighted the symbolic autonomy of the local populations and attested long-distance contacts during this period. However, we still lack essential archaeological information to further discuss the still unsolved issues related to the chronology, economy and technology of the Western Saharan Neolithic. For that reason, we conducted several excavations, such as at the Lajuad 2 shelter. This site, located in the southern Tiris region, has yielded a well stratified record, including lithic artifacts, pottery, fauna, and other bioarchaeological remains, providing a first insight into the subsistence, environment, and cultural evolution in this region. Integrating these findings with those from other sites like the excavation of the Ashash rock-shelter in the northern Zemmur region studies contributes to a broader understanding of the adoption and evolution of the Neolithic in the whole Western Sahara.

Keywords: Neolithic, Western Sahara, Rock-art, Pottery, Bioarchaeology

The Appropriation of Hunter-Gatherer Sacred Landscapes as a Mode of Neolithisation: The Late Mesolithic – Early Neolithic Transition at Freston, Eastern England

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Abstract: Based on scientific dates, archaeobotanical, faunal, and human genetic data, farming lifeways were first introduced to South-East Britain by migrant farmers from continental Europe at the end of the 5th millennium cal. BC. This paper considers the interaction between indigenous hunter-gatherers, and settler agriculturalists, focusing on the site of Freston in eastern England. The site comprises a large, causewayed enclosure (centred on a spring), whose northeast quadrant contains a longhouse. The latter structure – yet to be excavated - likely relates to the Initial Neolithic (c. 4050-3750 cal. BC), while our recent investigations of the enclosure date its establishment to the Early Neolithic (c. 3750-3600 cal. BC). Amongst the research questions posed by the Freston Archaeological Research Mission, are: ‘why here?’ and ‘why so large?’ with the enclosure covering 8.55 hectares, the fourth largest such monument in Britain. Recent excavations shed light on these matters, with the discovery of a Late Mesolithic presence at the site (including possible burials), that in the southwest quadrant seemingly extend from the central spring to the interior boundary of the later Early Neolithic monument. We offer a working hypothesis that the settler farmers recognised and appropriated a gathering place of great cultural significance to the indigenous hunter-gatherers, the causewayed enclosure being constructed to literally encompass their sacred landscape, hence its notable size. While Freston does not fall in the area associated with the earliest farmers in Britain, it does make significant contributions to debates on the longer-term processes of Neolithisation more generally.

Keywords: Neolithisation, Late Mesolithic, Early Neolithic, Causewayed enclosure, Britain

Semi-Domestication of Deer. Exploring Post-Paleolithic Rock Art

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Abstract: The red deer is a remarkable animal among those living in a liminal space between domesticity and wilderness. However, its adaptability to semi-free captivity in open fields enclosed by barriers is notable, allowing for breeding efforts to be undertaken. Final Mesolithic – Early Neolithic rock art reveals a high skill in the hunting of red deer to keep them alive, uninjured and under control. It was part of community playful ceremonies, and in adherence to certain taboos that forbade senseless or overly massive hunting. Additionally, stags were exploited/included in shamanic ceremonies. However, the primary motivation behind hunters chasing red deer while leaving them alive was likely for the purpose of semi-domestication, akin to the practices of North Scandinavian populations with reindeer. These animals were primarily bred for meat production. Domesticating them for milk production posed greater difficulties. Hinds, in particular, proved challenging due to their intolerance of stable conditions, minimal milk production, and lengthy milking processes. Nevertheless, traces of semi-domestication of red deer are evident in Levantine rock art of the Iberian peninsula. Very early scenes illustrate efforts to breed red deer in the wild using purpose-built barriers for control, tableaus showcasing deer shepherds and pastures, surprising illustrations of milking tamed hinds, acrobats standing atop galloping stags, along with the earliest iconography of the myth of the female red deer with majestic antlers. These remarkable representations provide valuable insights into the early attempts at red deer domestication.

Keywords: Red deer, Early Neolithic, Levantine Rock Art, interactions between farmers/herders and hunter-gatherers, Domestication and herding process

Inferring language dispersal patterns with velocity field estimation

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Abstract: Around 10,000 years ago, the rise of the Neolithic Revolution (i.e., the Agricultural Revolution) brought significant cultural transformations and technological advancements to human populations, motivating the occurrences of substantial population expansions, culture spreads, and language dispersals worldwide. Given humans as carriers of languages which in turn carry cultures, the spatiotemporal alignment of genetic, archaeological, and linguistic evidence was thus proposed to depict "true" human prehistory. While temporal alignment has been established, spatial alignment remains unclear due to the ambiguity of language dispersal patterns worldwide. Language dispersal patterns can be traditionally modeled by phylogeographic approaches. However, their reliability is questioned due to the inconsistencies between language genealogy and phylogenetic tree induced by horizontal transmissions (e.g., lexical borrowing). Consequently, the phylogenetic tree limits the explicit reconstruction of worldwide language dispersal patterns. Recent methodological advances suggest velocity field estimation as a promising tool to overcome this limitation. Noting this, we introduce the language velocity field estimation (LVF) to reconstruct language dispersal patterns independently of the phylogenetic tree. Using LVF, we infer dispersal patterns of four prominent languages: Indo-European, Sino-Tibetan, Bantu, and Arawak. Our results show that their dispersal trajectories primarily align with population movement routes inferred from ancient DNA and archaeological materials, with dispersal centers near ancient homelands of agricultural or Neolithic cultures. Our findings highlight that the agricultural languages dispersed alongside the demic diffusions and cultural spreads during the past 10,000 years. We anticipate that LVF could aid spatial analysis of language evolution and contribute to studies on demographic and cultural dynamics.

Keywords: Human prehistory, Interdisciplinary evidence alignment, Language velocity field estimation, Language dispersal trajectories and center

Climate-induced language spread in Africa, Eurasia, and South America: farming is not the whole story

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Abstract: As one of the outcomes of an ongoing study of prehistoric rates of language diffusion worldwide, some interesting cases of abnormal rates of spread were observed. Languages in all world areas show average rates of spread that are relatively constant from the earliest language diffusion events that can be observed, around 6000 years ago, until around 2000 BP, when Eurasian, African, Austronesian, and South American languages begin to spread increasingly faster. However, there are early bumps in the curves for rates of diffusion around 5.5 ky BP in Africa, around 4.2 ky BP in Eurasia, and around 4.1 ky BP in South America. Unexpectedly, the first two cases coincide with known, climatic catastrophes: in Africa the end of the humid period, and in Eurasia a period of severe drought. For South America data on reconstructed climate are more scant, but it seems likely that some climate change event also occurred here. This paper takes a closer look at the particular cases that account for the increases in language diffusion rates. In Africa the languages involved include early descendants of Atlantic-Congo and Afro-Asiatic; in Eurasia it is the Indo-Iranian and Balto-Slavic proto-languages that undergo fastest displacement; in South America the relevant languages are early offshoots of Arawakan and Chibchan. The connection between climate change and language dispersal involving some of the largest language families on the planet indicates that farming is hardly the only major factor that potentially needs to be considered when explaining the growth and spread of language families.

Keywords: linguistics, language/farming dispersal, climate, 4.2 ky event, migration

Hubs of farming - modeling the spread of agriculture in South Scandinavia during the first half of the 4th millennium BC

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Abstract: Recent DNA analysis has had a transformative impact on the debate of the spread of farming in South Scandinavia. New evidence of immigrating individuals is identified together with the appearance of husbandry and agrarian practices during the Early Funnel Beaker Culture. These genetic studies are better at identifying outcomes than actual understanding the social processes behind migrations as heterogeneous events caused by different push and pull effects. As an outcome the speed of the introduction of farming would be different in various regions. Understanding these processes requires archaeological data of high contextual quality and detailed chronological framework to identify trends of change, continuity, and transformations. It also involves a theoretical apparatus, where it is possible to discuss the complex hubs of negotiations of power, identity, and subsistence strategies, where people decided to be either isolated from each other or to meet and interact. In this paper I will present evidence of some overall patterns of push and pull effects together with differences in the spread of farming on a regional, local and individual scale. By using social learning theories, I will argue for a period of duality and contacts between immigrating farmers and indigenous hunter-gatherers resulting in a gradual dominance of agrarian practices during the beginning of the 4th millennium BC.

Keywords: South Scandinavia, neolithisation, migrations, learning theories, subsistence strategies

Niche construction: A general, comparative framework for studying neolithization processes?

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Abstract: This paper asks to which extent is it feasible to use niche construction theory as a general, comparative framework for understanding the introduction of farming and other aspects of Neolithic culture across regions. While this possibility has received some recent attention, we have yet to move substantially from the overall idea to considering research strategies that might allow us to analyse the onset of domestic economies in different regions as a set of niche construction processes. Using the well-documented Neolithic sequence of southern Scandinavia (from c. 4000 BCE onwards) as example, I illustrate both the promise and the challenges of using niche construction theory as an analytical starting point. While foragers in most parts of the world had already manipulated landscapes before the advent of farming, food producing communities did so in new ways and, over time, with far wider consequences. I discuss key parameters of a research strategy aiming to understand the processes by which the earliest farmers in a given region partly and gradually transformed their environment to a new economic and cultural niche. Especially, I emphasize the roles of palaeoenvironmental data, demographic information and an appreciation of cognitive niche construction. In addition, I discuss the particular difficulty of grasping the activities of very small populations (which is pertinent to early Neolithic sequences in most regions) and suggest some remediating steps.

Keywords: landscape, demography, research strategy, niche construction

Archaeozoological analysis of cattle and aurochs in Neolithic Austria

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Abstract: Prehistoric faunal assemblages from present-day Austria suggest that cattle were economically one of the most important domesticated species in most periods. Cattle provided meat, milk, work force and were of great social value for local societies. The human-cattle relationship was undoubtedly a very close and important. Our research investigates the beginning of the human-cattle connection and how it transformed during the Neolithic period, based on the archaeozoological record. The interaction between humans and cattle was influenced by numerous cultural and ecological factors, including the presence of aurochs (*Bos primigenius*), the extinct wild ancestor of domestic cattle. Morphometric studies on Neolithic cattle bones support occasional crossbreeding between aurochs and domestic cattle. In the present study we try to understand the impact of aurochs (*Bos primigenius*) on cattle and how it might have influenced husbandry. Finally, based on recent genetic finds, we discuss the contribution of ancient DNA to elucidate cattle history, but also the importance of interdisciplinary studies, combining genetic data, morphometric analyses and archaeology.

Keywords: ecological setting, Central Europe, subsistence change, human-cattle interaction, ancient DNA

Sowing one's wild oats: the domestication and spread of oat cultivation in Europe.

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Abstract: Studies on the origins and spread of agriculture in the Old-World focus almost exclusively on food crops domesticated in Southwest Asia (SWA). Those cultivated after native species from outside SWA have received scarce attention. Cultivated oat includes four distinct species within the *Avena* genus: *A. strigosa* (diploid), *A. abyssinica* (tetraploid), *A. sativa* and *A. byzantina* (the latter two are hexaploid). They are assumed to have been domesticated via the segetal pathway: weeds of other cereals, later taken into cultivation. The earliest archaeobotanical remains of domesticated oats appear in central Europe in the 2nd millennium BCE. Oat grains appear in SWA Neolithic contexts although, like elsewhere, distinguishing cultivated from wild or weedy oats is challenging. As such, the precise origins of oat cultivation remain elusive. If it is indeed a late crop and being a nutritious food for human and animals alike, the question remains: why did it take so long to be cultivated and why only in specific regions. Here, we present a combination of DArTSeq genotyping of 350 *Avena* accessions from 14 species, comprising mostly wild and cultivated oats from Eurasia, with the re-analysis of published datasets of global oat germplasm. These data suggest that oats might have been domesticated independently in different locations and time periods, from locally available wild species and not just from introduced weeds. If confirmed, these data suggest that the pathways to plant domestication were diverse and bring to the fore issues of intentionality, serendipity, and resilience strategies in the process of domestication.

Keywords: Archaeogenomics, *Avena*, Domestication, Spread, Europe

G15 - Bioarchaeological Perspectives on the Neolithic Transition

Session Organiser

Wolfgang Haak / Max Planck Institute, Germany

Mehmet Somel / Middle East Technical University, Türkiye

Abstract

This session will cover bioarchaeological advances that can or will shed new light on the Neolithic from the perspective of natural sciences, broadly including ancient DNA from animal, plants and humans, stable and dietary isotopes, microbiome, proteomics and residue analyses. The scope of the session is multidisciplinary and covers the many regions of the world that have witnessed a transition from foraging to food producing, sedentary lifestyles, including the domestication of plants and animals.

Emphasis is placed on comparisons of data from before, during and after the transition, between foraging and farming groups, or between regions, which can identify and characterise modes of change or continuity, but also on patterns of assimilation, exchange and admixture. Cross-regional, comparative analyses of bioarchaeological evidence on Neolithic transitions, i.e., from different parts of the world, would also be highly welcome.

We invite contributions of 20 minutes (incl. discussion time) on any of the four themes, or combinations thereof:

- 1) The roles of human movement and cultural interaction in processes of sociocultural change during the Neolithic transitions, studied through genetic continuity vs. discontinuity through time
- 2) Individual mobility, kinship practices and social organization in early sedentary communities
- 3) The domestication of animals and plants, with particular emphasis on the tempo of domestication processes
- 4) Evidence from dietary isotopes and residue analyses (e.g. proteomics or lipidomics) that are shedding light on changing lifestyles

An 8,000 years old genome reveals the Neolithic origin of the zoonosis *Brucella melitensis*

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Abstract: *Brucella melitensis* is a major livestock bacterial pathogen and zoonosis, causing disease and infection-related abortions in small ruminants and humans. A major burden to animal-based economies today, the presence of *Brucella* in Neolithic pastoral communities has been hypothesised but we lack direct genomic evidence thus far. We report a 3.45X *B. melitensis* genome preserved in an ~8,000 year old sheep specimen from Menteşe Höyük, Northwest Türkiye, demonstrating that the pathogen had evolved and was circulating in Neolithic livestock. The genome is basal with respect to all known *B. melitensis* and allows the calibration of the *B. melitensis* speciation time from the primarily cattle-infecting *B. abortus* to approximately 9,800 years Before Present (BP), coinciding with a period of consolidation and dispersal of livestock economies. We use the basal genome to timestamp evolutionary events in *B. melitensis*, including pseudogenization events linked to erythritol response, the supposed determinant of the pathogen's placental tropism in goats and sheep. Our data suggest that the development of herd management and multi-species livestock economies in the Southwest Asia 11th–9th millennium BP drove speciation and host adaptation of this zoonotic pathogen.

Keywords: pathogen, sheep, domestication, DNA

The Neolithic transition from a bacterial perspective: a population genetic approach

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Abstract: The Neolithic transition, one of the main demographic events in Europe 10.000 years ago, marked the shift from hunting-gathering to farming. The adoption of a new lifestyle triggered important changes in the evolution of both humans and their oral microbiome possibly associated with a higher abundance of two bacterial species: *Olsenella* sp. oral taxon 807 (OT807) and Anaerolineaceae bacterium oral taxon 439 (OT439). Previous studies on the oral microbiome during this transition gave contrasting results, often limited by small sample size distributed over a broad geographical area characterized by distinct ecological conditions. Moreover, most of these studies did not focus on the genetic structure of these bacteria. This project combines metagenomic and population genetic analyses to reconstruct the genomes of OT807 and OT439, focusing on dental calculus as a rich source of information. By analyzing published metagenomic data spanning different areas from the Paleolithic to the Bronze Age, our findings suggest an increase in the abundance of both OT439 and OT807 during the Neolithic, in agreement with previous studies. We also highlighted a clear genetic structure associated with this transition for the OT439 bacteria, which is absent in OT807. This suggests that OT439 could be a good marker for understanding Neolithization processes.

Keywords: Human oral microbiome, Ancient human population, Neolithic transition, Evolutionary and demographic processes

Ancient metagenomic perspectives on the Neolithic Transition in France

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Abstract: Dental calculus has become increasingly utilised in the field of ancient metagenomics as it preserves microbial DNA exceptionally well, allowing for the reconstruction of oral microbiomes. Moreover, calculus is widely available in the archaeological record and requires minimally invasive sampling. Host-associated microbial communities, such as the oral microbiome, play a role in host health and can vary across populations since they are influenced by lifestyle, diet, and ecology. Therefore, the cultural and demographic changes that occurred during the Neolithic transition can be reflected in the oral microbiomes of human groups from these periods. Recent studies suggest that the introduction of agriculture in southern Europe resulted in the gradual dispersal of microbial strains linked to farming groups, in addition to an increased abundance of oral pathogens and functional pathways associated with carbohydrate-rich diets. However, the Neolithic transition is not yet understood from a microbial perspective in present-day France, a region where both the Danubian and Mediterranean migration routes converged. Here, we present our findings from the wide-scale metagenomic study of dental calculus dating from the Upper Paleolithic to the Bronze Age and representing both routes of migration. We explore changes in microbial diversity at the compositional and functional levels, as well as the spread of microbial strains due to interactions between hunter-gatherers and early farmers. Finally, we highlight how ancient metagenomics offers a unique view on periods of sociocultural and biological change in the past when considered with archaeological and anthropological evidence.

Keywords: Neolithic transition, oral microbiome, diet, interaction, migration

Robust demographic inference from low-coverage whole-genome data through Approximate Bayesian Computation

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Abstract: The reconstruction of past demographic history relies on the pattern of genetic variation contained in the genomes of the sampled populations. Many inferential methods accomplish this task under the implicit assumption that the genotypes at polymorphic sites in whole genomes are typed without uncertainty. This assumption is commonly addressed increasing the sequencing coverage of each sample over 20-30x using modern sequencers. Although this approach is cost-effective and provide an accurate characterization of genotypes, it is limited to samples containing abundant and high-quality DNA. The sequencing of low-quality samples such as ancient or degraded specimens often results in low-coverage genomes in which the genotype calling is error prone, making such data unsuitable for many methods for demographic inference. Here, we present a new ABC framework, based on the Random-Forest (ABC-RF) machine-learning approach, to perform demographic inference using low-coverage whole-genome data and demographic models of arbitrary complexity. Simulated and observed data are compared using genotype likelihoods instead of genotypes to account for the uncertainty that characterize low-coverage samples. We assessed the inferential power of this framework in distinguishing among different demographic models and in inferring model parameters under different coverage levels (1x, 2x, 5x, and 30x), number of individuals, number and size of the genomic loci considered. We then applied the inferential framework to investigate the demographic history of hunter-gatherers and early farmers. Our results showed that the proposed ABC-RF framework provides reliable inferences of the past demographic history paving the way for ABC demographic inference exploiting low-coverage data.

Keywords: Ancient genomes, Demographic inference, Approximate Bayesian Computation, Low-coverage, Neolithic transition

Inter-regional mobility in SW Asia and E Asia following the Neolithic Transition: paleogenomic insights

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Abstract: Ancient genomes have evolved into a major information source on past mobility patterns over the last decade. We have recently used paleogenomic data to describe inter-regional human population dynamics in Southwest Asia and the East Mediterranean over the last 15,000 years. This revealed, in line with other published work, that the Neolithic Transition was accompanied by intense mobility among regional groups in SW Asia, leading to homogenization of gene pools by the mid-Holocene. This was followed by admixture from more distant sources from the Bronze Ages onward, which we termed the "expanding mobility model". Studying sex bias in mobility, we could also infer that inter-regional mobility during the Neolithic in SW Asia was either female-biased or did not show sex bias, whereas in post-Neolithic periods long-distance mobility in SW Asia became relatively male-biased. We have now extended this work to East Asia using published paleogenomes from the region. Interestingly, we find neither inter-regional homogenization during Neolithization, nor the post-Neolithic pattern of widening sources mobility, nor temporal changes in sex bias in our East Asian dataset. Our preliminary results thus suggest that Neolithic transitions in different regions may have followed unique inter-regional mobility and admixture patterns.

Keywords: mobility, sex bias, ancient genomics

Inter-Regional Mobility and Group Membership in Neolithic Northern Syria: A Diachronic Isotopic and Archaeological Investigation

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Abstract: The Neolithic transition in Southwest Asia involved significant changes in economic subsistence, sedentism, and population aggregation. This paper explores the role of inter-regional mobility throughout these processes of sociocultural change using archaeological (burial location, mortuary treatment) and isotopic (strontium and oxygen) evidence at five PPNA-LN sites in Northern Syria: Cheikh Hassan, Dja'de el Mughara, Tell Mureybet, Tell Halula, and Tell Sabi Abyad. The isotope evidence reveals substantial variability during the PPNA period, suggesting significant mobility despite the presence of permanent architectural structures. In contrast, Pre-Pottery Neolithic B (PPNB) populations show increased homogeneity in strontium and oxygen values, reflecting more sedentary behaviours. The late Neolithic exhibits a mixed mobility pattern, with substantial numbers of non-locals making part of the population buried locally. These findings align with broader archaeological evidence in the region, which suggests a growing attachment to specific locations over the course of the early Neolithic, and a subsequent loosening of spatial ties during the latest stages of the Neolithic. Furthermore, combining isotopic and mortuary evidence, we demonstrate that throughout the Neolithic newcomers in the region received similar burial treatments as locals, suggesting an inclusive approach to group membership. This study sheds light on the complex interplay between mobility and social integration during the Neolithic, contributing to our understanding of human behaviours and societal organization during this transformative period.

Keywords: Syria, Mobility, Sr and O isotope analysis, burial practices, group membership

Contemporary Indus Valley population mitogenomes reveals substantial local transition and limited demic diffusion of early Neolithic farmers in South Asia

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Abstract: The Indus Valley Civilization (IVC), also known as Harrapan Civilization, stretching across over one million square kilometers, was one of the first known Bronze Age civilizations in the northwestern regions of South Asia. Whether Indus Valley Civilization (IVC, 3300-1300 BC) populations of South Asia experienced the genetic continuity from local indigenous groups or received genetic contribution from Middle East farmers, still remains controversial. To answer this question and elucidate the matrilineal origin of IVC, we collected and analyzed all the available (>7000) ancient and modern complete mitochondrial genomes from South Asia and surrounding (e.g., Europe, West Asia and East Asia), including a new indigenous group of diverse ethnicities from Pakistan, often portrayed for their role in peopling of South Asia. Our results revealed substantial proportion of lineage in South Asia coalesced to the IVC period and can be further traced back to autochthonous groups during Paleolithic era, supporting strong genetic continuity in Indus Valley from Paleolithic period to IVC and to the modern period. Notably, we identified genetic components such as U7 etc. likely introduced into South Asia by Neolithic farmers from Middle East, revealing a limited demic diffusion. Moreover, our demographic analysis captured population size declines for those located outside IVC core areas. In contrast, populations from the core area as well as the legacy of Near East farmers and Steppe nomads exhibited population increase during the post-IVC period, revealing an association of migration of extraneous populations with limiting IVC to the regional urban centers until recent times.

Keywords: Demic diffusion, Genetic continuity, Indus Valley Civilization, Mitogenomes, Neolithic farmers

Re-examining Sociocultural Dynamics in the Indus Valley Civilization: Perspectives from Genetic Persistence and Social Structure

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Abstract: The Indus Valley Civilization (IVC) offers a fertile ground for investigating ancient societies' complexities, revealing human movement, cultural interaction, social organization and subsistence pattern during Neolithic transitions. The IVC Sites are located in portions of Afghanistan, Turkmenistan, Iran, present Pakistan, and northwest India. Despite much focused evidence, there is significant disagreement on the causes of social shifts within the IVC, particularly during the transition period. By analyzing the historical background of early advances in Southwest Asia and East Asia, the research seeks to comprehend the Neolithic cultural development on the Indian subcontinent. It provides evidence of the sociocultural changes in the IVC due to a shift from a hunter-gatherer to a sedentary lifestyle. These gradual shifts in the civilization are explained by the archaeological evidence from sites such as Mehrgarh and Gufkarl, which also features an aceramic Neolithic period at the base followed by a ceramic Neolithic phase. To explain patterns of migration, admixing, and cultural interchange within the IVC, the study explores multidisciplinary approaches such as genetic studies, comparative language research, genomic data, archaeological evidence, and anthropological ideas. The research also investigates genetic continuity between early Harappan and mature phases and potential interactions with neighbouring populations like Aryan migrants. This study enhances our understanding of the IVC and provides insights into the Neolithic era's human migration, cultural transmission, and genetic variety. It aims to comprehend the intricate relationships between genetic patterns, cultural exchange, and human mobility, providing insight into ancient societies' dynamics and their impact on contemporary society.

Keywords: Neolithic transition, human mobility, genetic continuity, cultural interchange, Indus Valley Civilization

Paleogenomics of Imputed Genomes Reveals and Dates Admixture Pulses and Associated Cultural Practices Throughout the European Neolithic

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Abstract: The neolithization of Europe has its origin in Anatolia and/or the Aegean. Archaeologists have meticulously examined the corresponding cultural diffusion of the Neolithic all over Europe, an effort that yielded a detailed picture of this process. Nevertheless, archaeology could not definitely settle the question of the extent to which diffusion was primarily driven by cultural interactions or by demic factors. Over the last 10 years, paleogenomics clearly demonstrated that the new culture was introduced into Europe by early farmers of Anatolian/Aegean origin starting in the 7th millennium BCE. The groups that had expanded into Central Europe along the Continental route continued their westward spread into a territory inhabited by Mesolithic hunter-gatherer groups. Paleogenomic data showed that the two groups admixed. At the end of the Neolithic, groups from the Pontic steppes migrated westwards and admixed with Neolithic groups in central Europe. We used imputed European genomes from these periods to show that the admixture of these groups was not a random process but occurred rather as pulses followed by periods of admixture stasis and endogamy. These results shed light on hitherto undescribed mating and hence cultural practices of the corresponding groups.

Keywords: paleogenomics, admixture, Mesolithic, Neolithic, Steppes

When cultural insight of admixture does not match genome ancestry: the case of the Cerny culture (Middle Neolithic, Northern France)

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Abstract: Archaeological and paleogenetic data demonstrate the introduction of an exogenous culture into Europe in the Early Neolithic, accompanied by the spread of Anatolian populations. Genetic studies show that admixture between Neolithic farmers and descendants of local Mesolithic hunter-gatherers subsequently occurred to varying degrees throughout the Neolithic period. In the Paris Basin (France), the Middle Neolithic is characterized by the Cerny culture (4700-4300 BCE), which associates agricultural practices with funerary traditions referring to hunting and the wild world. In addition, several adult males, qualified as archers because of arrowheads in their graves, show skeletal evidence of intensive archery practice, suggesting a late acculturation of hunter-gatherers at the origin of the Cerny culture. However we found that the genomes of about twenty individuals sampled from several Cerny necropolises do not present a larger proportion of Mesolithic ancestry compared with other Middle Neolithic populations, indicating that their funerary ideology was not linked to high genetic admixture with descendants of hunter-gatherers. The dead present in the Cerny monuments do not exhibit a high degree of biological kinship, which suggests that different families had access to these extraordinary burial places. We then placed the Cerny individuals of our study within the Neolithic genetic diversity of France by comparing them with published genomes corresponding to (i) non-Cerny populations from the Paris Basin, and (ii) Cerny populations located outside the Paris Basin, and showed that they belong to a large, weakly structured population.

Keywords: Paleogenetics, Middle Neolithic, Interactions, France, Admixture

The Early Management of Caprines in the Pre-Pottery Neolithic Southern Levant: New Insights from Animal Palaeodiet Reconstruction Using Dental Wear Analyses

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Abstract: The transition from hunting-gathering to food production societies in the southern Levant is reflected by the replacement of gazelle hunting with goat husbandry as the primary mode of animal exploitation during the Pre-Pottery Neolithic B (PPNB ca. 8,500-6500 cal. BCE). Various lines of zooarchaeological and isotopic evidence strongly suggest local experimentation with goat management with increased kill-off of juvenile animals and supplementation of goat diets. However, little is known about the techniques employed by humans to provide food to early managed animals. In this context, animal palaeodiet reconstruction can offer direct insights into early herding systems, which have been rarely addressed at any depth to date. Through complementary dental micro- and mesowear analyses that reveal animal dietary intake at both short- and long-term scales, we explore the ways in which humans may have directed caprine diets as part of early husbandry practices. We examine this process at the MPPNB of Beidha, where people experimented with goat management, and the LPPNB settlements of el-Hemmeh and es-Sifiya where domesticated sheep and goats were herded and cereal crops grown. Using reference data derived from modern domesticates subjected to different extensive and intensive management systems, modern wild ibexes, and gazelle - a wild ungulate that was not domesticated, our findings shed new light on the variability in management strategies applied to adult and juvenile animals, and how geographic context further influenced early animal feeding strategies.

Keywords: Animal husbandry practices, sheep and goats, zooarchaeology, Bioarchaeology, Near East

Paleogenomics Of Wild Cattle and Their Domestication

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Abstract: The wild ancestor of domestic cattle, the aurochs, has a long history associated with early humans in Europe: not only was it a food source that was hunted, the hunt being a dangerous endeavor it also occupied a prominent place in the imagination of Paleolithic hunter-gatherers of which the numerous Aurignacian and Gravettian cave paintings bear witness. Our paleogenomic results show that while the population dynamics of Pleistocene aurochs populations were determined by environmental fluctuations, this changed with the onset of the Neolithic when their evolution was more and more driven by human action. Genomic data translate human-driven evolution of the aurochs throughout the domestication process until their final extinction in eastern Europe at the beginning of modern times. The last 7,000 years of their evolution in Europe was shaped through both human-driven landscape changes and their domestic counterparts. In order to better understand the domestication process of wild cattle in Neolithic Upper Mesopotamia and Anatolia we characterized genomically the population dynamics of the aurochs from the Upper Pleistocene to the end of the Neolithic. Our mitogenome data describe the population dynamics of aurochs in Pleistocene Europe. Comparison between mitogenomes and genome-wide data uncover striking differences that can partially be explained by female- and male-specific behavior. They also reveal the domestication and Neolithic migration processes and hybridization between wild and domestic cattle in Europe.

Keywords: Paleogenomics, Cattle Domestication, Aurochs, Population Genomics, Climate fluctuations

Ancient pig genomes reveal the origin and legacy of pigs translocated during the Austronesian expansion

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Abstract: The spread of farming technologies during the Neolithic period led to the translocation of plants and animals beyond their native ranges, triggering significant changes in local biodiversity, with some introduced species becoming feral in their new environments. A prime example is the introduction of pigs to thousands of islands in Island Southeast Asia, Micronesia, Melanesia and Polynesia during the Austronesian expansion. While evidence suggests that pig introductions to these islands may have predated the Austronesian expansion through earlier hunter-gatherer activities, and additional introductions occurred during colonial periods, the origins of the pigs transported during the Austronesian expansion and their long-term impact remained unclear. To address this, we sequenced and analysed over 100 ancient, historical and modern nuclear pig genomes from Island Southeast Asia, Micronesia, Melanesia, and Polynesia. Our findings reveal that pigs found beyond the Wallace Line, in areas where they are non-native, derive most of their ancestry from pigs directly transported from mainland Asia during the Austronesian expansion. This result underscores the long-lasting consequences of human-mediated livestock species introductions on island ecosystems within the Wallacea archipelago.

Keywords: ancient DNA, domestication, Austronesian, Lapita, pigs

Ancient genomes of aurochs and cattle and the nature of domestication

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Abstract: The aurochs loomed large in human prehistory but is extinct. However, its legacy is considerable: its descendents, cattle, contribute more biomass to the earth's total than any other mammal. We analyse whole-genome data from 40 ancient Eurasian *Bos primigenius* spanning the Late Pleistocene through to the Holocene. We also present ~100 new ancient cattle genomes coanalysed with prior published data. These geographically and temporally diverse genomes allow us to explore how *Bos* diversity and demography was shaped first by climate changes and then by human capture and herding. We find that initial domestication was of a narrow genetic aurochs gene pool (indicated in both autosomal and mtDNA) but this was subsequently augmented by multiple processes of backcrossing with the wild observed in each direction of cattle dispersal. A time series of cattle genomes also allows the tracing of important genetic changes which have been selected for production and other traits, including dairying. This research represents the contributions of many collaborators who will be acknowledged during the presentation of this work.

Keywords: ancient DNA, Genomics, animal domestication

G18 - The Impact of Neolithic Architecture – the Emergence of Human Built Environment

Session Organiser

Moritz Kinzel / German Archaeological Institute- Istanbul Branch, Germany

Emmanuel Baudouin / CNRS – French National Center for Scientific Research, France

Abstract

This session aims to highlight the impact of the emergence of architecture in the Neolithic on human social behaviour, the changes in the perception of space and development of building technology. Neolithic architecture can be understood as a largescale laboratory for testing structural and spatial solutions; some of them are lasting until today; e.g. the right angle. However, no buildings codes were established; resulting in constructions built without structural safety coefficients - stretching occasionally far beyond nowadays limits. Locally available material sources defined building techniques and materials. Environmental conditions, topographical settings and social constraints influenced shape and structural designs.

In addition, recent anthropological and archaeological discussions have shown how architecture can be seen as an important form of symbolic representation, a material expression of concepts, values and social orders. The socio-cultural factor may have played a significant role in the diversity of building techniques or the dynamics of changes (invention, convergence, diffusion, etc.). In other words, Neolithic people modified buildings to adapt them to their traditions, changing needs and diversifying activities as well as responded to climate changes and destructive events, e.g. earthquakes, flooding or fire.

We would like to invite colleagues to discuss continuity, change and discontinuity of Neolithic architecture (on a global scale); its impact on social behaviour as well as the formation of group identities. Furthermore, we would like to investigate how Neolithic buildings were perceived and if this perception may have differed from the intended impact as well as the changes over time. What are the differences in perception for domestic and communal (special) buildings?

Understanding the evolution of architectural choices of Neolithic builders: the example of earth and wood constructions in the southern Balkans in the 5th millennium BC

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G18

¹UMR 7041 ArScAn - Aegean Prehistory

Abstract: The recent study on earth and wood construction techniques in the southern Balkans and northern Aegean has allowed, through precise methodology and exhaustive analysis of architectural remains, to get closer to the builder behind the building. Beyond the remains and techniques themselves, it has been possible to understand the choices and compromises made by the Neolithic people of the southern Balkans in constructing their buildings, whether domestic or communal. In this presentation, we would like to present the results obtained through the study of wood and earth materials regarding the evolution of construction choices made by the builders. We will evaluate them over time (on the scale of the 5th millennium BC) and across space (from the Danube to the Aegean Sea) to compare different human groups. We will then propose hypotheses about the socio-economic impact of these architectural choices on societies or, conversely, about the influence of social codes on architectural choices. Finally, anchored in a specific environment, we will add to the previous results the visible relationships between environment and architecture. For example, climatic conditions have generally led researchers to propose gabled roofs in building reconstructions. However, some archaeological evidence allows us to move away from environmental determinism and opens the door to other possibilities, potentially linked to new social influences.

Keywords: Architecture, Balkans, Techniques, Builders, Earth and wood construction

From Circle to Square. Evolution of the Architectural Plan and its Importance for Neolithic Architecture Development

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Abstract: Transformation of the plan seems to be one of the most fundamental elements characterizing the evolution of Neolithic architecture. It took place during the PPNA stage and developed from simple round mono-cellular structures to the invention of multi-roomed square or rectangular ones. Their invention was the turning point in the development of architecture. The modular square plan allowed for better use of space and the development of increasingly complex architectural structures, adapted to the economic and social progress of Neolithic populations. However, archaeological data indicate a much faster development of this element of architecture in the Northern Levant compared to other parts of the region. This could have been the result of individual development dynamics of original architectural types stimulated by regionally invented practical and technical solutions. The paper aims to explain the causes of this process based on two possible variants of the evolution of architecture at the very beginning of the Neolithic period, developed in individual regions of the Fertile Crescent. Each featured specific traits and determined further development of the house plan during the PPNA and EPPNB stages. However, only one of them led to the invention of square-plan buildings, which then spread throughout the Middle East and beyond.

Keywords: Evolution of architectural plan, Fertile Crescent, Pre-Pottery Neolithic, architectural forms development, beginning of architecture

Neolithic dwellings in India: A study of house structures in Sikkim

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Abstract: The Neolithic period brought in numerous changes to the human society across the world at different time spans. Alongwith domestication of animals, cultivation of varieties of plants, discovery of pottery, settlement of human population were the characteristic features of this great revolution globally. From hunter-gatherer-fisher, the lifeways of the Neolithic men changed to agriculturalists as well as potters. Also, settlements began to be made at different localities across the globe at different altitudes, different climatic condition etc. with whatever raw materials found in the neighbourhood as found from archaeological excavations. Human beings globally lived both below the ground in dug out pits or above the ground making huts with locally available raw materials like trees, bamboos, reeds, grasses and others, even plastered with mud at times depending on the geographical condition. In India too, evidence is found of pit-dwelling to thick mud walled houses in the river plains, to thatched houses in the northeastern region. In Sikkim, one of the Himalayan states in Northeast India, tradition of building wooden houses on stone foundation continues since generations. It is believed that the stones protect the houses from natural calamities like thunder, lightning, and earthquake. Taking help of ethnoarchaeological method, this paper is a humble attempt to understand the house structures of Sikkim made from available raw materials like wood, bamboo, and stone. These structures have been built since generations, probably since the Neolithic population occupied these regions of India although changes with adapting to modern concrete structures are also found.

Keywords: Neolithic, dwelling, house, Sikkim

Architectural Development in Northern Mesopotamia in the Late Neolithic Period and Architectural Scenes on Halaf Pottery: Domestic or Sacred/Communal Structures?

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Abstract: Architectural Development in Northern Mesopotamia in the Late Neolithic Period and Architectural Scenes on Halaf Pottery: Domestic or Sacred/Communal Structures?The Halaf Culture, known as the culture of the Late Neolithic Period, spread over a wide area in northern Iraq, northern Syria, western Iran and Southeastern Anatolia in 6100-5300/5100 BC. The communities belonging to the Halaf culture generally consumed cultivated cereals/grains and wild plant species and domesticated or wild animal species. The main economy of this culture was agriculture and there were also small groups of Halaf communities engaged in hunting and animal husbandry. The architecture of this period is round-planned, sometimes with rectangular additions, are the most common type of building known from the Halaf period. Generally, the architectural style that started with round-planned structures in the Early Neolithic period is seen to have transitioned to quadrilateral or rectangular structures in the late Early Neolithic or Middle Neolithic. However, with the emergence of the Halaf culture in the Late Neolithic period, the transition to round-planned structures is observed again. Especially in the settlements where Halaf culture is observed, round buildings constitute the characteristic architecture of the period. However, in the architectural scenes seen on Halaf pottery, the buildings are generally 2-storeyed and made of wood. In this paper, the architecture of the Late Neolithic period in Northern Mesopotamia will be discussed. In addition, it will be discussed whether these two-storey and wooden architectural scenes seen on represent sacred/or communal structures or the dwellings of the inhabitants.

Keywords: Late Neolithic, Northern Mesopotamia, Halaf Culture, Late Neolithic Architecture, Architectural Depictions

The Round Tower and Neolithic Architecture at Jericho: its conceptual implications

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Abstract: Tell es-Sultan/ancient Jericho, one of the most prominent sites of West Asia Neolithic provided different Neolithic Architectures: a Round Tower, several superimposed Town-Walls and a distinguished series of examples of domestic architecture, which may illustrate how building became a mind behaviour of Neolithics. The paper questions what are the conceptual implications of the beginning of architecture, what mental and social dynamics are elicited by the activity of building, what are the economic organizational ramifications, and what are the symbolic outcomes. Recent excavations and studies by the Italian-Palestinian Expedition have shed new insights into the topic, refining the chronology of development of the Neolithic architecture traditions at Jericho.

Keywords: PPNA, PPNB, Jericho, architecture, anthropic landscape

The False Pretense of Permanence: Early Neolithic Sedentism Seen from Cyprus

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Abstract: Research on the origin of Neolithic sedentism is haunted by our own desire for permanence. This is best illustrated by the importance traditionally given to the stone architecture of the Southern Natufian as an indisputable index to a radically new way of life. The durability of built forms, however, is not necessarily congruent with that of a place or an occupation. Perennial places can be a marker of highly mobile societies, whereas one could argue that the real issue raised by inhabiting continually a site is to learn how to deal with the impermanence of things. Two unprecedented discoveries in Cyprus allow us to decenter our understanding of emergent sedentism along this line. The recently excavated PPNA settlement of Klimonas have made the island an integral part of the Neolithic transition of the Levant, while the ongoing research on Epipalaeolithic Pakhtomena provides with the oldest dwelling structures in any major Mediterranean island. Respectively a fully sedentary site occupied during a relatively short time and a seasonally frequented site over a long period, they renew our perspective on the practical dimension of sedentism and mobility. Instead of a single threshold or a continuum, these results invite us to reflect on a more complex genealogy, at the intersection of an older Epipalaeolithic tradition of place-making through cumulative practices, and of a Neolithic sudden shift to a new fragile material: earth. Beyond the false pretense of permanence, transience and repetition better informs – contextually – the beginning of Neolithic sedentism.

Keywords: Place, Material, Temporality, Mobility, Ruins

Community Buildings - Building Communities. Architecture as a Modus of Social Assemblages

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Abstract: During the great transformation to sedentary life in Southwest Asia early settling communities faced various challenges. Communitization or becoming a social village collective is one of them. In this becoming of communities, architecture is not only a mirror or an expression of these emerging communities but is a modus of them – in other words, architecture, and in particular the well-known early Neolithic monumental architectures, plays a crucial role in the formation of collectivity in these communities, which I understand and describe as Soziale Gefüge (social assemblages). The lecture aims to highlight this. It will be shown that the process of becoming a community initially involves an immaterial-intellectual step, namely in the necessity of asserting and fixing a unity where there is actually no unity, as collectives are heterogeneous, changeable and fluid. And because this imagined unity is counterfactual, it is dependent on systems of meaning and materiality, not least on architectures and artifacts. The lecture is situated in the field of theoretical archaeology and architectural sociology and, with its posthumanist social theory approach, is intended to present a different perspective to the understanding of the process of community formation or, in more sociological terms, of subjectivation and collectivization during sedentism.

Keywords: Architecture, Community Building, Sedentism, Soziales Gefüge (social assemblage), Southwest Asia

Temples, sacred spaces, deities? Neolithic finds in Şanlıurfa Province between Archeology and History of Religions.

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Abstract: It is very hard to imagine that what we have seen emerge at sites such as Karahan Tepe and Göbekli Tepe falls into the category of domestic spaces (O. Dietrich & J. Notroff vs E. B. Banning). However, in an attempt to interpret those extraordinary structures, terms such as 'temple', 'sacred space', 'gods' and 'religion' do not appear to be useful, Indeed, they risk clouding the mind, reducing our chances of getting at least a little closer to conceiving the human communities that animated those places. Studies on the History of Religions, in particular those adopting the historical-comparative method, can be of help in this regard, improving our awareness of the historical origins of 'categories' mistakenly considered as being universal in nature. Furthermore, observing some theatrical practices of the second half of the last century and the ways of setting performance space (J. Grotowski, E. Barba) can also provide useful pointers.

Keywords: Neolithic - Şanlıurfa – Special buildings - History of Religions – Theater, Neolithic - Şanlıurfa – Special buildings - History of Religions – Theater

Home is People: Examining the Houses in the First Farming Societies in the Western Deccan, India

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Abstract: India Architecture and associated features constitute some of the most under-analyzed archaeological record in the protohistoric discourse in the south Asian archaeology. Deccan Chalcolithic (c. 2450 – 900/700 BCE), the archaeological culture denoting the first farming populations is not an exception. Three horizontal excavations have so far yielded more than 150 structures and parts of settlements. However there have been only a few rudimentary analyses by the excavators. The present paper tries to examine the available data set in a multiscalar perspective. Starting with the individual structures, it also looks into their arrangement, the public spaces and their interconnections. The exercise attempts to delineate the nature of families, households and their representation in the built habitat. These social and economic categories are invariably dynamic which respond to various factors including the environment, socio-political templates, subsistence practices, technology as well as the cultural perceptions of those populations. The earlier analyses had been influenced by the studies in ancient history and the conception of 'Indian Villages' which was largely a by-product of the colonial sociological studies. However, this exercise attempts to characterize the house, household and the settlements of the Deccan Chalcolithic as a departure from the earlier studies and chart the nature, spatial-temporal variations as well as the possible fluidity of these socio-economic units which in turn would be the part of the creation of cultural norms and identities. It also discusses the possible continuation of these practices in the early history of the region.

Keywords: household, family, variability

Heavenly Planned, Humanly Built: The Identity-Forming Role of Lengyel Circular Ditches in Late Neolithic Western Hungary

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Abstract: Palisaded circular ditches (rondels) of the Lengyel Complex and related cultures were among the earliest monumental buildings with communal ritual function in Central Europe. According to our present knowledge, the earliest circular ditches can be found in our study area, in Western Hungary which was part of the territory where the Lengyel culture emerged at the beginning of the 5th millennium BC. The ‘rondel idea’ was born together with the emerging Lengyel culture, it formed, reinforced, and demonstrated the identity of a new political entity. The circular shape and the orientation of the gates all evoke the cosmos. The densification in the orientation values implies distinguished periods that could have signaled significant events or festivals enriched with ritual activities. The community encoded the dates of these festivals in the layout and orientation of their sacral constructions. The circular ditches seemed also impressive even threatening landmarks with their deep ditches, high palisade walls, and ramparts for those from afar. Among the architectural elements of the circular ditches in Western Hungary, there is a peculiar element that is unique to this area. It is a semicircular additional ditch beyond the main ditches. In our presentation, we will examine this particular architectural tradition and the question of how the more complex plan of the multiple circular ditches may reflect the complexity of the rituals of the communities that built them and the social changes that underlie this phenomenon.

Keywords: Neolithic, circular ditches, ritual, cosmic symbolism, Lengyel culture

The Birth of Sacred and Profane Architecture in the Neolithic Northern Arabia

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Abstract: At present more than 1600 mustatil (Arabic for rectangle) have been documented across northern Arabia. These monumental ritual structures dating from ca. 5200-4400 BCE have been interpreted as markers of territoriality and a key component in constructing and consolidating kinship ties and communal social identities in the Neolithic of northern Arabia, through aggregation and communal building. Perhaps most strikingly, these structures are marked by a homogeneity of architectural form, one over a vast geographic area, some 300,000 km². As such, the mustatil tradition can be characterised amongst the earliest and most widespread sacral architectural forms known to date. These structures are marked by clearly defined liminal spaces, and ritual deposits of faunal remains, specifically the horns and upper cranial elements of wild and domestic taxa. In comparison to the region's domestic architecture, which was entirely curvilinear, the rectilinear nature of the mustatil marks a clear delineation in form and function. This paper will discuss the ritual deposits as well as outlining the key features of these differing architectural traditions and explore the reasoning behind these distinctions, in an attempt to further articulate the how architecture may have been used as visual manifestation or representation of social and cultural mores in northern Arabia during the 5th and 6th millennia BCE.

Keywords: Mustatil, Neolithic, Cult, Domestic, Saudi Arabia

The Problem of Continuity in the PPNA Architecture of Çemka Höyük: Architecture, Space, Memory and Continuity

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Abstract: The long-term use of space, which can be defined archaeologically and anthropologically as a fixed place/area inhabited by an individual, family or group, and the repeated construction of certain structures in the same area are interpreted archaeologically as architectural continuity. It is argued that this continuity does not only represent a structural continuity of buildings in the Near Eastern Neolithic, but also is associated with a possible sense of belonging that a place may have and is interpreted as the embodiment of the metaphorical immortality. Following the excavations of the settlement at Çemka Höyük in the Upper Tigris Valley, dating to the first phase of the Pottery-Free Neolithic (PPNA), new data on the spatial continuity in question were obtained. The aim of this study is to discuss our understanding of continuity based on this new data.

Keywords: Architectural Continuity, Çemka Höyük, PPNA, Space and Memory, Upper Tigris Valley

Domestic Built Environments in the Late Prehistoric Southeast North America

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Abstract: Many Native American societies of the late prehistoric era (Mississippi cultural period, ca. 750-400 BP) of southeast North America exhibited traits that correspond with elements of the late Neolithic in Eurasia, including the development of complex socio-political systems and a durable, elaborate material culture. The archaeological investigation of village sites in the Southern Appalachian region have revealed the extents to which shared socio-cultural practices shaped the creation of the built environment, both public and private, and the partitioning and uses of spaces. There was arguably a pattern language for the built environment at the scales of larger political engagements, the village/town, public buildings and spaces, household clusters, and individual houses. At every scale, the pattern language reflected environmental variables, social relationships, symbolic values, and functional requirements. This pattern was different from the previous Woodland cultural period and was transformed again following the many changes to indigenous lifeways beginning in the 15th century. Populating these models of late prehistoric polities and households with dynamic agents of societal maintenance and change requires a disciplined and studied use of formal analogies and anthropological theory.

Keywords: built environment, domestic architecture, Southeast North America, pattern language, Indigenous America

Islands in the Land of Forest – Vinča Culture Transformations of the Šumadija Region

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Abstract: The Neolithization of the Balkan Peninsula has been studied for over a century, with sites in Central Balkans, particularly Šumadija, playing a crucial role. Sites like Divostin, Grivac, Blagotin, and Selevac have become renowned case studies. However, recent advancements in large-scale non-invasive prospection methodologies and regional projects have dramatically shifted our understanding of these sites, and especially their urban built environment. Major change in perception came with realization of the scale of Vinča culture (5300-4600 BCE) built environments. Many sites exceed 30 hectares with hundreds of houses. The use of geophysical prospection, LIDAR, satellite analysis, and systematic pedestrian surveys revealed distinct regional and temporal organizations, highlighting changes between Early, Middle, and Late Neolithic communities, as well as subsequent Eneolithic communities. This paper presents new research from sites in Šumadija, conducted within the SRGAP project (a joint project of the Center for Archaeology "Dragoslav Srejšović" University of Kragujevac and the University of Pittsburgh). The data demonstrates clear intentionality and planning in built environments in Gruža and Lepenica river valleys with new data from known sites, but also through investigation of newly discovered sites as well. Comparative analysis within regional and supra-regional frameworks will be presented to show the scale of the built environments but both the return influence environment exerted to these communities as well. Evidence suggests that sites themselves were communal endeavors. The monumentality of some works indicates community creation through built environments, mobilizing entire communities for ditch building and resource acquisition for massive construction undertakings.

Keywords: Vinča, Built environments, Balkan, Environment, Non-invasive methods

Domesticated water: multi-proxy analyses of Early Neolithic Water Wells from Czechia

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Abstract: Water wells are the most unique finds from the Early Neolithic period in Central Europe. These features provide unusual insight into societies and their settlements, as well as into the surrounding landscape. We present the updated results of multi-proxy analyses of Early Neolithic wells from the Czechia and studied the possibilities of the spatial and temporal distribution of wells on the example of these sites. The social relationship between the large longhouses and the wells in their immediate neighbourhood has not been proven. On the contrary, they could have been communal wells, serving the inhabitants of the entire settlement. Moreover, geomorphological conditions were a key factor in choosing the location to build a well. By comparing radiocarbon dates, we estimated the time span of the existence of wells with respect to each other and to the settlements. Repairs of the well constructions prove that the first farmers maintained the wells over a long period of time. Studies of the well's vertical sections shed light on its usage and decline; intentional backfilling of the well seems to have been common. Water management covered an entire cycle of activities, including the making of wooden buckets, which were mainly used for the pulling of water from wells. In addition, the well infills also allow us to explore the environment in the Early Neolithic, which we can reconstruct as farming villages in a mosaic-like landscape mixed with oak woodland and forest-free areas such as xerothermic pastures and the streams or rivers in the surroundings.

Keywords: Linearbandkeramik, Water well, Environment, Central Europe, Settlement

The Pre-Pottery Neolithic Architecture in the Upper Tigris Region according to New Data from Gre Filla: Continuity and Change

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Abstract: In Gre Filla, established on the Ambar Stream at the northernmost part of the Upper Tigris Basin, a Pre-Pottery Neolithic archeological deposit of ca. 5.5 m has been uncovered in 2018-2022. According to the calibrated dates, the PPNA settlement, Gre Filla V dated between 9300-8800 cal. BC. The settlement is represented mostly by round planned structures with a single chamber; rectangular structures with rounded corners also appear in these levels. The PPNB settlement, Gre Filla IV dated to 8800-7500 cal. BC, reflects a settlement plan consisting of rectangular planned structures surrounding subterranean oval and/or rectangular structures with rounded corners. The complex settlement plan includes several plan types ranging from cell-planned, single large-room and stone paved to wattle-and-daub structures with wooden posts. Almost all buildings were rebuilt on top of each other in the same axis. Quadrangular buildings are multi-layered; on the other hand, different structures were also built on abandoned structures, revealing sub-phases showing continuity and change. In the early phase, the structures are smaller in size and have 1-3 rooms. In the middle phase, the buildings expanded and new plans emerged, beside previous plan schemes continued. The buildings became multi-room structures occupying larger areas in the Late PPNB. The continuity of the architecture and settlement plan may had been used by the same community within more than a thousand years. The development may indicate change in the lifestyle and/or social structure. In this study, the ways of designing the dwellings and their spatial contexts will be discussed through architecture.

Keywords: Upper Tigris Basin, Gre Filla, PPNB, Public Rounded Structures

The role of the island and coastal stone-walled enclosures of north-western France for the first connected seaways (4th-3rd Mill. BC)

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Abstract: From the Atlantic to the English Channel, the quantity and diversity of exchanges from the mainland to islands, and vice versa, are the result of frequent, regular and repeated contacts, in some cases by long-distance travel. They would have necessitated the creation of settlements for the control of shorelines and probably the first connected seaways. Since the beginning of the 4th millennium BC, on coastal spurs, stone-walled enclosures were built and regularly occupied, generally temporarily or seasonally, as shown by new excavations. Sites marked out the coastal landscape and were visible from one shore or island to another. They were crossing and stopping points for the transport and distribution of materials and objects for long-distance exchanges. The territorial network was oriented towards the ocean and could be seen from the sea. Research focusing on the edges of rias, gulfs and estuaries is now multiplying. After some twenty years of coastal and island archaeology in Northwest France, a new hypothesis seems to be emerging on one of the early forms of social organization. A navigation-style model is proposed for these early maritime societies, dotted with landmarks and crossing points to guide and help these ancient seafarers.

Keywords: Stone-walled enclosures, North-western France, coastal and island archaeology, seaways

The Morphological Examination of Desert Kites: Results of Interregional Comparative Analysis and Fieldwork

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Abstract: Desert kites are large-scale stone structures with diverse configurations, found across Middle Asia and the Near East, including Uzbekistan, Kazakhstan, Turkmenistan, Armenia, Iraq, Turkey, Syria, Jordan, Lebanon, and Saudi Arabia. The earliest kites date back to the Early Neolithic period, while the terminal phase of their utilization in each region is yet to be understood. While various hypotheses about their function—such as hunting traps, enclosures, or ritual sites—have been proposed, none have been definitively proven due to insufficient empirical evidence. Currently, the hunting trap hypothesis is the most widely accepted. This study aims to analyze the structural characteristics of kites based on fieldwork and interregional comparative analysis. Presently discernible are four principal elements comprising these structures: enclosure, entrance, stone rows, cells, yet many facets pertaining to the internal spatial configuration remain unexplored. Furthermore, discussions concerning the diverse forms of the outer walls and their symbolic significance are notably absent, impeding a comprehensive understanding of the "kite" phenomenon and the delineation of its functional attributes. This report underscores the necessity for continued detailed investigation into the structural aspects of desert kites to fully understand their function and cultural significance within the regions they are found.

Keywords: Desert kites, structural characteristics, interregional comparative analysis

Intra-site Spatial Analysis during the Late Neolithic and Early Chalcolithic Periods at Kendale Hecala

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Abstract: Kendale Hecala, located in the northernmost part of the Upper Tigris region, was inhabited during the Late Neolithic and Early Chalcolithic periods. In order to exhibit a consistent architectural pattern through both periods, an intra-site spatial analysis of the architectural patterns is carried out. The buildings of both periods constructed in successive layers, brought out various stages of renewal. The Late Neolithic and Early Chalcolithic buildings were designed close to each other, separated by narrow streets and communal outdoor areas. Despite their proximity, each structure possessed a unique appearance, reflecting the individuality and creativity of its inhabitants. Furthermore, the archaeological findings provide evidence for the functional utilization of the spaces in both periods. Some of the buildings were wiped out before abandonment which may have been an intentional act or a random occurrence. While the Late Neolithic buildings were constructed without stone foundations, the use of stone foundations in the Early Chalcolithic buildings appears as a key component. Despite the change in preference of building materials, the plan, orientation, and dimensions of previous buildings continued mostly with minor modifications. Besides, the small finds and pottery indicate continuity from the earliest level onwards. This analysis brought out an inhabitancy of the site by the same community throughout the Late Neolithic and Early Chalcolithic periods.

Keywords: Late Neolithic, Early Chalcolithic, Kendale Hecala, Architectural Pattern, Intra-Site Spatial Analysis

Adaptation in the Arid zone: new perspectives on Neolithic occupation of the north Arabian hinterland

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Abstract: A growing body of Neolithic research evidences a cultural complexity and intensity of occupation not previously anticipated in the now hyper arid region of northwest Saudi Arabia. However, with a paucity of published excavation results in the region, very little is known regarding aspects of domestic occupation, mobility and material culture during this time. This paper will present the results of extensive survey and test excavations targeting occupation sites beyond the oases of AlUla and Khaybar. A particular focus will be placed on excavation results from megalithic Standing Stone Circles, and the dense occupation they evidence on the volcanic plateau Harrat 'Uwayrid. These are currently a regionally unique form of Neolithic dwelling with evidence of ongoing human activity throughout the 5th and 6th millennia BCE. This paper provides a summary of current evidence for subsistence, material culture and Neolithic settlement and mobility patterns across the region. Furthermore, evidence for cultural connections between Arabia and the Levant will be presented to facilitate more nuanced and detailed examination of the locally specific, and regionally connected Neolithisation processes demonstrated in the AlUla region. This research aims to address a significant lacuna in the understanding of cultural complexity in the prehistory of northern Arabia and interactions beyond.

Keywords: domestic, Saudi Arabia, mobility, regional interactions

Megalithic monuments in eastern Algeria, archaeological and tourist significance

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Abstract: The massive stone graves, or megalithic tombs, are among the most notable aspects of the protohistoric era, different kinds of monuments can be found in the north east part of Algeria In Algeria, a substantial number of dolmen graves were discovered in a geographical region stretching from Constantine to the Tunisian border. This territory includes various places such as al-Roknia, compounds over than 3000 megalithic tombs which is a type of stone burial that is regarded as significant in the history of funerary architecture in the ancient Maghreb during the protohistory, it had been excavated by, Bourguignat and General Faidherbe. The discoveries are preserved since then (consisting of skulls and ritual objects and jewelry) at the Bardo Museum of Ethnography and Prehistory in Algiers.the megalithic represents one of humans' most fascinating cultural manifestations, and is one of the component of the environment, which whole inseparable, forms beauty, and that led to promote the tourism wich it's development generates benefit for conservation and communities through cultural interpretation and appreciation , and the economy though job opportunities and economic development .

Keywords: megalithic, environment, economic, architecture, tourism

Architecture of the Neolithic Defensive-Residential Complex in the North of Western Siberia (based on materials of Kayukovo 2 site)

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Abstract: There are more than a thousand of Neolithic settlements that have been discovered on the territory of the North of Western Siberia, but only one of them is fortified. Kayukovo 2, located in the middle reaches of the Ob river in the Khanty-Mansi Autonomous Okrug-Yugra, is the earliest example of defensive residential architecture above the 60th parallel north latitude. It is dated by the turn of the 7th-6th mill. BCE. The site consists of the remains of a wood-and-earth fortified structure. It is circular in shape with a cruciform planning structure, which is formed by five main buildings connected by corridors. All of them are surrounded by a wall with a covered tunnel. Probably the complex was used not only as a residential building, but also as a public place, presumably of religious purposes. The structure burned down completely at once, which indicates the deliberate burning of all buildings from different sides. In parallel, we created a 3D model of the complex, which was the result of a detailed reconstruction based on archaeological data and the experience of experimental reconstructions of other sites. The next step was to build the complex full-scaled without nails, so the entire structure could be supported only by pillars. Authentic tools were reconstructed according to the materials found during the excavations of Neolithic sites in the region. Obtaining new data will allow us to get closer to determining the cause of the emergence of this complex planning architecture, untypical for these period and area.

Keywords: north of Western Siberia, neolithic architecture, archaeological experiment, fortified settlement

The architecture of daily practices: unravelling Neolithic lifeways from domestic building sequences at Boncuklu and Çatalhöyük

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Abstract: A notable feature of Central Anatolian Neolithic architecture is the prevalence of mudbrick houses, often displaying elaborate ritual and symbolic expressions, a highly structured use of domestic space, and a significant duration of buildings and fixtures in the same location. This research examines Neolithic houses as the material expression of distinct social practices, influenced by a wide range of variables that include resource availability, technological developments, symbolically-charged activities, and the representation of social identities. The multifaceted nature of houses is here explored through the high-resolution examination of intact microstratigraphic sequences of floors, collapsed roofing and accumulated residues within built environments. The paper summarises ten years of micro-contextual geoarchaeological research at the sites of Boncuklu (8,300-7,800 cal BC) and Çatalhöyük (7,100-5,950 cal BC), which together span approximately 2,300 years of occupation in the Konya Plain of south-central Türkiye. Results highlight the occurrence of distinctive building practices and maintenance strategies at each settlement as dictated by complex combinations of ecological adaptations and social representations, shedding light on the lesser-known aspects of Central Anatolian Neolithic architecture, such as roofing techniques, the use of upper stories, building hierarchies, and the intensity of site occupation.

Keywords: Central Anatolia, Architecture, Microstratigraphy, House biographies, Daily practices

G19 - Reading the Stones, Tracing the Changes: Lithic Technology during the Paleolithic - Neolithic Transition

Session Organiser

Andrey Tabarev / Institute of Archaeology and Ethnography, Division of Foreign Archaeology

David Kilby / Texas State University, Department of Anthropology

Yoshitaka Kanomata / Tohoku University, Graduate School of Arts and Letters

Abstract

The transition from the Paleolithic to the Neolithic brought about profound changes in human behavior and adaptations, including changes in mobility, social organization, settlement patterns, and subsistence practices. These changes are directly reflected in lithic technology, both in the development of new tools and technologies and the fundamental reorganization of technological systems. In some regions of the World this is manifested in the decline of the Paleolithic blade/microblade technologies, in the shift from the heavily curated to more expedient strategies, in the additional emphasis on prestige items (lithic caches,) etc. This session brings together presenters from around the World (Eurasia, Americas, Africa, and Australia) to review and examine the lithic technological developments that accompany the Paleolithic-Neolithic transition in their respective regions. The goals of this session are to survey the variety of patterns and perhaps identify cross-cultural regularities during this era of significant technological transitions. Technological analysis, use-wear studies, and experimental archaeology are among the effective approaches to understanding these changes and topics for discussion in the session.

Körtik Tepe Chipped Stone Assemblage

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Abstract: Körtik Tepe is a significant PPNA settlement in the Tigris River Basin, situated in the Ilisu Dam Lake interaction area. The settlement is located in the Bismil district of the Diyarbakır province. The studies conducted between 2007 and 2015 on the chipped stone assemblage have yielded invaluable insights into the chipped stone technologies of the PPNA period. The settlement was inhabited from 10,500 BC until 9,250 BC. During this period, two main raw materials in terms of chipped stone were encountered in the settlement. The first was local flint, and the second was obsidian of imported origin brought from further north. The main source of obsidian was from Bingöl. Additionally, Nemrut and Süphan obsidian were identified. The flint industry is characterised by the production of relatively coarse tools. In contrast, the majority of chipped stone tools were made of obsidian. It was determined that the microlithisation tradition continued in the earliest levels of the settlement. However, in the following period, arrowheads with larger dimensions and geometrical or non-geometrical forms were encountered. The Levantine influence on the chipped stone assemblage of the settlement is almost non-existent, with a few exceptions. However, the chipped stone items, which are more common in the Zagros cultural zone, are dominant in number and characteristic products. Until almost the last phases of Körtik Tepe, hardly any finds of siliceous flint sickle blades were recovered. Such elements appear only towards 9250 BC.

Keywords: Türkiye, Körtik Tepe, Chipped Stone, Tigris River, PPNA

Chipped Stone Artefacts and Human-Environment Dynamics: Insights from Gre Filla during the Pre-Pottery Neolithic A.

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Abstract: Chipped stone artefacts represent a significant category of archaeological finds from Neolithic settlements, offering valuable insights into the socio-economic dynamics of prehistoric communities. The excavations conducted at Gre Filla between 2018 and 2022, situated within the borders of Diyarbakır province in Turkey, revealed archaeological deposits that continued uninterrupted throughout the Pre-Pottery Neolithic (Early Neolithic). Among the settlements in Northern Mesopotamia, Gre Filla stands out as a site with relatively recent data and a substantial collection of chipped stone artefacts, comprising approximately 140,000 pieces knapped from different materials. This research aims to explore the dynamic interactions between the Near East's human population and its environment during the Neolithic, focusing on lifestyle changes during neolithisation and the operational chain of chipped stone artefacts. Through analysis of the chipped stone artefacts excavated at Gre Filla, distinct knapping strategies have been identified within layers dating to the Pre-Pottery Neolithic. Based on these strategies, different schemes can be constructed about the chipped stone operation chain at the site. This study delves into the operational chain of chipped stone tools at the site, focusing particularly on the phases associated with the Pre-Pottery Neolithic A, which encompasses raw material procurement, transportation, settlement, tool manufacturing processes, and eventual abandonment or disposal practices. In conclusion, the analysis of chipped stone artifacts associated with the earliest inhabitants of Gre Filla holds significant promise for understanding the lifestyles of Upper Mesopotamian populations, their interactions with the natural environment, and the progression of technological changes or transformation during the Neolithic.

Keywords: Lithics, Upper Tigris Basin, Chain Operation, Knapping Strategies, Pre-Pottery Neolithic A

Changes in lithic industry during the Epipaleolithic to Neolithic transition in the North Caucasus: based on materials of the Alebastroviy zavod rockshelter

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Abstract: The 2021 and 2023 excavations at the multi-layered site of Alebastroviy zavod rockshelter in the north-central Caucasus (Russia) showed that the site contains two Neolithic layers (6B and 6/7) and one Epipalaeolithic layer (lower occupational layer 7). Numerous radiocarbon dates determine the age of the Neolithic layers in the range from 6730 ± 130 – 7590 ± 80 yr calBP (layer 6B) to 8150 ± 130 – 9180 ± 220 yr calBP (layer 6/7), and the age of the Epipalaeolithic layer about 9–10 ka cal BP. In layer 7, ceramics is absent and stone artifacts typical of the Epipalaeolithic of this region are presented. In the Neolithic layers, besides the appearance of ceramics with comb ornament we see changes in lithic industry. These changes include the disappearance of Gravette and microgravette points typical to the Caucasus Epipalaeolithic, and the appearance of new elements, such as numerous rounded microscrapers made on small (2–0,5 cm in size) flakes and chips, asymmetric triangles with thinning, small (1,5–1 cm) segments or lunates including Helwan lunates, and bifacial-shaped transverse arrows that are made of obsidian and have close analogs in the Neolithic sites in Armenia and Georgia in the South Caucasus. The research is supported by the Russian Science Foundation grant №22-78-10120.

Keywords: Lithic industry, Paleolithic-Neolithic transition, Raw material sourcing, Ceramics, Technologies

The lithic industry of the archaeological site of Pyrgos Mavroraki: new data for the reconstruction of the human presence on the island of Cyprus

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Abstract: This contribution reports the preliminary results of a research project, activated in 2023, through a collaboration between the University of Molise and ISPC-CNR (Italy), with support of the Italian Ministry of Foreign Affairs and the Department of Antiquities of Cyprus, to study the lithic industry from the Pyrgos Mavroraki site, located in the Limassol district, Cyprus. The Pyrgos Mavroraki archaeological site has documented, during the excavation seasons 1998-2012, multiple functions and innovations, which tells the story of the life of human community from the 9th, documented by circular houses, 14C and stone vase fragments, to the 2nd millennium BC. The techno-typological analysis of the lithic industry, which has never been studied, has allowed us to recognize with a certainty a technological component that is predominantly ascribed to PPN, highlighted by quartz and quartzite finds. The production of obsidian finds sees the prevalence of splinters and blades, typical of the phase from the Neolithic onwards. The presence of red obsidian has also stimulated research into possible comparisons of similar finds inside and outside the island, suggesting provenances that take us back to an area of border, the Armenian-Caucasian one, considered a cornerstone both for the dispersion of Paleolithic and subsequent Neolithic human groups. In this context, the Pyrgos Mavroraki site, with its stratigraphic and planimetric data, could therefore prove to be a key site for shedding new light on the dynamics of the ancient Cypriot population.

Keywords: Stone tools, PPN, Cyprus island

In the Shadow of Pottery: Lithics as one of the signals of Neolithisation (Siberia and Russian Far East)

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Abstract: Siberia and the Russian Far East make up a significant part of Northeast Asia, with a high diversity of landscapes and natural environments. The transition from the Paleolithic to the Neolithic can be seen archaeologically in this region approximately 15-11,000 cal. BP. The unique characteristics of the environment have led to local variations in the chronology, periodization, and preservation of archaeological remains. Transit to Neolithic life was not characterized by a complete transformation of the economic system, but rather by an intensification of existing practices and adaptation to changing circumstances. Experts have traditionally identified ceramic as a key marker of the Neolithic period and associated the emergence of pottery with the need for new type of containers. In turn stone industry has been considered as just an additional factor in this context. There are several examples where, after a long period of researches, a culture has been classified as the Final Paleolithic or the Mesolithic, and only discovery of ceramic artifacts in its context has led to its reclassification as the "Neolithic". Obviously, there is a need for a more detailed analysis of stone industries in order to identify and isolate markers that accompany the transition to the Neolithic. These signals can be expressed through the appearance of new elements in lithic technology, reduction of certain techniques etc. At the same time, it is important to consider and discuss a number of factors, such as the characteristics of the raw materials, contacts with neighboring regions, level of mobility etc.

Keywords: Siberia, Far East, pottery, lithics

Paleolithic – Neolithic transition in North Asia: the context of lithic technologies

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Abstract: Based on the technical and typological characteristics of the lithic assemblages from complexes with early ceramics from North Asia, their relationship with the local Late Palaeolithic bifacial cultures or with the Yubetsu technology can be assumed. The Late Paleolithic and oldest early ceramic complexes show closer links with Yubetsu-like industries. For example, Khummi, Gromatukha etc. At the same time, core reductions on some of them usually don't contain ski-spalls like yubetsu reduction from Fukui, one of the oldest early ceramic complexes in Japan. Analogies in the Fukui cave materials confirm that the lithic technology of some sites, such as of Goncharka I or the transbaikalian early ceramic complexes is a Yubetsu-like technology with presence of the bifacial tools. The situation is similar in northern China. For example, at the Taoshan site, where the Late Paleolithic layer demonstrates Yubetsu technology with ski-spalls, the early ceramic layer without ski-spalls. Moreover, all this could also be evidence of the differences between the Selenginskaya industry and the Late Palaeolithic - Early Neolithic lithic industries of Studenoye and Ust'-Menza.

Keywords: Paleolithic, Initial Neolithic, lithic technology

Evolution and Dissemination of Composite Slotted Tools in Eastern Siberia

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Abstract: Composite slotted tools began to be actively used in Eastern Siberia during the Final Upper Paleolithic. These tools are characterized by a bone or horn base with various interchangeable parts attached. Straight-profile microblades served as interchangeable components in these tools significantly enhanced their convenience and functionality. Over the time, the form and the typology of the tools evolved. Moreover, during the Neolithic period, these tools have become widespread over new territories, that resulted in the increasing of variety of forms and functions. Most likely, this diversification was driven by cultural and technological exchange and adaptations to different environmental conditions. Studying composite slotted tools allows to trace the stages and features of their production and understand the correlations between stone inserts and composite bone or horn tools. In this study we provide a solid insights into adaptive models and the process of technology transfer between Late Pleistocene and Early Holocene archaeological assemblages in Eastern Siberia. This research was supported by RSF project No 24-28-01157.

Keywords: Composite slotted tools, microblade, Eastern Siberia, Neolithic, Final Upper Paleolithic

Major changes in stone tool technology in the Japanese archipelago during the transition from the Paleolithic to the Jomon period

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Abstract: In the Japanese archipelago, the Jomon culture was established in the Early Holocene. Due in part to the effects of environmental changes during the Late Glacial, settlement progressed, pottery appeared, and lifestyles changed dramatically. Stone tool technology also underwent major changes, and various functionally differentiated stone tools were created. During the subsequent Jomon period, no major changes in vessel types occurred, so it can be understood that the change from the Paleolithic to the Jomon period was an adaptation to the Holocene environment. In this study, I would like to clearly demonstrate the changes in stone tool manufacture techniques and functions from the end of the Paleolithic period to the beginning of the Jomon period, and to understand the meaning of these changes in relation to other elements of people's lives and archaeological remains. Specifically, the emergence and increase of stone tools for processing plants and wood related to the appearance of pit dwellings, the appearance of storage facilities for flakes and stone cores with the start of collector strategies, and the appearance and increase of stone weights by the activation of fishing reflected in the formation of shell middens. I will clarify the specific role of stone tools in such livelihoods.

Keywords: Paleolithic, Neolithic/Jomon, Lithic technology, Transition

The Reorganization of Technology: Trajectories of Change in Lithic Technological Organization in the North American Southwest

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Abstract: The archaeological record of the North American Southwest includes an abundant record of Paleoindian and Archaic hunter-gatherers, an extensive record of sedentary agricultural societies, as well as a record of the transitions that lie between. Further, this record is well-preserved relative to other areas of North America due to the generally arid climate and low modern population density of the region. For these reasons, the Southwest has famously served as a “laboratory” for American archaeological method and theory, and also serves as an excellent setting to examine the American equivalent to the transition from Paleolithic to Neolithic ways of life. This presentation traces changes in lithic technology that accompany the trajectory from highly mobile hunting to more generalized local foraging, and from early experimentation with food production to the development of regionally integrated agricultural societies. These transitions not only brought about changes in formal tool morphology, but also fundamental transformations in the organization of lithic technology including strategies for raw material acquisition, material conservation, tool manufacture and maintenance, and the distribution of activities on the landscape. This ongoing reorganization of lithic technological strategies in response to changing economic and social systems in the North American Southwest is reviewed broadly in the context of global patterns of Neolithic development.

Keywords: Lithic Technology, Technological Organization, North American Southwest, Mobility, Trade

Spatial patterning in chert source networks during the Pleistocene/Early Holocene transition in southeastern North America

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Abstract: The research study uses chert source data from terminal Pleistocene and Early Holocene assemblages to study tool stone network continuity or discontinuity in southeastern North America. The relatively rapid diversification of diagnostic projectile point forms during the Pleistocene/Holocene transition indicates that climatic and environmental pressures affected material culture. Consequently, the chert resource networks of hunter-gatherer groups during this transition are reconstructed to see if sudden changes in climate, flora and fauna populations, land cover, population dynamics, social networks, and/or group ranges affected tool stone acquisition. However, it is necessary to first identify continuity vs. discontinuity in chert acquisition networks before studying causation. The chert source data can then be used in future testable models that focus on environmental, economic, or social changes among these communities at the end of the last Ice Age. The spatial patterning of chert resource networks during the Pleistocene/Holocene transition contributes to our understanding of human adaptation in dramatically changing social and natural landscapes.

Keywords: chert sourcing, Pleistocene/Holocene transition, southeastern North America, reflectance spectroscopy, tool stone networks

Paleoindian Origins of the Earliest Archaic Stone Tool Traditions in Mesoamerica: a Look at the Yucatan Shelf as Evidence for Cultural Diversity by 13,000 Years Ago

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Abstract: Mesoamerica is known as one of the global regions where plant domestication first appeared. It is also characterized by tremendous cultural diversity in both pre-Columbian times and today. This paper examines the Pleistocene origins of this variability by looking at chipped stone tool traditions that were present starting around 13,000 years ago. Our data come from the Yucatan shelf in eastern Mesoamerica. What we call the Fluted Biface Horizon (ca. 13,000-12,000 kbp) indicates bi-directional influences from South and North American traditions associated with Fishtail and Clovis biface manufacture, respectively. Also present by this time, however, are the beginnings of well-established localized traditions that seem to reflect the process of regional populations settling into this landscape. This period of long-distance population movements across the Americas corresponds with the Younger Dryas climate interval. Bi-directional influences continue with post-fluted biface traditions that demonstrate a sharply reduced range of cultural interactions, from a scale of thousands to a few hundreds of km. By the onset of the Holocene, stone tool behavior appears extremely localized well before the appearance of the earliest domesticates and even as some small groups may have continued moving across large distances. This sequence reflects a rapid transition from the Americas version of the Paleolithic through a brief Mesolithic and finally to Neolithic cultural traditions and, we argue, establishes a foundation of extreme cultural variability that persisted for thousands of years.

Keywords: Mesoamerica, Paleoindian, Fluted Biface, Archaic

Indication of Capsian-Neolithic transition through the typo-technological complex of the lithic industry at the Medjez II site eastern Algeria

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G19

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Abstract: The renewed work carried out on the Medjez II Capsian site between 2013 and 2023 has brought to light lithic material with very significant techno-typological potential, collected in a complex stratigraphic context. An advanced Upper Capsian was observed in several levels, characterised by pressure debitage. A Neolithic level has also been identified, marked by the presence of ceramics and very specific lithic production. This variability raises a number of questions: What variations are observed in the lithic material between the Upper Capsian and Neolithic levels? And how do the different cultural horizons fit together stratigraphically?

Keywords: MEджеz II, lithic material, capsian, neolithic, complex stratigraphic

Comparing reduction intensity of modified blades from the Topper Site, a Paleoindian chert quarry in South Carolina and Boncuklu, an Early Neolithic site in Turkey

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G19

¹Terracon

Abstract: Studies that evaluate the extent of lithic reduction intensity on retouched artifacts have shown specific metric attributes to be useful for estimating original blank size. As proposed by Muller et al. (2018) relationships between artifact thickness to length and width for backed blades from Boncuklu, an Early Neolithic site in Turkey were used to estimate initial blank size, thus providing a promising metric for quantifying blade reduction intensity. This study tests how well the method measures reduction intensity using a sample of Clovis modified blades from the Topper Site, a prehistoric chert quarry in Allendale County, South Carolina. Blade attributes are compared to a sample of modified blades recovered from off-site locales. The results can be used to evaluate to what extent blade transport was constrained by raw material package size and how inhabitants negotiated decisions involving raw material conservation into their settlement systems as distance increased from source locations. The results are compared to Neolithic blades from Boncuklu to evaluate whether artifacts from both sites are responding to similar technological constraints concerning raw material and/or initial blank size, or if cultural differences related to mobility, time allotment, or social organization may better explain these patterns. Blade technologies existed in North America, Europe, and the Near East at various times. This study examines whether these industries were subject to some universal restraints across time and space for the Near East Neolithic and Paleoindian Period of North America.

Keywords: Paleoindian, Neolithic, Raw material conservation, Lithic reduction intensity, Blade technology

East Meets West: Comparing the Origins of Agriculture in Eastern North America and the Fertile Crescent

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G19

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Abstract: The transition from foraging to farming is one of the most momentous changes in human history, which has ramifications for our health and diet today. In at least eleven different places, people independently domesticated plants and/or animals, with the “Fertile Crescent” in the Middle East being the first and the “Eastern Agricultural Complex” in eastern North America being among the latest. In this paper, we review and compare multiple lines of evidence that includes changes in landscape use, lithic technology, flora and faunal use, paleoenvironmental data, and the appearance of intergroup violence, trade networks, and monumental construction to argue in eastern North America. We argue that the “Eastern Agricultural Complex” arose from a unique “boom/bust” cycle tied to environmental change, resource use, population pressure, and the human capacity to be innovative. We conclude by comparing the unique historical trajectory for the transition to agriculture in eastern North America to the Middle East.

Keywords: Eastern Agricultural Complex, Lithic Technology, Landscape Use, Demography, Social Inequality

G20 - Animals in symbolic and ritual items across the Neolithic world

Session Organiser

Abu B. Siddiq / Mardin Artuklu University, Türkiye

Benjamin S. Arbuckle / University of North Carolina at Chapel Hill, USA

Abstract

Various animals, ranging from fearsome carnivores, meat-providing ungulates, raptors, aquatic birds, fish, and reptiles to boneless insects, were depicted in a diverse array of Neolithic artifacts and features. At many Neolithic sites, items were crafted in the shape of animal heads or specific animal species, while burials often revealed the presence of animal bones or even complete skeletons interred alongside humans. Despite variations in geography, species preferences, and artifact types, animal imagery consistently emerges in cultural items across the Neolithic landscape. This opens new avenues for understanding intra-site as well as regional aspects of animal-based rituals and socio-symbolic complexities in animal-human interactions in the Neolithic world. This session aims to foster global discussions on the contemporary understanding of animals in Neolithic rituals and symbolism, asserting that cultural artifacts with animal imagery or scattered animal remains within ritual contexts are intrinsically linked to supernatural beliefs prevalent throughout the Neolithic world. Beyond the simplistic hunter–hunted dichotomy, the session will promote new ways of understanding the complexity and deep extent of animal–human interactions throughout the Neolithic, spanning from the 11th millennium BCE in West Asia and continuing up to the 1st millennium BCE in South Asia.

Animal symbolism at the 11th-10th millennium BCE Körtiktepe: Towards trends, exchange and spread across Upper Mesopotamia

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G20

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Abstract: Körtiktepe, spanning from 10700 to 9300 cal BCE, stands out as a unique Pre-Pottery Neolithic site which revealed a remarkable number of over 2000 single and double burials, and an extensive array of ritual artifacts including over 500 decorative and non-decorative stone vessels, and more than 200 bone and stone plaquettes of figurative and geometric motifs. In this study, we explore the animal representations in both iconographic depictions and burial contexts at Körtiktepe. We observe two distinct symbolic trends at Körtiktepe: the “local” trend and the “shared” trend. While certain symbols such as images of wild goat and hybrid supernatural creatures at Körtiktepe appear to be localized phenomena, symbolic practices associated with aurochs, fox, snake, scorpion, tortoise and raptors, are found to be shared among sedentary hunter-gatherer communities both in the Tigris and Euphrates regions. By considering the chronological placement and prevalence, we endeavor to elucidate that some characteristic symbols (e.g. images of masculine animals, raptors, vipers and scorpions) at Körtiktepe were of regional and interregional influence, as they subsequently become dominant at different other Pre-Pottery Neolithic centers across Upper Mesopotamia including Hallan Çemi, Çayönü, Hasankeyf Höyük, Gusir Höyük, Göbeklitepe and Jerf el Ahmar. Through this exploration, we seek to shed light on the enduring legacy of Körtiktepe as a cultural mega-center during the 11th-10th millennium BCE, offering insights into local trends, regional exchanges, and the dissemination of animal symbolism at the dawn of the Neolithic.

Keywords: Körtiktepe, Younger Dryas, Early Holocene, Animal symbolism, Pre-Pottery Neolithic

Demonic Dogs of the Chinese Neolithic Period on the Dadiwan Site Vessel and Posthumous Trials of the Human Soul

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G20

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Abstract: The picture on a Neolithic painted pottery jar, found at the Dadiwan site of Majiayao Neolithic culture (second half of the IV – beginning of the III millennia BC) in Gansu province of China shows two dogs, ready to start a fight over a fish, which is lying in between them. It is generally accepted that ornamental belts on Neolithic pottery of China represented different levels of the Universe. The belt with dogs and fish is marked on the top with two straight lines, so it may represent the Underworld. The image of a fish in ancient Chinese mythology symbolized a human soul, therefore, the scene on the Dadiwan jar depicted its trials in the Underworld. The ancient Chinese iconographical tradition to depict the trials of a fish-looking human soul survived until at least the IV–III centuries BC. A fish lying between two pangolins can be seen on the heel of a tubular socket of a Dian culture battle axe from grave 12 of the Shizhaishan cemetery. Rock carving of the IX–VIII centuries BC in Suyukou gorge in Ningxia-Hui Autonomous Region of China showed a human figure, being attacked by two dog-like beasts. Two beasts ready to devour (or fight for) a deer are cast on the back surface of a bronze mirror, found in the tomb of the VIII century BC Shangcunling cemetery in Henan province. Suyukou gorge and Shangcunling mirror images also showed trials of the human soul in the Underworld.

Keywords: Chinese Neolithic period, Dadiwan site, painted pottery, demonic dogs, posthumous trials of the human soul

From Nomadic Hunter-Gatherer to Sedentary Hunter-Gatherer; A New Approach to the Transition Process from Sedentary Hunter-Gatherer to Producer Peasant: “The Woman makes, The Man conquers”

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Abstract: Summary: In this paper we argue that the transition to the sedentary is a life practice developed by women. We discuss the subject under two main headings: 1) "woman makes, man conquers" and 2) "God sleeps in stone, wakes up in animal, manifests in human":1) Under this heading, we discussed why, where, how and when sedentary life began in the light of archaeological data; We also tried to reveal where and how it spread. Accordingly, instead of the nomadic hunter-gatherer life style destroyed by the Younger Dryas crisis, the expert forager woman created the feminine round architectural form in the Natufian culture of the Southern Levant, and also developed a subsistence economy by incorporating wild grains, plant roots, and include slow-moving animals in the diet. It has also suggested that this lifestyle is reinforced by the animistic shamanism practiced by female shamans.2) The stages of animistic religiosity systematized by female shamans in the Natufian culture after it was moved to the Upper Tigris, the metaphors it implied, its transformation into protective amulets by carving into stone and bone pieces as were found in many graves, and the masculine form it took in the Şanlı Urfa Stone Hills region over time and that engraving into monumental pillars and statues were discussed.

Keywords: Woman, Man, God, Animal, Human

An Evaluation on The Chalk Stone Relief from The Nevali Çori Finds

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Abstract: The Neolithic Period is an important period in the development of humankind and the period in which the first steps of today's level of civilization were taken. There are various settlements belonging to the Neolithic Period within the borders of our country. Nevali Çöri in Hilvan district of Şanlıurfa province is one of these settlements. The limestone relief of Nevali Çöri, on which human figures are carved, has been interpreted in various ways by some researchers. The first interpretation is that this limestone depicts a nativity scene. Another interpretation is that the animal depicted in the two human and one animal figures on the limestone is the Euphrates Turtle, which is presumed to be the local animal of the region. According to the third interpretation, this scene, which we will evaluate in the study, is the reflection of the understanding of entertainment as a local game in the Şanlıurfa region in the context of cultural continuity. This study aims to comment on the similarity between the "mesh" game, which is traditionally played by local people and village leaders in the Şanlıurfa-Hilvan district and many other regions of Anatolia for entertainment purposes, and the scene on the limestone found at Nevali Çöri. Both scenes consist of two people on the side with their hands in the air and one person in the center with their hands covering their mouth or nose. In the context of these similarities, the continuity in the entertainment understanding of the region from the past to the present will be emphasized.

Keywords: Neolithic Age, Nevali Çöri, Turtle, Entertainment, Dance

Animal Symbolism Unraveled Through Paleogenomics

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Abstract: Animal remains intentionally placed as grave goods, or animals buried alongside humans, strongly indicate their symbolic significance in funerary rituals. However, the nature and placement of these grave goods vary significantly across time and space, suggesting distinct meanings. Therefore, accurately identifying the biological nature of these animal remains in human graves is crucial. Complete animal skeletons or specific body parts found in Neolithic graves offer valuable insights into the symbolism of early sedentary life. They not only reveal the roles animals played in funerary rituals but also shed light on animal-human-environment interactions within specific ecological contexts. Paleogenomic analyses are instrumental in identifying the exact animal species, their domestication status, hybridization between domesticates and wild counterparts, and other biological characteristics. By integrating paleogenomic data with archaeological findings, we can gain a comprehensive understanding of the symbolism associated with these graves. In this study, we explore such cases in Early Neolithic burials in the Eastern Mediterranean. Moreover, this approach is also applicable to unravel the meaning of animal trophies and other animal symbols in mundane practices of prehistoric societies. We will illustrate this situation with paleogenomic studies we undertook at Neolithic sites in Europe.

Keywords: Paleogenomics, Funerary animals, Eastern Mediterranean, Europe, Neolithic

Ceremonial ostentations of wild and domestic Bos in Sudan from prehistory to contemporary times

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G20

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Abstract: Drawing from a book currently in press entitled *The Deep History of Cattle Herding and Symbolism: New Perspectives from Anthropology, Archaeology and Zooarchaeology in Sudan* by the present authors, this presentation offers an overview of ceremonial ostentations of Bos in Sudan from prehistoric to contemporary times across more than 10,000 years. It explores the complex relationship between humans and wild African aurochs (*Bos primigenius africanus*), as well as the ecological and ideological relevance of that relationship to the adoption of cattle pastoralism by African peoples. Aurochs had been part of the human spiritual imagination before domestic *Bos taurus* from the Middle East arrived. They already represented the transcendent intermediary between humans and divine/supernatural entities and their material impersonation since the final Pleistocene. The supremacy of cattle in the economic and symbolic sphere was consolidated in the Neolithic and Late Neolithic periods. Later, from the mid-third millennium BCE, the emphasis on cattle reached its highest material and spiritual expression across the entire Sudanese country, continuing into historical and contemporary times. The aims of this paper are twofold: on the one hand, it demonstrates the long *durée* of cattle-centred behaviour in this part of Northeastern Africa, with its emergence, formation, and retention; on the other, it seeks comparative archaeological occurrences outside Africa, such as those in the southern Levant from Ain Ghazal and Jericho.

Keywords: Ceremonial ostentations, *Bos primigenius africanus*, Cattle, Sudan, Northeastern Africa

Faunal remains from mustatils: animals and ritual in Neolithic Northern Arabia

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Abstract: Mustatils are monumental stone structures that were built in their thousands in Northern Arabia during the Neolithic. The first excavations carried out in mustatils revealed the ritual function of these monuments, where animal bones were deposited following what appears to be a specific and structured ritual behaviour. In order to better understand these monuments, the study of mustatil ritual deposits is crucial. Faunal remains found in mustatils indeed provide fundamental data on ritual choices, Neolithic societies and the whole mustatil tradition peculiar of the region. This paper will present the results of the study of the animal bones from a new mustatil excavated in the area of AlUla. Zooarchaeological data concerning the taxa present in the deposits, anatomical representation, age at death of the animals, will shed light on the use of the mustatil and provide new comparative evidence on the phenomenon as a whole. This study will add important information to our current knowledge on this typology of monuments shaping Neolithic Northern Arabian landscape.

Keywords: Zooarchaeology, Neolithic, Arabia, ritual, pastoralism

The deer tamer? Pathological deformations as an indicator of human care of a lame stag in the 4th millennium BC on the Ljubljansko barje, Slovenia

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Abstract: From about the mid-5th to the mid-2nd millennium BC, the Ljubljansko barje region in central Slovenia was inhabited intermittently by pile-dwellers who built their settlements on the shores of the shallow lake that then spanned the area. Most of these communities were heavily dependent on hunting, as they exploited the game-rich environment at the interface between the lake and its densely forested hinterland. The main prey was traditionally red deer, with most of the long bones being broken and a relevant proportion showing butchery marks. At the Devce site from the 4th millennium BC, a partially preserved skeleton of a presumably eight to ten-year-old stag was found. Of the 33 teeth and bones recovered, which included elements of both the axial and appendicular skeleton, none bore butchery marks, and only one (the right radius) was incomplete, as both epiphyses were missing. Several bones of the left hind leg showed exostoses, with the osteophytes on the patella being particularly pronounced. In addition, a severely deformed diaphysis of a long tubular bone was found, probably (again) a radius, with an abnormal pattern of cortical and cancellous bone structure, possibly indicating a healed fracture. The size of the specimen suggests a red deer, but species identification will be made by ZooMS. The pathologies listed significantly limited the animal's mobility and its ability to escape predation. It is argued here that the specimen's survival may have been aided by human care and that the deposition of the carcass may have had a ritualistic background.

Keywords: (E)neolithic, southeastern Alps, red deer, palaeopathology, computed tomography

Zoomorphic Sacred Images on the Kyrykungyr Necropol Structure in Eastern Kazakhstan

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G20

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Abstract: Kazakhstan has been a powerful area for the formation of unique Eurasian archaeological cultures. It is proposed to discuss new Shyngystau's materials obtained from 2014 to 2023 of the excavation archaeological complex Kyrykungyr - burial ground occupies an area of about two square kilometers. There are burial constructions and settlements of the Stone and Bronze Age - Turkic time, in total, there are more than a hundred objects. Construction N51 is a hexagonal pyramid-type - barrow that is dated by AMC 3856 years ago. On the vertical planes of individual stones images groups or drawings of individual animals and people are fixed. Despite the primitive nature of the drawings, it is possible to species the definition of animals: predator (wolf), camel, horses, people. Horses predominate, depicted lying, standing and riding. From a technological point of view, petroglyphs are defined as images made using the percussive technique (knockout). Preliminary analysis suggests that no intermediary was used for petroglyph application. As a percussion stone was used, which is similar in terms of hardness, but relatively more granular. Analogy images are widely distributed in East Kazakhstan, however the uniqueness of the burial mound Kyrykungyr-51 consists in the combination of images of animals on the walls of the fence of a large architectural structure, which implies an interpretation of the drawings in a different semantic key. We discuss the concept of marking with totemic signs location on the territory of a large necropolis as possible prototypes (tamga, signs-seals) steppe related groups of early nomads.

Keywords: Kazakhstan, petroglyph, Shyngystau, unique structure, zoomorphic Images

From life to death: Ovis/Capra phalanges as amulets integrated into funerary rituals of the 4th millennium BC in Portugal

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Abstract: From life to death: Ovis/Capra phalanges as amulets integrated into funerary rituals of the 4th millennium BC in Portugal. Integration of faunal remains into funerary contexts is a well-known practice in Western Europe since the Upper Palaeolithic until Roman times. The variety of species, anatomical elements and contextual associations raises different interpretations. The association of Ovis aries and/or Capra hircus phalanges into the funerary rituals of the 4th millennium BC in Portugal is a phenomenon recently observed. From caves to hypogea, several funerary contexts of Southern Portugal (from Portuguese Estremadura to the Alentejo region), have held sets of Ovis aries and/or Capra hircus phalanges associated with human remains. These sets of phalanges, only the first and second phalanges, isolated and unconnected, with signs of weathering, are integrated into the funerary ritual as dry bones. It is rare the incorporation of other parts of the animal skeleton. Therefore, it is unlikely that all skeleton was placed into the grave. Even though the main ritual of this period is the secondary deposition of human bones (e.g. commingled burials), in some cases, the contextual correspondence to one individual or a set of human bones, can be noted. In this presentation, I would like to discuss the hypothesis of these animal bones being used as amulets used by the living. After death, these amulets are gathered with other votive items and placed with the deceased into the grave.

Keywords: Portugal, 4th millenium BC, Ovis/Capra phalanges, funerary practices

Paths not pathways: ontological imperialism and the art of not seeing human animal relationships in prehistoric SW Asia

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Abstract: In this paper, I take the position that charismatic narratives centering concepts of ‘Neolithic’ and ‘domestication’ obscure points of view that fall outside of these narrow entities severely limiting how we see human-animal relationships in the past. As a result, the pasts we construct rarely escape the confines of our ontological structures and our work, at least partially, functions to reify our places within social networks of esoteric knowledge production—a reflexive position rarely acknowledged in archaeology. Using the rich iconographic and archaeofaunal assemblages from late Pleistocene/early Holocene Türkiye as a starting point, I explore an approach inspired by Deleuzian assemblage theory and posthumanism more broadly, which seeks to acknowledge the politics of the Neolithic, to decouple animals from traditional domestication narratives, and to ‘see’ how the archaeological record might look different during such an epistemological ‘eclipse’. Seeking to combine high resolution archaeological science with ontological diversity, I encourage a cartographic approach to zooarchaeology, and its ability to expose other paths and stories of humans and animals generally unseen and untold in traditional approaches. In this paper, I map out some of these paths and stories.

Keywords: Neolithic, Zooarchaeology, assemblage theory, epistemology, domestication

G21 - Icons in Transition. The Role of Signs and Symbols During the Great Transformation

Session Organiser

Marion Benz / Free University of Berlin, Germany

Barbara Helwing / Berlin State Museums, Berlin-Vorderasiatisches Museum, Germany

Ewa Dutkiewicz / Berlin State Museums- Museum für Vor- und Frühgeschichte, Germany

Abstract

The early Neolithic of the Urfa Region is famous for its extraordinary imagery during the great transformation towards sedentary lifeways. Monumental architecture and a vast panoply of imagery seemed to indicate a turning point in media or even in cognition. Which role did symbolic systems play in constructing and maintaining communities during this transition? What were their predecessors and how did they develop further? Symbolic systems are of central importance for understanding structural continuities and changes in the social fabric and the dialectic relationship of communities and media in times of fundamental socio-economic transformations.

This session aims to compare changes in mediality on a worldwide scale and in a long-durée perspective, applying a transdisciplinary approach. We consider the various symbolic systems, from signs to images, from built space to burial rituals, as polyvalent, intersubjective and contextual. Contributions should focus on the reflexivity, standardisation, ubiquity and materiality of imagery, and on spatial as well as on temporal aspects of archaeological records: Which symbols were represented, how and where? Did medial systems allow participation and interaction? Which role did these media play in socialisation? Was their use private or public, egalitarian or exclusive, monumental or small, random or canonised? Were they omnipresent or accessed only during specific moments? How did symbols contribute to the creation and stabilisation of collective memories?

This session invites contributions from a wide range of disciplines, from prehistoric archaeology to social neurosciences, to share perspectives and case studies in this multidimensional approach to symbolic acts and artefacts.

Neolithic Symbolic Imagery: Reality and Fiction, Memories or Illusions in a Material World

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G21

¹Independent researcher

Abstract: Neolithic three-dimensional imagery occurs on different scales and in diverse materials, represents various prototypes, from animate beings to inanimate structures and artefacts, and could reflect items of a real or an imaginary world. In both lines of reasoning, reality or fiction, a particular true or mental entity or scene, memorized or conceived, would have been materialized, fixed permanently in tangible images. The liminality between real and non-rational is not unambiguous in semiotic representations, while deliberate alienations of reality and/or illusions on the otherworldly are possible, implying the existence of connoisseurs. Inevitably, specialists should have been aware of the signs' meanings and capable of transmitting their messages to the 'non-initiated', with images presumably involved during tangible or invented performances or narratives. Material images were integrated in the general frame of societies and interacted with their other constituent parts, not only in a transcendental perspective, but also in a material approach. The presentation attempts possible interpretative directions for the complex connections signifiants - signifiés embodied by symbolic artefacts during the Neolithic period, examining social and anthropological aspects of the represented originals and their reproductions, based on figurines and models mainly from Greece, as well as from neighbouring regions.

Keywords: Materiality, Symbols, Imagery, Neolithic

Exploring Cultural Dynamics: Mobility, Identity, and Exchange during the Neolithic transition in Europe

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G21

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Abstract: Several models based on biological and archaeological data question the relationships between hunter-gatherer societies during the Palaeolithic and their becoming during the first incursions of agro-pastoral communities during Neolithization. While some authors emphasize demographic determinism to explain cultural change, others see social interactions between groups and individuals as the main driver of evolution. My research aims to understand these mechanisms in a comprehensive way, based on material culture and in particular personal ornaments. My research is based on methodological developments (SNA, IBD, multivariate analyses) that explore the role of circulation networks and inter-individual exchanges in the construction of the cultural geography of Eurasia and the diversification of individual identities. These investigations feed into several lines of research, focusing on last foraging societies in Eurasia, the mobility systems that enabled contact between groups, and the relationship between mobility and the transfer of cultural traits during the Neolithic transition as a driving force behind changes in material culture.

Keywords: personal ornaments, forager, farmer, Mesolithic

Pathways to code-making in the Neolithic. A semiotic investigation of symbols in south-west Asia

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G21

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Abstract: The significance of marks and figurative representations in the transition from foraging to farming during the Neolithic period in south-west Asia has been widely acknowledged. Such representations are believed to have been fundamental in shaping behavioural attitudes and social memories in coping with this difficult transition and several studies have explored the role of images and figurative objects within this context. However, there has been no endeavor to link Neolithic images directly with the origins of graphic codes. This study delves into the production of imagery and the pathways associated with the development of visual codes, positing that from the early Neolithic period (circa 9700–6600 cal BC), societies in south-west Asia actively employed semasiographic codes through the juxtaposition, salience and standardisation of images as essential communication tools for narratives and operational instructions. These symbols served to foster community cohesion and facilitate social interactions between groups at the local and wider regional level.

Keywords: neolithic, semasiography, cognitive archaeology, iconography, code-making

Rituals and Symbolic Systems in Early Prehistoric Cyprus: A Transdisciplinary Analysis of Social Cohesion and Transformation

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G21

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Abstract: The early Neolithic of Cyprus presents a remarkable case for examining the role of symbolic systems in the transition towards sedentary lifeways. This paper explores how ritual practices and symbolic systems were instrumental in constructing and maintaining communities during this pivotal period. Utilizing a middle-range theoretical approach that combines structuralism and pragmatics, alongside contextual and relational analysis, this study examines the complex interplay of rituals, burial practices, and symbolic acts in Early Prehistoric Cyprus. Drawing on case studies from sites such as Kissonerga-Mylothkia, Kalavassos Tenta, and Shillourokambos, the research identifies patterns of ritual behaviour that reveal the socio-cultural significance of these practices. By examining the reflexivity, standardization, ubiquity, and materiality of symbolic systems, the study offers insights into how these elements contributed to the creation and stabilization of collective memories, socialization processes, and community cohesion. The paper compares the Cypriot findings with broader Neolithic developments in the wider Urfa region (Upper Mesopotamia and the Levant), highlighting structural continuities and changes in symbolic media across different geographies and time periods. It addresses key questions about the representation, participation, and interaction facilitated by these symbolic systems, exploring their communal versus public, comprehensive versus exclusive, and monumental versus small-scale dimensions. This transdisciplinary approach integrates perspectives from prehistoric archaeology and cognitive sciences providing a comprehensive understanding of the dialectic relationship between communities and symbolic media during times of fundamental socio-economic transformations. Through this lens, the study emphasises the central importance of symbolic systems in understanding the social fabric of early Neolithic societies.

Keywords: Neolithic Cyprus; Ritual; Symbolism; Pragmatics

A Glimpse into the Past: Sayburç Reliefs

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G21

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Abstract: It is challenging to assess the symbolic world of Neolithic societies based on tangible evidence. While it is always possible to construct a more comprehensive picture of daily life, modes of production, subsistence strategies, or building techniques, some finds, symbolic objects, special contexts, special structures, burial customs, and artistic productions provide insight into the beliefs, traditions, social values, and practices of societies that we do not fully comprehend. The Şanlıurfa region is replete with tangible evidence pertaining to the symbolic aspects of prehistoric societies. It provides a distinctive data environment conducive to such studies. It represents a meaningful unity not only in terms of the contexts of a single site but also in terms of the region as a whole. Sayburç, located in this region, is notable for the coexistence of dwellings and special buildings. This presentation will discuss the reliefs in a special structure in Sayburç. The reliefs and related contexts will be introduced, compared with other sites in the region, and evaluated in the sense of the new perspectives they offer on the Neolithic communities.

Keywords: Neolithic Art, Symbolism, Foothills of the Eastern Taurus

Humanizing the World: Neolithic Art and Collective Buildings in Eastern Taurus

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G21

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Abstract: The transition to sedentism in Southwest Asia resulted in technological innovations and substantial social changes. The necessity of living in larger groups and the same place for longer periods must have led to the formation of new norms of social behavior. In this process, it is thought that humans began to differentiate themselves from the natural environment of which they were a part, gradually transforming into a species that controlled nature rather than being subject to it. This phenomenon is exemplified in the early examples of Neolithic art, particularly in the plateau settlements on the southern slopes of the Eastern Taurus Mountains. Initially, animal-oriented symbolism was transformed into a human-oriented narrative art form. The prevalence of this symbolism in communal special buildings can be seen as a reflection of the social worldview. With the prioritization of the human being, the fact of life has become more prominent. This paper discusses and evaluates the symbolic elements and art at Nevali Çori and Göbeklitepe on the Şanlıurfa plateau, with a special focus on Karahantepe. The analysis will be conducted within the nexus context between life and death, and between humans and nature.

Keywords: Neolithic Art, Collective Buildings, life and death, humans and nature

A study of the wall paintings at Dja'de el-Mughara: structure of the decor, technical and cultural context, significance within the graphic manifestations of prehistory

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G21

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Abstract: This paper presents an original study of the geometric and polychrome wall paintings of the communal building 'the House of Paintings' at Dja'de el-Mughara (Syria, 9th mill. cal BC). The first part gives a detailed presentation of the structure of the painted decor, setting out the chaîne opératoire of the paintings, their construction principles and the relationship between polychromy and geometry. The following principles are identified: use of a single module in the construction of motifs, tiling of the surface, symmetrical transformations and the search for a chromatic balance. We then question the textile inspiration (kilims) proposed by the excavator E. Coqueugniot: the structure and visual aesthetics of these paintings seem to have been inspired more by woven basketry. Our experiments with weaving paper strips reveal significant differences and technical impossibilities inherent to basketry: the transposition from one material to another provides an opportunity for creativity in terms of the play of colours and the proportions of the motifs. Finally, we place these paintings in the longue durée of the geometric graphic manifestations in prehistory. The Dja'de paintings are to date a *unicum* in terms of their complexity, even in comparison with the numerous Çatalhöyük paintings; however, they belong coherently within the culture of the Syrian Middle Euphrates at the end of the PPNA and during the PPNA-PPNB transition, which seems to attest to a marked interest in geometry, both in its architecture and in its architectural decoration.

Keywords: Paintings, Colours, Geometry, Basketry, Prehistory

Neolithic Sociology of the Fertile Crescent: Peace through Boundaries

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Abstract: Göbeklitepe, an extraordinary Neolithic site dating back to approximately 9600 BCE in Şanlıurfa, Türkiye, has long been shrouded in mystery regarding its social function. Particularly, the animal figures etched on the stone pillars have been the subject of extensive debate and numerous theories. In this paper, we introduce an alternative approach that will shed new light on the purpose of Göbeklitepe. We are suggesting that some of the animal figures are land maps of the surrounding region, chiseled onto the pillars. These maps hold deep sociological significance as they facilitated daily life and contributed to peaceful coexistence by defining boundaries. Using advanced map-reading comparisons, we demonstrate that the Göbeklitepe maps encompass a vast territory from Anatolia to Mesopotamia and to Egypt. The shapes of the animals on the pillars correspond to the region's geographical features, including rivers, mountains, and plains. This precision in map design suggests that Göbeklitepe served as an administrative center during the Neolithic era. These intricate maps, represented as animal depictions, provided essential knowledge for resource management, trade, migration, and maintaining order among the communities of that time. Our findings challenge existing paradigms and open new avenues for understanding the profound sociological foundations underlying Göbeklitepe, emphasizing its pivotal role in early human civilization.

Keywords: Göbeklitepe, Maps, Fertile Crescent, Management, Neolithic

The Neolithic Symbolic Language, or the ideograms of exogamy

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Abstract: The symbolism of Neolithic Anatolia is known to be extremely rich and well preserved. The depicted images (bull horns, parturient females, migrating birds, zigzagging snakes, teeth-baring predators, geometric signs etc.) as well as their systematically isomorphic layout (one side generally reflecting the other) indicate that the compositions were planned in advance as if conveying a message. In order to decipher the later, more than 30 years ago, the Late JD Forest (Sorbonne University) applied anthropological concepts such as 'exogamy' and 'dualism' to the iconography of Çatalhöyük with enthusiastic results. In the meantime, a large number of earlier Neolithic compositions sharing the same characteristics were uncovered at Göbekli Tepe and elsewhere, to which the author applied the same method with the same coherent meaning. Every symbol (often inserted within its isomorphic architectural display) thus seems to act as the 'ideogram' of a general Symbolic Language roughly stating that the perpetual cycle of life and death (of the society) is made possible by the central exogamic principle, which overarching importance has been universally noted by the most distinguished early anthropologists such as Frazer, Spencer and Gillen, Malinowski and even Engels and Freud. Such concepts are argued to find their way in these highly symbolic places expressly because they devise a most crucial social rule (stemming from the prohibition of incest), namely the systematic and reciprocal exchange of partners for the society to reproduce smoothly generation after generation.

Keywords: Symbolism, Neolithic, ideology, Göbekli Tepe, exogamy

On bullroarers, taboos and male initiation rituals

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Abstract: In this presentation, the suggestion will be made that some bone objects are 'bullroarers', which have been found at many settlements, but which have not been widely analysed and commented on before. Bullroarers are sacred taboo objects in many cultures that play an important role in male initiation rituals and are forbidden to be seen by women. The sound it produces is believed to stimulate an ancestral spirit or divine being. This suggestion is not based on an analogy derived solely from physical resemblance, but will be constructed within a model that has several bases. Firstly, the fact that bullroarers almost always retain the same meaning and repeat the same ritual pattern in cultures from different parts of the world is a factor that increases the credibility of the proposition in the Neolithic past. The second premise is that male initiation rituals involving bullroarers are characterised by secrecy, isolation, the gradual disclosure of ontological secrets, the transmission of mythological stories and initiatory examinations, often involving violence. These, in turn, are in harmony with the impression given by both the plan, the architectural and the decorative elements of the round special buildings, most notably at Göbeklitepe, Karahantepe and Sayburç. The main objective of the presentation is to discuss the archaeological data in terms of rituals based on similar patterns.

Keywords: Bullroarer, male initiation rituals, violence, ontological icons

From Arctic Inuksuit standing stones to Göbekli Tepe's megalithic round enclosure: Entwining of practical and spiritual life

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Abstract: From the Inuksuit standing stones in southwest Baffin Island, Canada, to Göbekli Tepe's megalithic round enclosure in southeast Turkey, rock art spans continents and eras. Constructed through the Neolithic and linked to the concept of the earth's navel, they represent a magic link between the sky and the earth between life and landscape. Inuksuit, dating to 2400-1800 BCE, are the oldest objects placed by humans upon the Arctic landscape, becoming a symbol of the Inuit and their homeland. These stones, a medium for traditional knowledge, passed through generations served as navigation and hunting guides, marking safe passages, food storage, significant locations and warnings. They also held mystical significance, marking the way to places of earthly and spiritual power where souls resided, shamans were initiated and traditions were observed. There were invisible paths and their location was rarely revealed. Megalithic round enclosure Göbekli Tepe showcase a ceremonial ritual space containing monumental structures with T-shaped central pillars, surrounded by smaller pillars decorated with animal reliefs. These structures suggest a shamanistic background, where rituals involving animals and humans took place connected to early Neolithic death rites and cult practices. Göbekli Tepe's architecture and iconography reflects a transition from hunter-gatherer shamanism to a more structured religious order. Both Inuksuit standing stones and Göbekli Tepe serve as examples of how ancient peoples used rock art to navigate, hunt, communicate, and perform rituals. These sites highlight the interconnectedness of practical and spiritual life, marking significant elements in the landscape while serving as communal ritual spaces.

Keywords: Arctic Inuksuit Standing Stones, Göbekli Tepe Megalithic Round Enclosure, Shamanistic Ritual Spaces, Practical and Spiritual Life, Neolithic Signs and Symbols

Anthropomorphic Stone Sculptures and Carved or Painted Pottery of Chinese Neolithic and Mongolian Stag Stones

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Abstract: Stag stones (or deer stones) are vertical steles, representing highly stylized sculptures of warriors dated X–VII centuries BC. The origin of stag stones is vague. In the search of possible roots of stag stones, a survey of Chinese regions, bordering Siberia and Mongolia was undertaken by the author. Zhaobaogou Neolithic culture of the V millennia BC had yielded quite a number of zun pottery vessels decorated with pairs of deer-headed dragon-like creatures with very long bent bodies, resembling deer from Mongolian-Trans-Baikal stag stones. Zhaobaogou culture also had anthropomorphic sculptures of the First Ancestor made both in pottery and in stone. In Zhaobaogou culture, stone sculptures are not yet directly associated with zun pottery vessels, ornamented with pairs of deer-dragons, which symbolized the Universe. The identification of these two ideas – the First Ancestor and the Universe – took place later and its final result were stag stones – anthropomorphic sculptures the three-partite vertical division of which according to the lines of necklace and belt and correlation of these three zones with the three layers of the Universe are well known. In ancient cultures, a vertical division of space into three parts is connected with the myth about the separation of Heaven from the Earth. The actor in the process of separation is often the First Ancestor, who symbolizes the entire Universe. In Chinese Neolithic archaeological material this myth is reflected in late Neolithic Banshan-Machang culture painted pottery at the end of the III – beginning of the II millennia BC.

Keywords: Chinese Neolithic, anthropomorphic stone sculpture, carved or painted pottery, Mongolian stag stones, signs and symbols

Paleolithic Art: What it's all about?

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Abstract: Upper Paleolithic art is often perceived as a uniform mode of artistic expression with little changes throughout the entire period. However, this perspective underestimates the regional and chronological variations in motifs, styles, and media. Spanning approximately 30,000 years across Eurasia, Upper Paleolithic art is subject to significant shifts. Changes in population dynamics, revealed through genetic studies, along with advancements in lithic and osseous technology, personal ornamentation, mobility patterns, and subsistence strategies, profoundly influenced the cultural characteristics of these societies and, consequently, their preserved artistic expressions. Throughout the Upper Paleolithic, human societies utilized both portable and stationary art forms. The depictions, primarily featuring Pleistocene fauna and human figures, indicate deliberate motif selection, evidenced by intriguing fluctuations in quantity and variations in techniques and raw materials employed. These variations suggest a complex and dynamic cultural landscape where artistic expressions evolved alongside changes in environmental conditions and social structures. In this talk, we want to focus on motifs of mobile art from Central and Eastern Europe. Following this record, it is essential to challenge the view of a homogeneous “Paleolithic art” and argue for a more diverse picture in artistic expressions during the Paleolithic period.

Keywords: Paleolithic mobile art, Animal and human figurines, Symbolic expression, Cultural connections, Upper Paleolithic

Siberian Anthropomorphic Sculpture in a Context Paleoart's Universals

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Abstract: The multi-functional of Paleolithic and Neolithic portable art, the possible interpretations, the purpose of objects, their semantics, the approaches to attribution in modern archaeology are formed as a scientific axiom in a series of studies. The Siberian Stone Age anthropomorphic sculpture is represented by both series and single finds in collections of key stone age objects. Despite the technology, morphological, stylistic, contextual features, in the Siberian collection of anthropomorphic products of ivory, bone, antler, soft stone can be distinguished certain Paleoart's universalis, preserved the basic concepts of human images in the Stone Age. Using the possibilities of microscopic and use-wear analysis, digital technologies, spectral analysis in the research of shaping, detailing and decoration of anthropomorphic sculpture allows to evaluate known and new materials at a new methodological level. Upper Paleolithic collection with the possibility of identifying elements of clothing, footwear and accessories (bags, belts, personal ornaments, dressings), portraiture decoration, as well as the staining of the sculptures red, blue, green, white paint is particular interest. A conceptual reading of the corporeality phenomenon in Paleolithic portable art allows interpretation of the external world, level of adaptation strategies, biological interest and certain aspects of the representation of the human body (or its parts) through artistic techniques (engraving, ornamentation, coloring) to enhance the emotional and semantic expression of the image. Siberian Neolithic sculpture loses objects volume, becomes schematic and flat. A dramatic change in artistic form implies a change in the mindset of ancient hunters and fishermen in Northern Asia.

Keywords: art, physicality, microscopic, Siberia

When Craftsmanship Connects: Exploring Common Craft Styles in Anthropomorphic Stelae Across the Alpine Region in the 3rd Millennium B.C.

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Abstract: In the Alpine region, specifically in the Upper Rhone Valley in Switzerland and in the Aosta Valley in Italy, several megalithic cemeteries were erected around the early 3rd millennium BCE and remained in use until the beginning of the Bronze Age. Since 1961, in the Swiss city of Sion, archaeological research at the Petit-Chasseur sites and at the Don Bosco site has uncovered a total of 15 funeral megalithic structures, two of which have triangular bases. Similarly, since 1969 in Saint-Martin-de-Corleans, Aosta, Italy, eight funeral megalithic structures have been found, one of which has a triangular base, reflecting the architectural features found north of the Alps. The excavations revealed, among other artifacts, 99 stelae, many of which were recycled in megalithic constructions. These stelae predominantly feature anthropomorphic engravings and decorative motifs, showcasing a clear resemblance in the composition of representational objects between the two valleys. This consistency prompts inquiries into the artisans responsible for these intricate designs and the cultural exchanges that might have facilitated such shared iconography. For our study, out of a total of 99 stelae across all sites, we selected 51 decorated and well-preserved. These underwent illustrations and were then catalogued, focusing on the phase of iconographic conception as the initial stage for tracing the stela craftspeople's production, and the practices behind them. This large-scale comparative approach to artistic composition promises to deepen our understanding of prehistoric Alpine communities and their enduring artistic and social legacies during the final Neolithic, Bell Beaker, and Early Bronze Age periods.

Keywords: Neolithic, Bell Beaker period, stelae, megalithic architecture, craftspeople

Simple Decoration or Symbolic Meaning? Neolithic and Chalcolithic Osseous Artefacts at The Lower Danube (Romania)

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Abstract: In the Lower Danube area, the Early Neolithic marked the use of new raw materials as well as the introduction of innovative typologies and technologies in all fields of material life. One of the striking features is the disappearance of the decorated osseous artefacts, in stark contrast to the preceding Mesolithic period, characterized by geometric ornamentation. During the Middle Neolithic (middle of 6th century BC onwards) though, decorative elements (dots and linear incisions) are again noted. During the Late Neolithic and the Chalcolithic (the entire 5th century) they appear on a wide type-range of osseous artefacts: domestic tools, weapons, and figurines, both made of bone and deer antler despite the fact that their occurrence at archaeological sites remains scarce. We aim to briefly review the decorative patterns present on the artefacts and their manufacturing techniques. These, alongside their cultural context allows at times to discern between the mere decoration and a possible symbolism.

Keywords: Lower Danube, Neolithic and Chalcolithic, osseous industry, geometric ornamentation, symbolism

Information Encoding in the Paleolithic

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Abstract: Geometric signs are abundant in Paleolithic mobile art as well as cave art. There are plenty of hypotheses regarding their meaning and function. However, these are necessarily hard to test and remain controversial. We here propose to take a step back and ask: what can we say about the basic statistical properties of Paleolithic signs in comparison to other sign systems such as proto-cuneiform and modern writing? To tackle this question we focus on a clearly circumscribed corpus of mobile objects from cave sites of the Swabian Aurignacian. We compare the sign sequences on these objects in terms of their "statistical fingerprint" to the earliest proto-cuneiform tablets of the Uruk periods, as well as a diverse set of modern day writing systems. While Paleolithic sequences are clearly distinguishable from modern day writing systems, they, surprisingly, fall inside the range of the earliest proto-cuneiform, and are hard to distinguish from these. At the face of it, modern humans of the Swabian Aurignacian of c. 40,000 years ago have already developed sign systems which have the information encoding potential of the earliest proto-cuneiform. However, while proto-cuneiform subsequently developed into full-blown writing systems within c. 500-1000 years, the sign systems of the Swabian Aurignacian remained stable in terms of their information encoding potential over at least 5000 years, and then disappeared.

Keywords: Paleolithic signs, Computational linguistics, Proto-cuneiform, Swabian Jura, Aurignacian

Far from Eden: Symbols and Societies of the Iberian Peninsula Neolithic

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Abstract: As the "Neolithic" package moved westwards, it not only suffered severe transformations but also witnessed the disappearance of small human figurines, mainly representing naked female bodies, in the Western Mediterranean/Atlantic Iberian Peninsula, a core element for Eastern Mediterranean groups. Although Neolithic techno-economic items reached the westernmost part of Europe, in Early Neolithic Iberia, anthropomorphic dressed figurines, occasionally painted on rock walls, impressed on pottery, or molded in clay, are very rare. The Valada do Mato choroplastic piece remains the only one dated to the 6th and 5th millennia BC in Iberia. By the Middle Neolithic, no symbolic representations exist, and a long aniconic phase characterizes Neolithic groups in Iberia, with the exception of the solitary "Venus of Gavà" (Barcelona, Spain). Even at the dawn of Megalithic Iberia, symbolic representations remain elusive, and "domestic" artifacts and very few adornments constitute the funerary items. However, from the end of the 4th millennium BC, southwestern Iberia witnesses a disruptive change in the symbolic scenario. As part of another "Oriental wave" that reaches the Peninsula, anthropomorphic idols and symbolic signs evoking the sun, the moon, animals like reindeer, and animal parts such as horns, primarily in stone and clay, become entangled in the contexts of both the living and the dead. The main goals of this communication are to debate the role and meanings of the presence/absence of explicit symbolic items in the Iberian Neolithic, focusing on regional and supra-regional expressions.

Keywords: Neolithic, Symbols, Iberian Peninsula, Valada do Mato

Who is in the house? Two examples of forest Neolithic East European hunters' symbolic systems

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Abstract: The collection of the forest Neolithic portable art features two big clusters of objects, which could reflect two different symbolic systems. Sets of ceramic sculptures of the Circum-Baltic, Southern Finland, and Russian North-West date to the 4th millennium BC. They were associated with house pits and/or hearths, and represented birds, mammals, snakes, and embryos/schematic humans. Sets of bone, amber and flint pendants of the Baltic States (bone/amber), Central (bone/flint), and Northern Russia (flint) date to the mid-4th – mid-3rd millennium BC, and are found in settlement layers, but sometimes in dwelling-pits, and burials. They are believed to be personal adornments, and represented birds, mammals, snake, fish, and anthropomorphs. According to the study of portable art morphology, chronology, and archaeological context, in the East European NW/N (taiga) regions, the ceramic sculpture sets were connected with dwellings/hearths. They probably represented the cosmogony scheme, where animals could symbolize the various Universe domains. Since the mid-4th millennium BC in both mixed forest and taiga zones groups of carved and flint-knapped zoomorphic (and anthropomorphic) pendants have emerged. Their mapping has shown that the particular animal species pendants are connected to the basins of one or two big rivers and may reflect totemic beliefs. According to two Central Russian case studies, the bird pendants of different species were clearly associated with dwelling pits and probably their hearths. Thus, the two different symbolic systems could be observed, implemented in: ceramic sculpture sets established in dwellings, and sculpted pendants worn in everyday life.

Keywords: portable art, Neolithic, Eastern Europe, forest zone, symbolic system

G23 - The Neolithic in Art. Iconography and Society in the First World Agricultural Communities of Eurasia

Session Organiser

Svend Hansen / German Archaeological Institute- Eurasia Department, Germany

Ianir Milevski / National Scientific and Technical Research Council of Argentina

Abstract

In the past 30 years, a hitherto unknown pictorial world of the early Neolithic has become known in Urfa and the wider region.

The transition from the Palaeolithic to the Neolithic was not only associated with a fundamental change in the way of life and economy, but also with a media revolution. Life-size sculptures made of stone were an extraordinary craft, artistic and social innovation. The material, themes and size of these sculptures were inextricably linked and represented permanence, masculinity and monumentality.

In the further development of the Neolithic, images of humans, but also of certain animals, played an important role in the farming villages.

On a larger worldwide scale, the question of whether the paintings and sculptures played a role for all or only part of the peasant societies will be discussed.

The Neolithic period worldwide is not only a time in which plant and animal domestication occurred and agricultural societies represented a revolutionary break from hunter-gatherer lifeways. The question is whether the transition to the Neolithic was connected everywhere, not only in Eurasia, with a production of images that were adapted to the achievements of the new mode of production.

The aim of this session within the World Neolithic Congress is to evaluate different iconographies and their material culture aspects from Pre-Pottery and Pottery Neolithic bearing communities and evaluate the ideological aspects of art against the background of the socio-economic basis of these communities and vice-versa.

The Media Revolution in the Early Neolithic of Upper Mesopotamia

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Abstract: The Media Revolution in the Early Neolithic of Upper MesopotamiaThe transition from the Palaeolithic to the Neolithic was not only associated with a fundamental change in the way of life and economy, but also with a media revolution. Life-size sculptures made of stone were an extraordinary craft, artistic and social innovation. The material, themes and size of these sculptures were inextricably linked and represented permanence, masculinity and monumentality. Examples of this can be found in both the Natufian of the Levant and the Pre-Pottery Neolithic of Upper Mesopotamia, most prominently at Urfa, Göbekli Tepe, Nevali Cori and recently at Karahan Tepe. These sculptures were contrasted by innumerable small sculptures made of clay, which obviously served other purposes. They too were an iconographic innovation. The small clay sculptures had a great future ahead of them, not least because they fitted into the luggage of the Neolithic settlers who colonised areas in ever new waves. In contrast, the large stone sculptures already met their end in the Pre-Pottery Neolithic B. Possibly this can be described as an early form of iconoclasm.

Keywords: PPN Sculpture

What Did Art See or Not See in Göbeklitepe?

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Abstract: With the declaration of 2019 as the "Year of Göbeklitepe" by the Presidency of the Republic of Turkey, the interest of the art community in this archaeological site from the Neolithic period in Turkey has increased. Events related to Göbeklitepe were carried out under state supervision and by private organizations. Public activities were limited to photo exhibitions and symposiums organized by the Ministry of Culture and Tourism through consulates and institutes abroad, with the main motive of instrumentalizing Göbeklitepe in terms of tourism potential. Private organizations, on the other hand, have tried to present Göbeklitepe as a sensational and exotic image. When the activities are examined, it is seen that Göbeklitepe has been subjected to art in a gentrified, mystified and decontextualized manner. The artworks realized for Göbeklitepe mostly appear as "representations of the same", as copies of the artifacts in the Neolithic site. Such a representation does not bring any innovation to art, but rather paves the way for Göbeklitepe to be exploited beyond measure and reduced to a mere object of consumption. Anatolia and Mesopotamia is not only a place where archetypes of culture and art were produced; it is also a source where phenomena such as religion, law, economy and art were first developed and spread throughout the world. In the light of archaeological findings, art can give a more accurate direction to the future by underlining the continuity of cultural elements in this geography. This review will critically evaluate the skewed view of Göbeklitepe.

Keywords: Art, Göbeklitepe, Looking, Representation, Seeing

Göbeklitepe and Its Reflection on Works of Art

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Abstract: The cultural and artistic changes that emerged with the beginning of the Neolithic period is one of the most important transformations in human history. Archaeological findings show that the art of this period provides deep insights into the belief systems, social structures and daily lives of societies. The artifacts from primary and secondary core areas reveal the richness and diversity of Neolithic cultures. These artifacts are not only historical relics, but also witnesses to an important stage in the cultural evolution of humanity. Periodic changes in art were used not only for aesthetic purposes, but also for ritual, religious and social functions. During this period, art played an important role as a means of expressing societies' identities, reflecting their religious beliefs and defining social hierarchies. While the artworks developed in the primary core areas were generally more sophisticated and symbolic, the artworks in the secondary core areas showed diversity with the influence of local cultures. Within the Primary Core Areas, Göbeklitepe, located in the Levant, is considered the oldest temple in the world and dates back to 9600 BC. The large T-shaped obelisks found here stand out with their animal figures and abstract symbols. This structure provides important clues about how social organization and religious beliefs were shaped in the Neolithic period. In this study, the reflection of the archaeological findings at Göbeklitepe on works of art is discussed.

Keywords: Art, ritual, works of art, abstract symbols, Göbeklitepe

Markers of Subsistence Developments in Neolithic Art? Iconographic and Contextual Studies on the Sculptures of Nevalı Cori

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Abstract: The Preceramic Neolithic (9,600-7,000 BC) is characterized by the transition from an appropriative way of life to a productive one. During this time, the traditional hunter-gatherer cultures of the late Epipaleolithic experienced significant upheaval due to the introduction of innovations. The domestication of various crops and livestock species led to an economic system in which crop cultivation, livestock breeding, and food storage took precedence. This development also brought about changes in settlement forms, architecture, organization, worldviews, and religious beliefs, indicating a general cultural shift. The Şanlıurfa region, particularly the PPNB period settlement of Nevalı Çori, played a key role in this era as it holds the earliest evidence of domesticated grains. Nevalı Çori is an exceptional site where all aspects of an early village settlement were examined on a large scale across five successive building layers. A total of 1167 of small and large stone sculptures, as well as clay sculptures, were discovered at the site, allowing for detailed iconographic studies and stratigraphic and cartographic analyses that provide insights into diachronic trends and spatial distribution. Through this study, the development of figurative art in the PPNB can be traced alongside the domestication processes.

Keywords: Neolithic Art, Subsistence, Nevalı Cori, Figurines, Ritual

Unique Pre-Pottery Neolithic B Bird Figures in the Upper Tigris Region: New Evidence from Gre Filla

G23

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Abstract: Gre Filla is located in the west bank of Ambar Stream in the north of the Upper Tigris Basin. The Pre-Pottery Neolithic settlement is dated to 9300-7500 cal. BC. A group of terracotta figurines are dated to the middle and late PPNB. These figurines have cylindrical bodies and projections on both top sides, blunt triangular on one side, curved on the other side. Although subtype groups can be distinguished according to the inclination of projections, these are generally produced in similar forms. No analogues have been found in the Near East; so, this type of figurines constitute a unique group for the region. More than half of the figurines were broken from their bodies. Moreover, these did not show a homogeneous distribution throughout the settlement. The majority of them were found in the open place between two buildings. The figurines seem to had been deliberately broken and thrown into this limited area, pointing to a ritual. In this study, the status of this group of figurines called "Gre Filla type" in the Near East and their possible functions will be discussed.

Keywords: Pre-Pottery Neolithic, Gre Filla, Upper Tigris, Figurine

Neolithic rock and mobile art from the north-west Iberia: when are those iconographies shared with settlements decorated pottery?

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²FCT (2020.06831.BD)

Abstract: The main aim of this paper is to contribute to the discussion of the role of neolithic iconography, displayed both in rock, mobile art and ceramics, when we intend to comprehend the deep social, economic, and ideological transformations of the post-palaeolithic prehistoric communities of Eurasia. Our discussion will focus on the long term: between c. 9700 and 2200-2000 BC (Mesolithic - Chalcolithic) and it will be supported by complementary research that has defined the geography of settlement related to peasant communities. We will be focused on the north-western Iberian Peninsula, but comparative perspectives with west Mediterranean and Atlantic regions, will also provide new insights to our understanding of the multifaceted role of iconography as an agent of self-identity and a transformer of intra- and inter-community social relations, and thus of social complexification. This region stands out for its large number of rock art sites, dolmens, small anthropomorphic figurines and plaques (engraved and/or painted) and, above all, for the unique expression of “baroque” decorated pottery. In sum, concerning rock and megalithic art we will debate (i) the heterogeneity of the historical paths regarding to the use of images of wild animals and their progressive replacement by schematic and geometric ‘drawings’, in parallel with the beginning of the use and production of decorated ceramics; (ii) the rise of human-like figures in this process. We will also discuss (i) the role of ceramic decoration, (ii) its contexts of use and (iii) the sharing of geometric decorative motifs between ceramics, rock painting and megalithic art.

Keywords: Iberian Peninsula, Late Prehistory, Decorated pottery, Rock art, Mobile art

Neolithic period of Gobustan Rock Art Cultural Landscape (Azerbaijan)

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Abstract: Research in recent years has shed new light on the archaeological complex of Gobustan. Studies of the Caspian Sea levels in different historical periods and the results of C14 analysis have allowed to reconstruct of the Gobustan Rock Art Cultural Landscape from the early Mesolithic. Currently, 64 samples have been dated by AMS-dating of various cultural levels of the caves and settlements of Gobustan. The existence of the Neolithic period in Gobustan was demonstrated by archaeological excavations conducted in the rock shelter of Kyaniza and the Ovchular settlement on the upper terrace of Mount Beyukdash, C14 dating in the Ana Zaga cave on the upper terrace of Mount Beyukdash, and at the Gaya arasy and Firuz 2 settlements on Mount Kichikdash. Based on faunal materials (bone) and AMS dating (charcoal), it was shown that early settlement in Gobustan during the Neolithic period occurred in the Ana Zaga cave around $8,996 \pm 33$ BP, at the Firuz settlement around $7,850 \pm 30$ BP, and in the Gayarasy shelter around $7,880 \pm 30$ BP. As a result, the Ana Zaga and Kyaniz caves record early Neolithic (which corresponds to the period of the largest Caspian Sea transgression), while the Firuz and Gayaarasy settlements record late Neolithic (corresponding to the period of the New Caspian regression). It is worth noting that Neolithic settlements in Gobustan were concentrated on the upper terraces of Mounts Beyukdash and Kichikdash and at the Jeyranlar settlement.

Keywords: Gobustan, Neolithic of Gobustan, petroglyphs, Beyukdash mountain, Kichikdash Mountain

“Minusinsk” Style: Neolithic Rock Art from South-Central Siberia

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Abstract: Well-dated rock art in the Minusinsk Depression (south-central Siberia) is known from the Early Bronze age (2500 BCE to 800 CE), since the Okunev archaeological culture. The so-called “Minusinsk Style” images are distinguished by their archaic character and naturalism, and considered as the earliest in the region. Our recent studies of the content (animal species), iconographic aspect, and geomorphological context of the sites show that the most probable age is from about 9 000 BCE. First of all, the rock art of the “Minusinsk Style” visually contrasts with other later stylistic assemblages. Its naturalistic character stands out against the background of other early Bronze Age styles based on standardized and imaginative formulas. At the same time, the difference between the later periods is not only visual – it concerns the strategy of image construction itself. Comparing the principles of zoomorphic figures organization, in the “Minusinsk Style”, we can see simple forms created by separate straight or almost straight lines arranged in specific order. As for the Palaeolithic rock art, it has not yet been found in the region. Thus, all those trigger new questions about the “Minusinsk Style” imagery. Where did it come from, and what formed the background for it?

Keywords: Rock Art, “Minusinsk” Style, South-Central Siberia, Minusinsk Depression, Image Construction Method

An attempt to interpret the geometric paintings from Dja'de el-Mughara (Syria, 9th mill. cal. BC)

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Abstract: This paper presents an original study of the geometric and polychrome wall paintings of the communal building 'the House of Paintings' at Dja'de el-Mughara (Syria, 9th mill. cal BC). The first part gives an in-depth presentation of the structure of the painted decoration, setting out the chaîne opératoire of the paintings, their geometric construction principles and the relationship between polychromy and geometry. We identify the following construction principles: the use of a single module in the construction of the motifs, the tiling of the surface, symmetrical operations, the regularity of the motifs and the search for a chromatic balance. These elements tend to confirm a textile inspiration, which we present briefly in the second part: rather than a connection with kilims (woven carpets) as proposed by the site excavator E. Coqueugniot, we propose that the structure and visual aesthetics of these paintings were inspired by woven basketry. Finally, we highlight the 'errors', the 'blanks' and 'voids', as well as the chromatic anomalies that a careful study of the excavation archives reveals. These irregularities were maintained throughout the life of the building, indicating that they were deliberate. Drawing on the theories of the image and of mnemonics, we can put forward an interpretative hypothesis: these breaks in the regularity of the geometry of the painted decoration would serve as a memory support for a possible narrative.

Keywords: Wall Paintings, Colours, Geometry, Mnemonics

On artists and artisans during the Neolithic revolution and the Neolithic iconography of the Levant

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Abstract: The rising of the Neolithic was not only accompanied by a new iconography but also by social changes in the production of iconographic and ornamental objects. New social groups existed as the society became to be labour and craft specialized divided. In the Levant, stone and clay were utilized by artists and artisans. Since the differentiation between both categories is difficult to assert in prehistory, it was suggested time ago both by Gordon Childe and Arnold Hauser that it was a division between “profane” and “religious” craftsmanship and iconography. The figurines, sculptures and ornaments had several iconographic motifs - human, animal and geometric-, linked and represented in the different cultures of the Levantine Neolithic. The Neolithic period in the Levant as in several parts of the world consisted of several regional and chronological diversities, expressing differences in the iconography of each region and phase. The question is whether the transition from the Pre-Pottery to the Pottery Neolithic reflected also the craft specialization changes and labour divisions with the acquisition of new crafts, or/and maintained the old traditional organization of these communities. The aim of this paper is to evaluate different iconographies and the material culture aspects of the Pre-Pottery and Pottery Neolithic Levantine communities and evaluate the social aspects of art against the background of the organization of crafts by taking in account the regional divisions.

Keywords: Neolithic society, craft specialization, iconography, artisans and artists, Levant

Consequences of Attachment to Neolithic Masks in the southern Levant

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Abstract: Interaction with ancient masks engenders a complex set of emotions for individual and collective audiences, which include archaeologists, curators, collectors, museum professionals, governments, lawyers, and museum visitors. Reverence for a single mask can and does arouse, conjure, crush, and intensify sentiments for prehistoric ancestors, their material manifestations, and ties to contested lands. A corpus of eighteen masks supposedly from the Pre-pottery Neolithic B (7600-6000 BCE) of the southern Levant, have a rich archival history entwining various archaeological strands including the search for biblical antiquities, looting, politics, collecting, and nationalism. Typically made from ceramic or limestone, these masks exhibit intricate details such as facial features, hairstyles, and sometimes painted designs. Of the eighteen masks, one was recovered in situ and six have tenuous archaeological origin stories or known findspots. The remaining eleven masks are from the antiquities market, privately owned, with little or no provenance (associated object history) or provenience (archaeological find spot). Issues surrounding insufficient provenience or insecure provenance leave lacunae in our interpretation of the purpose of these masks in antiquity and in the present. Using object biography and itineraries, oral histories, archaeological hearsay, and archival research, this paper reflects on the rival passions for the 18 Neolithic masks and the consequences, intended and unintended, of emotional attachment to ancient materials.

Keywords: Neolithic, masks, antiquities market, provenance, esteem

Neolithic and Chalcolithic cranial human masks from Portugal

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Abstract: In Europe, during the Neolithic and Chalcolithic, the use of the human skull as a ritual object, subject to specific interventions and practices is certainly linked to the way of thinking of men in food-producing societies, which led to the explosion of a new symbolic world. Cranial manipulations, such as trepanations, scrapings, small incisions, or discs and plates cut out of cranial bones are well known. Human osteological remains in the collections deposited in the various archaeological and other museums suggest that interventions on human cranial bones, particularly trepanations made alive, or post-mortem were an almost recurrent practice. However, there is one more aspect that has been overlooked or that has not been given importance, and that is the masks made from cranial and facial bones. The review of materials dispersed in different museums in Portugal allowed the obtention of new data. The three masks were found in caves of funerary use. It is within this context that the human skull was transformed into an artifact of material culture, which gave rise to magical-religious artifacts, such as the masks here.

Keywords: Late Neolithic, Chalcolithic, cranial masks, Europe

Turning left or turning right? Temporal and regional variability in LBK pottery decoration of Central Europe.

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Abstract: The first generation of researchers working on Central European first farming communities of the Linear Pottery culture (LBK) were eager to study the ornamentation of vessels and its relationship to later traditions, e.g. in ancient Greece. Nowadays, despite the enormous growth of data, the subject of ornamental motifs on pottery is rarely addressed for two reasons: technical (high fragmentation of material, increasing particularisation of studies) and theoretical (lack of a key to interpret signs that are to a large extent universal). Among the most common art motifs, the spiral and its variant, the S-shaped spiral, are found on various materials in different cultures and periods all over the world. In the LBK, this motif is particularly characteristic of its eastern area, where the so-called Music Note pottery is recorded from the middle phase onwards. S-spirals could be drawn with the left end up and the right end down or vice versa, and these differences in execution are visible at different levels of observation: between individual, even nearby settlements, as well as between whole regions and periods. This presentation will focus on the question of what might lie behind these differences and similarities, and what other features of the artefacts can be taken into account in order to best trace the interrelationships within the apparently so homogeneous LBK communities. Studies are financially supported by the National Science Centre, Poland, OPUS 26 (project no. 2023/51/B/HS3/00207)

Keywords: pottery decoration, decoration motifs, Central Europe, LBK

Turning West: On the Disappearance of figurative representations in Neolithic West-Central Europe

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Abstract: At the start of the fifth millennium BCE, as the central-European Linearbandkeramik culture was broken down into smaller cultural groups, the traditional making of figurative representations was either transformed or radically abandoned. For thousands of years, these clay figurines and vessels representing humans and animals had been a hallmark of early Neolithic lifestyle. They were found in hundreds in Southeastern Europe during the sixth millennium BCE and continued to be produced as the Neolithic reached Central Europe, although in smaller numbers (Scarre 2017; Hansen 2007; Becker 2011). By the start of the fifth millennium BCE, however, figurative representations seem to have disappeared from the western LBK, or turned into highly abstract symbols. This dissolution of a thousand year old figurative tradition may have been the outcome of broader cultural changes in fifth millennium Central Europe.

Keywords: figurines, central europe, fifth millennium, lbk, figurative

Headless anthropomorphic representations in the course of the European Neolithic

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Abstract: Headless human representations are among the earliest figurative depictions of the Epipalaeolithic and the early Neolithic. They are most likely linked to burial rites, in which the head and its removal for later use played a major role. In the course of the Neolithic, slightly differing headless figurines can be found over large areas – from Anatolia and the Aegean to the Carpathian Basin and France. While part of the rituals surrounding figurines in general most often included deliberate breaking, including breaking off the head, this special type of figurative representation was fashioned without one to begin with. Instead, a hole can be found between the shoulders, suggesting that a head, or various heads, could be inserted and taken out again at will. The presentation will examine these figurines and highlight where they can be found, what kinds of heads may have been used for insertion and what ideas and beliefs may have spawned their making. Especially interesting in this respect are two areas featuring very similar headless figurines, but with a large geographical gap in between: the Paris Basin, with figurines dating to the Chasséen culture, and the Carpathian Basin, where the Baden cultural complex also includes figurines with changeable heads. These two regions are otherwise not connected, and it remains to be examined why such similar objects occur in two distant places at almost the same time and where their origin lies.

Keywords: Neolithic; figurines; headlessness; Baden culture; Chasséen

Neolithic Anthropomorphic Figurines in Chalcolithic Contexts in Romania

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Abstract: The Chalcolithic settlement mound Măgura Gorgana near Pietrele (Romania) on the Lower Danube reveals a complex sequence of settlement layers and a high density of finds. These include a total of 638 objects of anthropomorphic figurative art, mainly made of ceramics and bone, but also of antler and marble. The contexts of the figurines are well-studied and can be associated with various houses or their external areas. However, among the different generations of houses, fragments of figurative art that could not be stylistically assigned to the Copper Age settlement layers were repeatedly found in the deposition layers that were applied to raise the mound and to level the surface at the same time. Further excavations in the vicinity of the settlement mound indicated that Neolithic settlement layers were likely disturbed by extracting soil for these deposition layers of the settlement mound, resulting in secondary relocation of Neolithic finds. This paper highlights the primary and secondary find contexts of the Neolithic figurines from Pietrele, situates them within the regional Neolithic, and discusses the possibilities of the deliberate deposition of Neolithic figurative art in the Chalcolithic layers, as well as their potential reflection on Chalcolithic figurative art.

Keywords: Pietrele, Settlement Mound, Deposition Layers, Secondary Relocation, Anthropomorphic Figurative Art

Living fauna made of clay? A comparison of animal bone findings and interpretations of zoomorphic figurines in Eastern Europe.

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Abstract: Zoomorphic figurines were a central component of Neolithic and Eneolithic Europe and probably also of everyday life. However, it is questionable to what extent they reflect reality and what significance they or what they represented had. Should they really be regarded as realistic depictions or are they fantastic creatures? In order to clarify such questions, 285 zoomorphic figurines from the Starčevo-Körös-Criș, Vinča and Kodžadermen-Gumelnița-Karanovo VI cultural areas were examined in detail. In 72 cases from 18 different sites, the animal bone findings were compared with the animal species depicted as figurines. Among other things, it was investigated whether there was a correlation between the animal species depicted and the animal species found in the sites. Based on these results, an attempt was made to draw conclusions about the different meanings of the animal species. Furthermore, it was analyzed whether cultural or site-related trends can be identified and whether it is possible to draw conclusions about different world views and meanings of individual animal species for individual cultures.

Keywords: Zoomorphic Figurines, Animal Bones, Starčevo-Körös-Criș, Vinča, KGK VI

Continuity and changes in zoomorphic clay figurines from the 7th and 6th millennia in the southern Levant

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Abstract: Zoomorphic clay figurines from the southern Levant are usually associated with the Pre-Pottery Neolithic period, while their numbers are said to decrease in the Pottery Neolithic and almost vanish in the first half of the 6th millennium. Nevertheless, about 50 zoomorphic clay figurines were found in the excavations at 'En Esur ('Ein Asawir), located at the northeastern Sharon Plain, Israel. This group of figurines stands out as it is related to a very large (approximately 55 ha) Early Chalcolithic/Late Pottery Neolithic (c. 5200–4800 calBC) settlement. The figurines from 'En Esur are simply made like their predecessors and most of them are of dark gray clay. The bodies are oblong, the legs are short, the tails are small and the heads are mostly absent. Fifteen of them originate in an area where several phases of tightly built installations were exposed. This presentation aims to examine the similarities and changes of this type of figurine, from the PPN to the Early Chalcolithic/Late Pottery Neolithic.

Keywords: zoomorphic, figurines, southern Levant

Cattle (*Bos indicus*): Iconic Animal in the Southern Neolithic Rock Bruisings and Ashmounds with Ethnographic Signatures in India

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Abstract: Southern Neolithic (3200- 1200 BCE) sites primarily are hill sites spread across the semi-arid and sub-tropical savannah climatic regions in south India, which were the first to establish sedentary villages with a range of socio-cultural dynamics associated with ashmounds, dolerite lithic workshops, settlements, settlement terraces, ringing rocks, and rock bruising. This paper assesses cattle (*Bos indicus*) taking a centripetal role in societal rituals and pastoralism in southern Neolithic cultures through rock art and ashmound sites. The most popular image across the southern Neolithic sites is the of cattle, particularly those of two bulls facing each other associated with the ringing rocks/ lithophones and water retention features. They are found strategically on hill slopes, identifiable from the foothill settlements, and symbolically influenced through visual and sonic production. Ashmounds are huge mounds formed with loads of cattle dung, dung periodically burnt in high fire temperatures as reflected in their stratigraphy. Such a significant accumulation of cattle dung took many cattle herds penned in the sites and was seasonally burnt at community gatherings. Sporadically, ashmound deposits are spotted with discarded cattle bones with stone tools. Therefore, cattle in the form of rock bruising, and indirectly through the deposit of metric loads of dung for making the ashmounds not only had a symbolic socio-economic and ritualization among the pastoral and agricultural communities but also marked their identity in the landscapes. Even today, festivals in south India engage cattle in rituals and often make cattle images, which shows an enduring continuity of the human-cattle association.

Keywords: Cattle, Southern Neolithic, Rock Bruisings, Ashmound

Pairs of Deer Engraved on the Neolithic Pottery of China as a Reflection of Social Structure of Ancient Society

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Abstract: In autumn of 1985 while excavating Xiaoshan site in Aohan banner of Inner Mongolia autonomous region of the PRC, a zun pottery vessel with engraved figures of winged deer, a large bird of prey and a pig-headed dragon was found. Xiaoshan site was attributed to Zhaobaogou Neolithic culture, dating to the first half of the V millennia BC. At another site of Zhaobaogou culture – Nantaidi, also in Aohan banner of Inner Mongolia, four more zun pottery vessels with zoomorphic designs were found. Each vessel featured two creatures with a deer head, a long snake-like body and a fish-tail. All four vessels were found in the same dwelling on top of a hill, probably belonging to the local clan chief and used as a temple. Zhaobaogou site – also in Aohan banner of Inner Mongolia autonomous region, has the same plan as Nantaidi. In the F6 dwelling, a fragment of a zun pottery vessel with a snake-headed dragon-like creature was found. As for the semantic interpretation, three creatures from the Xiaoshan vessel can be correlated with heaven, earth and water-underground worlds, i.e. three main levels of the Universe. Subsequently, the zun vessel then represents the Universe itself. Vessels with images of two deer-dragons are symbols of the dual-exogamic clan organization of society. The discovery of four vessels with two different deer-dragons on each reflects a more complex social structure with division of ancient people from Nantaidi into four fraternal parts, each of which had a dual-exogamic clan organization.

Keywords: Neolithic pottery of China, pairs of deer, social structure of ancient society, structure of the Universe, reflection in art

The Neolithic Anthropomorphism and the Domestication of Human Body in the Balkans

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Abstract: Domestication in the Neolithic is commonly related to agriculture and taming of wild animals. But this process was much broader and considered people as well. The change of economic practices also regarded novel social norms and more complex understanding of manmade environment. In such significantly changed society the man was the major driving force and the human body become primary symbolic reference. Almost anything that was produced in the Neolithic, from large constructions such as dwellings to small items such as stamps, was also embodied and semantically elaborated through anthropomorphism. The anthropomorphism was incorporated in order to demonstrate that almost anything that was made and used by man was symbolically functioning as the human body. Consequently, the large number of models houses and ovens, vessels, tablets and stamps consisted human features and emphasized the Neolithic body techniques. The visual culture become a representative of habitus of the first farming societies and the house an institution of body where its symbolic potentials were also promoted. In this manner the dwellings and bodies were furthermore mutually involved through rituals, thus burying mainly dead children and women inside houses and ovens. This paper will be focused on visual and ritual anthropomorphism in the Neolithic Balkans with emphasis on anthropomorphic hybrids and intramural burials.

Keywords: Balkans, embodiment, hybridism, anthropomorphism, intramural burials

Giving meaning to the technique: the socio-cultural dimension of figurine-making in Neolithic Aegean

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Abstract: Neolithic figurines are among the most distinctive categories of Neolithic artifacts, yet their technical dimensions have long been neglected by scholarly research. The reconstruction of the material processes involved in their manufacture and the organization of figurine production within Neolithic societies have been overshadowed by interpretative efforts focusing primarily on their individual morphostylistic characteristics, such as gender, posture, and size. The present paper aims to illuminate recent advancements in understanding the technical aspects of miniature representations in the Aegean region while also underscoring the socio-cultural dimensions of clay figurine-making, with a particular emphasis on modeling techniques. By moving beyond a narrowly descriptive approach to manufacturing practices, this study emphasizes the importance of an anthropological understanding on techniques in comprehending the idoloplastic phenomenon. It posits that technical choices are culturally embedded actions that offer profound insights into the social imaginary of Neolithic communities in the Aegean. In this context, the article examines how the manufacture of a figurine could possess inherent meaning, constituting a practice imbued with specific symbolic content. Mobilizing a rich anthropological and historical experience, this examination provides a comprehensive understanding of the socio-cultural significance of figurine-making in the Neolithic Aegean.

Keywords: Figurines, Neolithic, Technology, Aegean, Meaning

Human Representations and Farming Economy. Insights from the Advanced Farming Stage in the Aegean

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Abstract: Large-size iconography of Pre-Neolithic stages demonstrated the close link between economic change (emergence of farming) and monumental expression and performance. Yet, the advanced farming stages revealed that agricultural communities perceived representation through small-size images, which were affluent, consumable, affordable, and dispensable items generated and used at an individual/household level. Although these two scales of representation reflect chronological horizons distant from each other, exploring them together in the context of a big narrative about the Neolithic is intriguing. It reveals the sweeping impact of economic advances during the Neolithic on communal ritual expression causing a shift from a monolithic, temple-style, centralized way of production and consumption of ritual images to small household-based representation and performance. Delving into this question, we aim to present the fascinating forms of figurative expression appearing in a couple of fully sedentary fifth-millennium BC Aegean communities and explore the phenomenon of multiplicity, individualization, flexibility, and competition despite standardized forms of representation and its association with small social units. Few larger sculptures -clay statuettes or plastic reliefs- imply the existence of monumental art expressions too, yet still within the limits of the human scale. In assessing these late Neolithic records of figurines while keeping an eye back at the megalithic origin of Neolithic art and juxtaposing both scales of Neolithic representation and their respective societies, we emphasize the emergence of multiple, enterprising, and competing social units at the small scale which dismantled megalithic pre-farming expression.

Keywords: Aegean, individualization, figurines, advanced Neolithic

G24 - Treating Dead Bodies in the Neolithic: Exploring the Increasing Social Complexity

Session Organiser

Yılmaz Selim Erdal / Hacettepe University, Türkiye

Françoise Le Mort / CNRS – French National Center for Scientific Research, France

Stéphane Rottier / Bordeaux University, France

Abstract

Mortuary practices can be particularly enlightening on the evolution of behaviors during periods of transition. Along with the changes in lifeways that occurred during the Neolithic transition, a new type of bond was established between the living and the space in which the deceased left behind. The rich record of Neolithic settlements and burials in various space and time scales makes it possible to discuss the interferences between the attitudes of the societies facing death and the environmental and cultural context.

A high range of practices, covering a large timescale, from the time of the death until the process of physical and immaterial transformation of the deceased is achieved, reflects the diversity of the attitudes of the Neolithic societies facing death. Burials vary in location, architecture, shape, size, type, number of dead buried, position and orientation of the dead, grave goods.... Specific treatments, that might be performed during or after the body deposit, or even the absence of burial have also been documented (e.g. manipulations, plastering the skull, cannibalism).

This session aims to bring together scholars working on Neolithic mortuary practices in different geographical locations and in different timeframes to understand the diversity of the attitudes of the societies facing death at the local, regional, and interregional scales and to discuss their evolution through time. Presentations will focus on regional or micro-regional syntheses, interregional comparisons, diachronic studies discussing the evolution and/or diversification of practices through time and integrative interpretations. A large place will be given to discussion.

I Live, I Die, I Live Again: Ritual heirlooms and the life history of Near Eastern Neolithic plastered skulls

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G24

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Abstract: Ritual specialists in the Near Eastern Neolithic created life through the manipulation of human skulls. Recent high-resolution CT and micro-CT imaging of Jericho skull D117 (Chau Chak Wing Museum, Sydney) help us document the sophisticated technical skills that Neolithic ritual practitioners employed to create life-like plastered skulls, including the sequence and timing of production stages, and different materials used. Remarkably, it is now clear that skull manufacture was organized around multi-stage production of separate components, such as ears and noses, that were then placed into anatomical position on skulls without mandibles. It is also clear that materials of different sedimentological and chemical composition were applied in different ways, such as filling the cranial vault and the nasal aperture, and coating the outer surface of the skull. This study raises the possibility that skulls were not made individually but were produced in groups. Our detailed micro-analysis raises provocative questions as to the control of ritual knowledge and intergenerational learning. We consider how ritual practitioners symbolically recreated life after death through the plastering of human skulls; how these objects may have served as ritual heirlooms; and how skulls may have been displayed and eventually buried. Ultimately, this study helps us understand the importance of ritual knowledge within early village communities.

Keywords: Neolithic Death, Mortuary Ritual, Skull Plastering, Ritual Knowledge

Re-examination of the concept of 'skull cult' of Pre-Pottery Neolithic Period in the Near East through spatial and burial context: Archaeological data and anthropological approach.

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G24

¹Mardin Artuklu University

Abstract: The burial tradition observed in many Neolithic settlements in the Near East is characterized by the discovery of isolated skulls, plastered skulls, and headless skeletons buried singly or in groups within distinct architectural contexts. While this burial practice is interpreted as possibly linked to ancestor worship or the creation of collective memory, it poses various challenges such as understanding how the skulls were separated from the bodies, why they were interred singly or multiply, why some were plastered, and why they were buried in spatially distinct contexts. These issues complicate the interpretation of this practice as part of the secondary burial tradition. Particularly crucial are questions concerning the detachment of heads from skeletons and the reasons behind the plastering of certain skulls. Additionally, the architectural contexts of the storage areas where skulls and headless skeletons are found, as well as the grave-site relationships of human remains associated with skull cult, add another dimension to the examination and interpretation of this practice named the skull cult. Viewed from this perspective, a comprehensive understanding of the placement of the Pre-Pottery Neolithic period skull cult within burial customs and its relationship with the social organizations and rituals of the period necessitates archaeological and anthropological analyses. The aim of this study is to reevaluate the application chain and reasons behind the practice, generally referred to as the skull cult, by considering these issues.

Keywords: Skull cult, isolated skulls, plastered skulls, burial, Near East

Palaeolithic origins of Southwest Asian Skull Cults

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Abstract: It has been argued successfully that the so-called “skull cult” rituals of the pre-Pottery Neolithic Near East have been an essential mediating agent of social cohesion and social change on many scales. However, the emergence and development of the practices involved in these rituals, such as primary and secondary burials, relationship to domestic and public architecture, or use of symbolic objects, have been searched mostly within a circumscribed geography and cultural periods of the Near East. Our aim in this study is to articulate the formation of the “skull cult” package of practices through a wider time period (c.150000 BC-6000 BC) and an extended geography (particularly that of Europe and the Near East), so that an understanding of the development of focus on particular symbolic objects, skulls, secondary burials and relations with architecture can be understood from the perspective of cultural evolution. For this purpose, we present a multi-feature-based statistical analysis of 219 sites from which 132 features, mainly covering demographic information, body treatments, burial context (architecture), and grave goods, have been recorded. We discuss the results of these analyses in the context of the recent a-DNA research.

Keywords: ancient DNA, skull cult, neolithic, upper palaeolithic

The Treatment of Skulls in the Neolithic Period at Tell Qaramel, Northern Syria

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G24

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Abstract: In this lecture, present the final results of the study conducted on human skeletons and mortuary practices at the Tell Qaramel site in northern Syria during the Pre-Pottery Neolithic A (PPNA) period. All excavated burials consist of adult individuals, some buried without their craniums, others with only the cranium present, and in a few cases, the entire skeleton. Analysis of these skeletal remains offers compelling evidence of cranial removal practices and sheds light on the associated circumstances. In some instances, cut marks observed on the second cervical vertebra strongly suggest that the decapitation occurred shortly after death, likely executed with a flint tool. Conversely, in other cases, the bodies appear to have been interred until decomposition of flesh, after which the burial was reopened, and only the skull was removed. Our findings are compared with prior research conducted on Neolithic sites in northern and southern Syria, as well as other regions of the Middle East and North Africa. This comparative analysis aims to elucidate the broader evolution of mortuary practices across different Neolithic periods and to reveal the religious and social beliefs influencing burial customs within these communities.

Keywords: PPNA, Cut marks, Qaramel

The archaeology of death: a review of the taphonomic traits associated with the manipulation and butchery of human bodies.

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Abstract: The central question surrounding the interpretation of fragmented and modified human assemblages is whether the bone evidence is the result of natural modifications, funerary behaviours or cannibalistic acts. In this talk I will discuss the taphonomic markers that have been used to distinguish modifications on human remains that have been attributed to active defleshing during secondary burial from those resulting from cannibalistic behaviour. Archaeological evidence indicates that a distinction between cannibalism and secondary treatment of human bodies can be made based on frequency, distribution and micro-morphometric characteristics of cut marks. However, it is likely that these differences better fit extreme circumstances: defleshing of bodies in an advanced state of decomposition compared to the butchery of fresh bodies. I will further discuss whether it is possible to recognise specific taphonomic patterns associated with the different motivations for cannibalism, either survival, ritualistic or funerary cannibalism. In this case, the broad range of different modification and butchery patterns recorded on a large set of archaeological and ethnographic examples of cannibalised assemblages suggests that the osteological evidence and the frequency of taphonomic traits alone cannot be used to unequivocally identify different forms of cannibalism. Only the environmental, cultural, historical and archaeological contexts can offer indications on the type of cannibalism practiced. In particular, the strongest evidence for ritualistic cannibalism comes from its recurrent appearance within a historical context, as a widespread activity over time and as an established customary behaviour for the group involved.

Keywords: Cannibalism, Secondary burial, Taphonomy

Extensive Incisions and Delayed Burials in the Early Neolithic Settlements of Upper Euphrates

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Abstract: The practices concerning the treatment of deceased bodies during the Early Neolithic period exhibited considerable variation in transforming individuals from living individuals to the realm of the dead. While it was common practice to bury corpses in graves as primary burials in some Pre-Pottery Neolithic A (PPNA) sites, especially those in the upper Tigris region, others underwent secondary deposition following various treatments. One such treatment involved incisions, primarily on the skull, which were interpreted in various ways, including as a means of flesh cleansing, skull display or suspension, or even as instances of decapitation. This study examines multiple incisions and burn marks on crania at the Karahantepe sites, suggesting a novel form of secondary burial treatment. The incisions represent a previously undocumented burial practice, and this study explores its relationship with special architectural structures, communal activities, and artistic representations found in Early Neolithic sites.

Keywords: Burial customs, Communal activities, Incisions, Secondary burials, Special buildings

Intentional Modifications of the Human Bone Fragments from Göbekli Tepe

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Abstract: The majority of human bones recovered during excavations at Göbekli Tepe stem from the filling of the special buildings (approx. 800 single fragments); however, in recent years this material has increased through the discovery and excavation of two sub-floor burials. The bone fragments from the site exhibit different types of taphonomic changes, some of which are clearly intentional (by humans), some possibly intentional, and others due to natural causes. This paper focuses on the clearly intentional modifications, such as deep, wide incisions on parts of the skull, cut and scrape marks on skeletal elements of the cranial and postcranial skeleton and coloring using ochre. A probable modification, the impact of heat on human bones, will be discussed on the basis of archaeological findings. The intentional modifications of the single bone fragments from the fill of the buildings will be checked against modifications to the skeletons from the graves. Furthermore, the modifications of the human bone fragments will be discussed in the context of modifications of human depictions from the rich artwork of Göbekli Tepe and compared to the elaborate treatment of bodies in Neolithic societies from Eastern Anatolia.

Keywords: cut marks, carvings, burial customs, taphonomy

The Lives of the Dead: Treating dead bodies during the Neolithic in the Central Balkans - a case study from the Sofia plain

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Abstract: Similarities in Neolithic burial practices have been documented in the vast territory spanning the Fertile Crescent to the British Isles, mainly within the settlement boundaries. The Central Balkans, one of the earliest neolithic territories in Europe, are no exception. Most recently discoveries in the Sofia plain in Bulgaria show both similarities and significant differences in the treatment of the dead depending on the burial location - burials within the settlement versus those buried in a large ritual complex located nearby. The similarities are in the position of the deceased bodies. In the ritual complex near the settlement of Slatina-Sofia, comprised of numerous dug-out structures, a large number of human remains were found. This included skeletons in anatomical order and other individual bones, as well as skulls. In contrast to the settlement where the burials found between houses did not feature post-mortem manipulation, the remains from the ritual complex show signs of dismemberment, cutting, removal of soft tissues, etc. made near the time of death. There is also evidence of trauma that probably caused the death of some of these individuals. All of the discovered skeletal remains pertain to a period of two to three centuries after the settlement appeared during the transition between the sixth and seventh millennium BC. This new data once again raises questions about social complexity and the dynamics of early agricultural societies. Who are those buried in the settlement, and who found (no)rest in the ritual complex? Where are the others?

Keywords: burial practices, post-mortem manipulation, settlement versus ritual complex

Disassembling the dead: making sense of human skeletal remains in “non-funerary” contexts at Neolithic Çatalhöyük

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Abstract: At the early ceramic Neolithic site of Çatalhöyük, Turkey, the majority of burials (primary and secondary) take place underneath the floors of domestic structures, typically while the building is still occupied. A smaller proportion of human remains are found in so-called “tertiary” contexts, i.e. as single, isolated or partially articulated skeletal elements found outside of typical burial contexts (i.e. intramural spaces). Such non-interment contexts can include middens and other external spaces, as well as house construction and abandonment layers. In previous studies, the tertiary remains at Çatalhöyük were not analysed in detail as they were believed to represent ‘background noise’ as a result of the reopening of graves for new interments or the targeted removal of bones, as well as non-funerary activities such as the digging of house foundations. Recent analysis of the tertiary assemblage shows the demographic profile is skewed towards adolescents and adults, which suggests an age-based selection bias not seen in the primary burial assemblage. In terms of part representation, highly fragmented crania and mandibles are over-represented, which suggests a pattern of selective deposition potentially associated with the curation of crania. This might indicate that contexts such as middens and building infills represent the final stop for particular individuals within a multi-stage funerary treatment regime.

Keywords: Anatolia, human osteology, mortuary practices

As above, so below: deposition, modification, and reutilization of human remains at Marmoles cave (Cueva de los Marmoles: Southern Spain, 4000-1000 cal BCE)

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Abstract: The practice of depositing and manipulating human remains in natural caves during the Neolithic period in Southern Iberia is well-documented, yet its cultural significance remains largely unclear. Cueva de los Mármoles (CM) in Priego-Córdoba, Southern Spain, is a significant site, yielding a large number of commingled skeletal remains, indicating its use for funerary purposes from the Neolithic to the Late Bronze Age. This study examines CM from both chronological and cultural perspectives, using new radiocarbon dating, anthropological assessments, and taphonomic analyses. These investigations include estimating the minimum number of individuals, examining fragmentation patterns across different skeletal regions, and analyzing alterations to the remains possibly caused by human activity. Radiocarbon data suggest a funerary use of CM between the 5th and 2nd millennia cal. BCE. Estimates of the minimum number of individuals reveal at least 12 individuals, including seven adults and five non-adults. The scarcity of bone elements from hands and feet suggests that individuals were placed in the cave while partially decomposed. Evidence of anthropogenic activity on the remains, such as fresh fractures and modifications of bone elements, suggests intentional fragmentation, cleaning of skeletal elements from soft tissues, and reuse of some of the remains. These findings, consistent with other cave sites in the region, suggest shared cultural beliefs, particularly during the Neolithic period, and the enduring symbolic centrality of the human body in these cultures.

Keywords: Andalusia, Cave depositions, Secondary funerary practices, Spain, Late Neolithic

Treating the dead, choosing the bone(s?): performing Neolithic secondary burials in the Cave of Pan at Marathon, Attica, Greece.

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Abstract: The Cave of Pan at Marathon, Attica Greece is an impressive, large natural monument which was proved, through a partial excavation undertaken for a short period of time during 1958 (by archaeologist I. Papadimitriou), to have functioned for several centuries during the historic era as a place of worship dedicated to divinities of vegetation, fruitfulness and fertility. A new excavation conducted by the Ephorate of Palaeoanthropology and Speleology (Hellenic Ministry of Culture) between 2014 and 2018 verified the above finding. Nonetheless, the recent excavation of the deposits of the cave also revealed a large number of disarticulated, dispersed human bones belonging to secondary burials of the Early, Middle, Late and Final Neolithic. The particular finds testify that the cave was used since at least the middle of the 7th millennium BC and for more than two thousand years afterwards as a place for the final settlement of Neolithic dead and by extension at (the very) least as an important hub of remembrance of the ancestors. It is quite interesting that the burials of these cranial and post-cranial bones obtained progressively specific characteristics. By the advent of the Late Neolithic (and especially between 5300 and 4700 BC) they displayed a structured approach of manipulation unquestionably pointing to the intended and traditional deposition of selected skeletal parts of the dearly departed as indicated through the presentation of the results originating from the excavation of the cave deposits.

Keywords: Cave, neolithic, secondary burials, Marathon

New people, new attitudes: the mortuary practices of the first Neolithic groups in central Portugal

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Abstract: Portugal is located at the western end of the diffusion of the Neolithic way of life that began over 10,000 years ago in the Near East. In this westernmost region of Europe, one of the initial areas to be inhabited by small Neolithic groups (originating from the Spanish Levant) is the Central Limestone Massif of Estremadura (CLME). In the CLME, the earliest Neolithic period dates back to circa 5500 - 4900 cal BC and is associated with the Cardial culture. While the funerary practices of the Cardial culture in the Mediterranean basin are poorly understood, in the CLME, the period's chronology and characteristics are delineated based on its necropolises. The first mortuary practices of the Neolithic groups coincide with the last burials of the Mesolithic hunter-gatherers who inhabited the shell-middens of the Tagus River (approximately 40km away). Whereas Mesolithic hunter-gatherers practiced pit burials at habitation sites, the early Neolithic people utilized caves for their deceased, demonstrating a novel approach to death. When used as necropolises, the caves served no other function, highlighting a clear separation between living areas and burial spaces. The Minimum Number of Individuals (MNI) is small, indicating that specific individuals were selected for interment at these sites, with no discernible distinctions based on age or gender. There are no formal burial structures, and human remains are found disarticulated, with no apparent associations between individuals, suggesting that bodies were placed intermittently over time.

Keywords: Cardial, caves, regional syntheses

An interdisciplinary forensic approach to understanding multi-stage mortuary practices and manipulation of the dead in the Neolithic Near East: experiments at the Australian Facility for Taphonomic Experimental Research

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Abstract: The archaeological record only shows the final deposition of human remains which is a major deficiency in the study of mortuary treatment. Mortuary practices are not often considered as a dynamic process that consists of several stages over a length of time. The way human remains are treated before their final deposition, such as all forms of exposure of corpses, remains difficult to detect. It is assumed that multi-stage funerary practices were not uncommon in the Neolithic Near East based on the great range of variation in the burial record. There is evidence for removal, manipulation and re-deposition of skeletal elements. There are loosely and tightly flexed individuals; individuals buried with lime and gypsum plaster; and different modalities of pigment application. Are there ways to detect former mummification? Could tightly flexed burials be an indication of delayed burial practices such as mummification? Was ochre applied directly on the skin, matting or clothes, or, in a 2nd stage, added to the remains when skeletonised? What is the effect of lime and gypsum on human decomposition? Controlled and repetitive experiments on human body decomposition from the moment of death onwards, create the opportunity to expand the methodological principles of funerary archaeology and archaeoethnology. This study presents results from experiments carried out at the Australian Facility for Taphonomic Experimental Research (AFTER) over a period of 7 years. Human donors were deposited and buried to answer questions regarding mummification, flexion, ochre application and plaster use.

Keywords: taphonomy, Burial practices, experiments, ochre, plaster

The Neolithic cemetery at Katsambas (near Knossos) on Crete in Greece: Shedding light onto complex mortuary practices

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Abstract: Despite evidence for visitation of Crete by Mesolithic and Palaeolithic foragers, there is a general consensus over a purposive Neolithic colonization by newcomers from Anatolia. Dating back to the beginning of the seventh millennium BCE, Knossos is one of the earliest farming sites in Europe. Further evidence for the Early Occupation of the island comes from the excavations of the late Professor Alexiou at the nearby site of Katsambas situated 4 km NW of Knossos. More recently, rescue excavations by Mrs Serpetsidaki stretched the chronology of the site further back to the Early Neolithic. These revealed cave tombs, architectural remains, a well-preserved human osteoarchaeological collection, zooarchaeological remains, stone and bone tools, pottery, etc. The study for publication of Serpetsidaki's excavation is ongoing and was funded by INSTAP. Dating from the Early Neolithic, the Katsambas cemetery and its human skeletal collection are the earliest such finds yet known from the broader region of Knossos on Crete. Bioarchaeological analysis, as part of Serpetsidaki's publication project, entails both the more traditional methods of skeletal analysis as well as cutting-edge multiple isotope analyses. This paper describes aspects of the life and death of the respective individuals and focuses on the complex mortuary practices of the community that used the cemetery. Emphasis is given on the manipulation of the dead following their burial. In relation to this we discuss evidence for the selection and relocation of fully and partially skeletonised cadavers, as well as specific marks on some of the bones hinting at various practices.

Keywords: human burials, disarticulation, selection, relocation, cutmarks

Ritual intensification and ancestral memory in Neolithic Alepotrypa Cave of Southern Greece.

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Abstract: The site of Alepotrypa Cave on Diros Bay, Lakonia, Southern Greece is a 300m long cave of consecutive chambers, ending at a lake. The cave is dated at 6,000-3,200 cal. BC and was used in conjunction with the surrounding area as a complementary habitation area, a burial site of great mortuary variability, and a place for rich ceremonial activity, as the abundance of the material culture suggests. The patterns of deposition and processing of the human remains include primary single or multiple burials, secondary depositions of multiple commingled remains and scattered disarticulated bone. The assemblage, generally, provides a predominant picture of a secondary deposition, as it is characterized by higher frequencies of cranial and long bones, probably selected elements for reburial, and low frequencies of the smaller leftovers, implying prolonged interaction with the dead, either from multistage burial rituals or because the dead remained present as ancestors or memories. Perhaps the cave served as a mortuary monument for the specific or a broader area, as it displays a degree of memorialization, by a process of which the dead were re-incorporated and their memory was extended, through actions of disarticulation, fragmentation, commingling, and re-arrangement of the skeletal elements. Parallel repetition for millennia of specific activities of fragmentation, dispersal and structured accumulation of other artefacts including pottery, tools, plant and animal remains, and dung suggests a monumental program of worship and a place of social congregation, where the memory of the past was revived and invested with ritual and ancestral importance for the living.

Keywords: Neolithic Alepotrypa Cave, mortuary ritual, burials

A ritual ceremony with a very large crowd

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Abstract: A ritual ceremony with a very large crowdThe origins of sacrifice or offering ceremonies are difficult to understand due to the absence of written evidence from prehistoric periods. Archaeological finds from prehistoric periods provide the only solid evidence for these acts and rituals. A probable case of animal sacrifice or offering in the Neolithic period was found at Tepecik-Çiftlik Höyük in central Turkey. The study focuses on a unique pit found at the site containing only animal bones, indicating a ritual act rather than kitchen garbage. The pit contained an almost complete cattle skeleton and sixteen left front leg remains from sheep. A similar pit was not found in the vicinity of Tepecik-Çiftlik or anywhere else in Anatolia. The main aim of the study is to introduce a specific group of archaeological finds left behind after certain prehistoric activities.

Keywords: Archaeozoolgy, Votive pit, Neolithic, Central Anatolia

Burials and Caves: The Spiritual Aspect of Their Relationship

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Abstract: Burials in the Neolithic Mediterranean were intricately bound to cave spaces and this relationship was shaped by persistent use and the variety and complexity of accompanying practices. Theoretical approaches to human-cave engagements dealing with funerary purposes, especially in the central-western Mediterranean, argued that beyond adaptation responses and the functional needs and practicalities of burials lay a complex belief system of farming groups constructed upon their specific perception of cave spaces and the deliberate use of specific enhancement techniques made for their setting. In the context of this discussion, our paper presents recent findings from the island of Samos, eastern Aegean, providing evidence of cave mortuary including selective manipulation of the dead, secondary handling, and ceremonial use of artifacts, dating from around the end of the Neolithic. We discuss performance repetition, formalization, exclusive ritual use, capacity of the space to accommodate visitors, and systematic use of the cave environment by local groups to create a separate and distinct place for the dead inside the subterranean space. This strategy should be able to allow access to the living through a process of intense physical effort and skill. Our assessment of depositional history and ceremonial practices attested in the Samos cave aims to contribute to theories about how Neolithic communities imagined and constructed the afterlife, and formalization and extent of shared beliefs over the Mediterranean.

Keywords: cave mortuary, Aegean, burial rites, afterlife

Fire in Megalithic funerary practices in Southeastern Iberia

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Abstract: The use of fire in megalithic burials is a well-known phenomenon in the Iberian Peninsula, as well as within the broader Mediterranean and European contexts. Burned human remains have been reported in Iberian megalithic burials since the 19th century. However, these remains were considered as evidence of reutilization during Late Bronze or Iron Ages or as by-products of cleansing rituals of the tombs. These narratives avoid the possibility of interpreting the cremated remains as the result of partial cremation events or multi-stage mortuary rituals. However, recent studies have begun to challenge these traditional views. Recent findings in Iberian megalithic sites such as Lácara, Perdigões and Olival da Pega, have begun to question these assumptions. Our current investigation in Los Milanes necropolis (Almería, Spain), where the fieldwork undertaken in 2023 revealed a tholos-type tomb, reported a so-far unknown funerary ritual that consisted of a bone assemblage of thousands of fragments of 'cremains' without any trace of pyre debris. At least 10.000 bone fragments were identified, estimating a MNI of 22 by left pars petrosa, presenting a varied range of thermal exposure, which is being analyzed through FTIR. This wide burning pattern spectrum might indicate the cremation of individuals in different stages of decomposition. This presentation aims to ascertain the nature of these burned remains, through macroscopic and chemical evaluation of the cremains and comparison with other sites in Iberia. Our goal is to elucidate the diversity of funerary rituals and the role of fire in south-eastern megalithic societies.

Keywords: Late Neolithic, Megalithic, Cremation, Collective burials, Bioarchaeology

Silent House: The Skull Building

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Abstract: The 'Skull Building' at Çayönü in the Ergani district of Diyarbakır, which was used as a house for the dead belongs to the Pre-Pottery Neolithic Period and consists of two different structures on top of each other. While the lower building is earlier and has an oval plan (BM 1), the upper building, which was built later, has a rectangular plan (BM 2). The Skull Building was first used during the Channel Buildings/ Grid Planned Buildings phase (PPNA/Early PPNB) and abandoned at the end of the Stone Paved Building phase (Middle PPNB). Several multiple burials were uncovered in pits under the plastered floor in BM 1 and in rectangular cells and pits in BM 2. The bones are in primary and secondary context. The number of individuals in each unit was calculated based on the smallest identifiable fragment of bones in different states of preservation. Further, each bone was weighed and their weight was compared with reference data according to their anatomical region. By using different methods, it was clarified whether human bones were carried to these structures as corpses or after ossification. The use of the building for the dead was also determined. In conclusion, the results obtained from over 100,000 human bones in the Skull Building have clearly demonstrated the importance of the methods to be employed in determining the burial practices of ancient societies.

Keywords: Çayönü, Pre-Pottery Neolithic, Burial Practice, Skull Building, Ergani

Taphonomy and archaeoethanatology of plaster burials: an actualistic study of the effect of lime and gypsum on human remains for a better understanding of Neolithic plaster burials in Western Asia

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Abstract: Gypsum and lime burials are not uncommon in Pre-Pottery Neolithic (PPN) contexts in Western Asia. The intent behind this funerary treatment, as well as the effect on the decomposition of human bodies is poorly understood. Few previous studies have investigated the use of lime in archaeological contexts. This talk will summarise (known) archaeological instances of plaster in burials from prehistoric Western Asia and present the results of an actualistic experiment based on PPN plaster burials. Three human donors were buried at the Australian Facility for Taphonomic Experimental Research (AFTER) and excavated after 5 years of burial. The donors were placed on the left side in a flexed position, similar to the position of Neolithic skeletons in Western Asia. One donor was covered with hydrated lime ($\text{Ca}(\text{OH})_2$), another with gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$), and one was unplastered, serving as a control. The results of the archaeoethanological and archaeometric study will be discussed. This is the first actualistic experiment that studies the effect of hydrated lime and gypsum on buried human donors.

Keywords: Taphonomy, Lime, Gypsum, Burial practices, Experiments

Archaeometric Analyses for the Characterization of Pigment and Textile Artifacts from the PPNA site of Körtiktepe, Diyarbakır, Türkiye

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Abstract: To date, Körtiktepe stands to be the only site in Southeastern Turkey that provides securely-dated evidence of Younger Dryas occupation. Along with Tell Qaramel and Tell Mureybet in the Middle Euphrates Basin, Körtiktepe in the Upper Tigris Basin played a crucial role in the origin and development of the Neolithic in Upper Mesopotamia. The site was inhabited by sedentary hunter-gatherer-fishers during the Younger Dryas to Early Holocene period, spanning from 10700 to 9300 cal BCE. It yielded approximately 460 architectural remains and around 2000 single and double burials, half of which included painted-human skeletons and an extraordinary number of burial goods making it the richest Neolithic site in the world. Most of the human skeletal remains unearthed from Körtiktepe were found coated with white, red, and black colored substances. This study discusses the elemental, compositional and petrographic analyses of the white colored plaster, pigments and textile on the skeletal remains. XRF, SEM-EDX, Raman Confocal Spectroscopy and Thin Section Optical Microscopy techniques were used for the complementary archaeometric analyses. The thin section analyses showed that the plaster was multi-layered in structure. The XRF analysis suggests mainly lime in composition besides gypsum. SEM-EDX and Raman analyses express the chemical composition of the pigments and incidental textile residues.

Keywords: Körtiktepe, Pre-Pottery Neolithic, pigment, textile, skeletal coating

Association with Mesolithic-related Ancestry or Demic Diffusion in Neolithic Northwest Anatolia

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Abstract: The Neolithization process in Northwest Anatolia has been a topic of debate across various disciplines for many years, with the interactions between Mesolithic and Neolithic populations generally remaining unclear. Eastern Marmara sites exhibit agricultural lifestyles, animal husbandry and high-quality ceramic production, along with evidence of hunting and fishing. Although genetically similar to Central Anatolian societies, recent studies demonstrate Neolithic populations in Eastern Marmara are also associated with local communities in West Anatolia. Nevertheless, no pre-Neolithic human remains have been excavated in Northwest and the Epipaleolithic burials from Central Anatolia are limited. Here we present anthropological evidence from Eastern Marmara populations such as Bahçelievler and Barçın, including isolated human remains, especially cranial fragments with signs of cut marks, and scalping marks. These findings demonstrate similarities in burial practices between Eastern Marmara and Mesolithic groups. Neither Central Anatolian nor Southwestern Anatolian Neolithic human remains showed any sign of cut marks likely related to burial rituals, indicating a possible biocultural association between Neolithic Northwest Anatolian people and Mesolithic hunter-gatherers.

Keywords: Northwest Anatolia, burial practices, cut marks

Ancient DNA sheds light on the funerary practices of late Neolithic collective burial in southern France

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Abstract: In southern France, collective burials became widespread during the second half of the 4th millennium BCE. The social motivation underlying these practices remains largely discussed among scholars. The Aven de la Boucle (Corconne, Gard, Southern France) is a karst shaft that was used as a collective burial between 3,600 and 2,800 BCE. The site encompasses the skeletal remains of approximately 75 individuals, represented by scattered and commingled remains with a large majority of adult individuals. Here, we combined evidence from archaeology, anthropology, Bayesian modelling of radiocarbon dates and genomic data to shed light on the genetic profiles, relationships and funerary practices of this community. Among the 37 individuals analysed through the palaeogenomic study, 76% were male, suggesting marked sex-biased selection. Additionally, available data stressed biological relatedness and the affiliation with specific male lineages as preponderant selection factors in the collective burial. This study enabled us to examine the use of this sepulchral cavity more precisely. Finally, we could argue in favour of “continuous” deposits between 3,600 and 2,800 BCE, carried out by the same community, despite cultural changes reflected by the material culture by combining Bayesian modelling of radiocarbon dates and genomic results. Thus, our study further illustrates the potential of multidisciplinary approaches to the interpretation of social structure and funerary rites of Neolithic groups.

Keywords: Collective Burial, Ancient DNA, Kinship, southern France, Late Neolithic

Unprecedented Diversity of Funerary Practices in the LBK of the Paris Basin Revealed Through Anthropology and Paleogenomics

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Abstract: Funerary contexts are a very rich source of information on past societies that translates not only their functioning and social practices, but also their beliefs. Our in-depth analysis of both the archaeological contexts and the anthropology and genomics of the dead in a Linear Pottery (LBK) site in northern France revealed unprecedented and unexpected facts about life and death in early Neolithic societies. The site comprises a settlement surrounded by a ditched enclosure, a unique feature in the LBK Paris Basin. Its archaeological and anthropological analysis identified it as a place where humans and animals were sacrificed. The diversity of the funerary practices employed in this ceremonial site exceeded the already considerable diversity of funerary practices in LBK cemeteries. Our paleogenomic analysis of the burials uncovered, among other features, genetic kinship relations between the dead and their source populations. Combining the archaeological, anthropological and paleogenomic data collected from this ceremonial site enabled us to reconstruct through its burials a complex LBK society in which men, women and children could sometimes be victims of ritualized violence.

Keywords: paleogenomics, LBK, genetic kinship, funerary practices, ritualized violence

Diverse Funerary Practices and Genetic Insights in Late Neolithic France: The LINK Project

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Abstract: The Neolithic period in France showcases a remarkable variety of funerary practices, reflecting complex social structures and diverse community identities. By the end of the Neolithic, collective burials, ranging from prominent megalithic tombs to more discreet sepulchral caves, were common in both Western and Southern France. Despite this prevalence, the criteria for selecting individuals accessing these burials remain largely unclear. Occasionally, individual or double burials in open pits were found within funerary monuments or reused domestic structures, raising questions about the status and identity of those given different burial treatments. On the Atlantic seaboard, new progress has been made thanks to several recent collective projects that provide information on the emergence and development of funerary and domestic monumental architectures (Ard et al., 2021). These studies highlight regional chronological differences, with funerary megalithism appearing in Southern France nearly a millennium later than on the Atlantic coast, around 3500 BC. Thanks to recent advances in palaeogenomics it is now possible to elucidate the genetic make-up of these communities, their origin and their genetic affinities. The ANR project LINK aims to further explore these cultural transformations by combining archaeological, anthropological, and aDNA studies for understanding both the functioning of funerary sites and the broader population dynamics. Here we will present an overview of the diversity of funerary practices at the end of the Neolithic in Southern France and question the status and identity of the deceased.

Keywords: Megalithism, funerary practice, ancient DNA, Southern France

Ghost Children: A Diversity of Mortuary Practices in Anatolia during the Neolithic

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Abstract: Household archaeology and mortuary archaeology comprise two different approaches to studying lifeways in the past. Whereas household archaeology prioritizes the places for the living, burial archaeology prioritizes analyses based on people buried in specific ways. A clear separation between spaces for the living and the dead as well as the methodological approaches for studying the living and the dead may be suitable for studying many archaeological sites across the world. However, the spaces for the living and the dead intersected at many sites in Anatolia during the Neolithic. Such records call for an integrated study of both, the houses, courtyards, and burials. This contribution provides a bird's eye overview of Anatolian sites where places of the living and the dead intersect and showcases a selective burial practice over time, based on age, sex, and place of burial. This contribution addresses the concept of 'ghost children', already discussed by S. Cveček and C. Schwall for Anatolia during the Chalcolithic and Early Bronze Age periods. Following a *longue durée* and cross-cultural comparative perspectives, it becomes evident that the intersecting spaces for the living and the dead were important sites of gender and kinship relations. A unified analysis of burials and houses sheds new light onto regional and site-specific practices for negotiating age, gender, kinship, personhood, and different modes of dwelling that go beyond the simplistic narrative of increasing social complexity in Anatolia during the Neolithic.

Keywords: intramural burials, Neolithic, Anatolia, delayed personhood, ghost children

Child burials and associated ritual practices during the Neolithic period in Syria

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Abstract: This research paper aims to document the burials of children and the funerary rituals associated with them during the pre-pottery Neolithic era in Syria. A number of children's burials were found in sites dating back to the pre-pottery Neolithic era in Syria, some of which were burials within homes and others were among mass graves, in addition to the skulls of children that were found within hearths. This raises many questions: Were children buried randomly, or were burials carried out according to specific rituals? - Were the children's skeletons treated before the burial process? - Were special funeral enclosures placed with them? - Are the children's skulls found part of a special ritual practice? - Was there some kind of child sacrifice ritual? And other questions, which perhaps we can discuss and try to answer, and we will also try to compare these rituals with the Anatolia region.

Keywords: Child burials, sacrifice, pre-pottery, Syria

The funerary gender treatment as a marker of social organization: from the Early to the Middle Neolithic in the Paris basin and its margins (France)

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Abstract: The archaeology of gender provides data on social groups and their organization, identifying differences and inequalities according to sex and age in clothing and adornment, diet, health, division of labor, mobility and kinship, etc. Funerary treatment by age and sex is also a way of achieving this goal, in terms of the status in death. We shall examine how men, women and children are buried, from the point of view of grave architecture, location, and the number and nature of funerary objects. Burial sites in the Paris Basin and its margins will be mobilized in an attempt to highlight the evolution of status in death and the symbols attached to it, from Linear pottery culture to the Chasséen/Michelsberg culture, with an incursion into the Cerny culture (from Early Neolithic to the end of the Middle Neolithic, 5000-3500 BC). In particular, we will show that some women seemed to have a high status during the Linear pottery culture in the Paris basin, whereas it was men in the other parts of Europe. With the Middle Neolithic, men seem to regain a dominant status while women lose this apparent dominance, except when they adopt male attributes. This evolution, with an episode of female prominence, is an exception in the European Neolithic, where social segmentation with a dominant group of men characterizes societies from the Linear pottery culture onwards. We will attempt to explain this evolution in a region located not far from the geographical end of Neolithic colonization and the Atlantic Ocean.

Keywords: gender, status, burial treatment, Paris basin

Materiality and the embodiment of the deceased: Rank, gender, and class as markers of identity

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Abstract: The Pochury tribe of Nagaland has a practice of safeguarding the memories of the deceased by preserving their bones in a decorated burial pot. A detailed and rigorous process is involved in making these pots; supported by the rich indigenous knowledge which contributes to the preservation of this art. Women make the pots, keeping in mind the accomplishments and social standings of the deceased. The motifs on the pots and the decoration convey a message about gender, social standing in the community, and contribution to society. This practice, however, is limited to a few villages and the present study seeks to explore the significance of how materiality, or using the idea of materiality and embodiment, through the pots and bones determines the gender, status, and class of a deceased member. In this study, attempts will be made to highlight the significance of these earthen pots as an agent of identity; the role of various social institutions, and the role of local/indigenous knowledge in preserving, communicating, and contextualizing relationships with culture and landscape over time. The study will also analyze and provide cultural insight into the ways of the people. The study has been carried out with the main objectives of recording and preserving the existing knowledge of this art to determine the relative nature of the pottery industry that has developed in the past and has been continuing to date. Keywords: Pochury Naga, burial pot, materiality, embodiment, indigenous knowledge.

Keywords: burial pot, embodiment, indigenous knowledge, Pochury Naga, materiality

From lower to middle Holocene, unveiling funerary practices from Columnata necropolis (Algeria)

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Abstract: The necropolis of Columnata (north-west Algeria) is known to have yielded artifacts from four successive Epipaleolithic and Neolithic cultures, as well as more than a hundred burials. Since 2016, a new series of 10 burials has been discovered, the main burial practices of which are discussed here. According to the C14 dates obtained for each burial, they belong both to the Iberomaurusian hunter-gatherers and to the subsequent Neolithic settlers. The position of the primary burials varies from dorsal, semi-seated to seated. Secondary burials consist mainly of skulls or postcranial remains. There is evidence of cutting grooves suggesting emaciation and one case of deliberate cranial dislocation. Intentional grave goods include stone neck cushions, large bovid horns and bone industry. Despite some common features, these burial signatures appear to be highly individual; no two burials are identical, even if they are of the almost same age. It is therefore hard to clearly distinguish between the last hunters and the first Neolithic peoples. The funerary architecture observed in and outside the graves arose slightly before the tenth millennium and evolved to a rounded monument. It satisfies a specific and new symbolic need and activity.

Keywords: Burials. Practices. Algeria. Holocene. Behavior.

Regional ideologies vs local expressions: the Early Neolithic burial evidence from Nova Nadezhda in Upper Thrace

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Abstract: The large-scale excavations at the prehistoric site of Nova Nadezhda in Bulgarian Thrace yielded eighteen Early Neolithic burial contexts containing the remains of twenty-four individuals. The burial pits had been dug either in the fill of an enclosure ditch or along its inner edge or were directly associated with the intentional filling of the ditch. This is the largest burial sample recovered from an early sixth millennium BC site in an area characterized by the absence of formal burial grounds and a scarceness of mortuary deposits, and its analysis offers important insights into the social practices of the early farming communities. This presentation will discuss the relevant contextual evidence from the site and will argue that the burials at Nova Nadezhda were part of a complex system of recurrent practices that seem to have been used by the local Early Neolithic community to maintain social order and reproduction during a later phase of the settlement's life. Even though enclosure ditches and the practices related to them were integrated into the communal ideology on a regional and supra-regional scale, the evidence from Nova Nadezhda demonstrates a local development which could also help to explain the patchiness of the Early Neolithic burial record in the Balkans.

Keywords: ditch burials, social practices, Early Neolithic, Upper Thrace

The Diversity of Mortuary Practices in the 6–5th Millennium BC in Eastern Hungary: Case Studies from the Polgár Microregion

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Abstract: Polgár Island, a loess-covered lag surface rising above the former floodplain, covers 60-70 km² and lies on the outskirts of Polgár, in north-eastern Hungary. The boundaries of the micro-region reflect the past natural palaeogeographic conditions. As part of our investigations, we were able to reconstruct the sequence of human occupation and the changes in the micro-region's settlement patterns between the 6th and 5th millennium BCE. We have excavated some 350 burials on eight sites in the Polgár area, dating from the Middle Neolithic Linearbandkeramik to the Late Neolithic Tisza-Herpály-Csőszhalom complex. In view of the environmental conditions and the previous archaeological research, the region offers excellent potential for a detailed, in-depth study of diachronic changes. The burials of the Middle and Late Neolithic Period did not form separate cemeteries, they had been unearthed within settlements, usually in relation with houses. In the first part of my presentation, I will give a brief overview of the very diverse burial customs we have seen so far. They may differ in orientation, position and lying of the dead, alone or with someone else, whether or not objects were placed in the grave, the cremated or not the body. Then I try to find answers to the question of why communities buried their dead in so many different ways and what might have caused the changes in the different burial customs of the two periods. The project is financed by a grant from the National Research, Development and Innovation Fund (Grant K124326).

Keywords: Neolithic, Hungary, Polgár Island, LBK and Csőszhalom, mortuary practices

Death in the South-East Europe During the Late Neolithic: Particular Trends

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Abstract: Burial practices are often maintained with minor changes for a very long time, almost to the point when one period in a certain area is identified with a set of characteristics, such as Neolithic in South-East Europe equals inhumation (within or outside the settlement), with the deceased in a crouched position on a side (left or right). Orientation, grave goods, treatment of the body according to sex or age of the deceased and other elements may vary which leaves room for comparisons and interpretations. But when the picture is watched from a distance, in the particular case of South-East European Neolithic, we are struck by some occurrences that do not fit the norms described above. Some of them are restricted to certain areas (sites), such as cremation cases, but some are slightly wider spread, indicating more than a random occurrence. The presentation will be focused on one of these particular combination of characteristics, namely the emergence of large cemeteries outside the settlements combined with the burial of the deceased stretched on the back and with a decreased presence of sub-adults inside the cemetery. We will discuss the Hamangia cemeteries from Cernavoda and Durankulak in Dobrugea, the Dudesti/Boian cemetery from Cernica in Wallachia and the Iclod cemetery from Iclod, Transylvania in a slightly broader context in order to highlight the coherence of this group and the way it stands in terms of burial practices and treatment of the body from the earlier, later or even contemporary cases in the same area.

Keywords: Neolithic, South-East Europe, burial practices, trends, particularities

The funerary complex of Ustica (Sicily, Italy): evidence of early Megalithism in the central Mediterranean

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Abstract: The small volcanic island of Ustica (9 km²), 70 km from the coast of Palermo, Northern Sicily, was colonized and settled by Stone Age communities in the Middle Neolithic (first half of the 5th millennium BCE), probably because it represented a connecting node in the network exchange of obsidian from Lipari (Aeolian islands) to western Sicily. The Neolithic occupation of the island was partially known by early surveys from the 1990s, but recently a new site was discovered and, for the first time, excavated (2018-2022): Piano dei Cardoni, on the southern side of the island. This early megalithic tomb is characterized by several secondary human depositions in bone clusters and the presence of fragmented grinding tools and other lithic tools (mostly chert and obsidian). The pottery, mostly locally produced, is culturally attributable to the horizons of Serra d'Alto and Diana; the bottom of a vase with a painted solar symbol was included in one of the bone clusters. A radiocarbon sequence together with the application of a Bayesian statistical framework is helping disentangling the sub-phasing of the site and the ritual customs, and making Piano dei Cardoni a key site for the understanding of the spread of the megalithism and its funerary rituals in the Central Mediterranean during the 5th millennium BCE. Strontium isotopes and aDNA analyses on the human and animal bones allowed to reconstruct the paleodemographic picture of the early settlers. The archaeobotanical and zooarchaeological data revealed subsistence and resource management on a restricted environment.

Keywords: Middle Neolithic, Island, aDNA, Strontium isotopes, Bayesian modeling

Mortuary Treatment in Late Neolithic Jordan

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Abstract: To date, there has been very little information about the burial practices during the Late Neolithic period in Jordan. Consequently, the discovery of two large cist graves dating to this period (ca. 6300-6100 cal BC) is of considerable significance. The two graves represent a shift, during the Yarmukian period, toward off-site or near-site cemeteries. One of the interments was accompanied by pots and other grave goods, representing another shift in the treatment of the dead. Construction of the graves involved digging a pit into earlier cultural deposits of the Kebaran Epipalaeolithic, lining it with large stones, and then, after interment, covering the grave with several large limestone slabs. It is also possible that these slabs were covered by a low tumulus. Each grave contained the remains of two individuals, Grave F34, with the remains of a young adult female and an infant, while Grave 133 contained the remains of two poorly preserved adults, possibly a male and a female.

Keywords: Late Neolithic, Jordan, Yarmukian

Human remains at Boncuklu Tarla: Peleodemography and Burial customs

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Abstract: The intramural burial tradition is popular in the Near East. However, human remains from the Pre-Pottery Neolithic site of Boncuklu Tarla reveal important information about this period's burial rituals. This report describes the preliminary results of the ongoing bio-archaeological investigation of the remains of over 180 individuals, including isolated skeletal remains, from approximately 90 tombs identified within layers dating from the 10th millennium cal BC to the 8th millennium cal BC. The first of these concerns the distribution of graves within the village's geographical layout. The link between homes and graves is critical for understanding the spatial and social organization of this Early Neolithic settlement, as all burials have so far been discovered within 'domestic' constructions. No human remains were discovered in 'public' structures or outdoor areas. The second focuses on burial practices and the quantity of individuals. The existence of diverse single and multiple burials with main and secondary settings, as well as at least one disposal of cremated human bone, demonstrates that Neolithic Boncuklu Tarla employed a variety of burial techniques. The final one attempts to spark a new discussion about the community's demographic composition and regional comparison.

Keywords: Human remains, Burial, Neolithic, Anatolia, Boncuklu Tarla

Recent findings on the mortuary practices of sedentary hunter-gatherers, {Jomon} in Japan

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Abstract: Jomon people is one of the oldest sedentary hunter-gatherers in the world. During their ca. 10,000-years habitation all over the Japanese archipelago, they adapted to, and interacted with a variety of local environments as well as initiated the production and the use of pottery. Their burial practices are known to be variable, from single to multiple burials including several re-burial repertoires. A few recent findings of multiple burial cases in the Jomon period cast new insights into the understanding of the Jomon burial practices. Multiple and single burial cases in the Initial Jomon phase exemplified the body dismemberment, another multiple reburial cases showed formulated rearrangement of the bones in the Latest Jomon phase. These provide interest contrasts or similarities with those among the other Neolithic world. Reviewing the evidence and the interpretation of human burial practices in the Far East will help to develop appropriate understanding of the Neolithic human behavior or spirit against their dead.

Keywords: Jomon, human burials, body dismemberment, mortuary practice

Bandkeramik ritual-burial complex from Nezvisko, Ukraine

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Abstract: Bandkeramik is the first Neolithic culture in middle Europe stretching from the Paris basin in the West to the Kiev in the East and from Hungary to the south and almost the Northern and Baltic Sea. In the eastern areas of this culture cemeteries and graves are extremely rare. The most interesting one comes from Nezvisko on the Dniester River in Ukraine. Thanks to the accumulation of river deposits the original ground surface was preserved and, beside the grave, was a half-cremated body accompanied by 18 vessels, a shoe-last adze. Several constructions associated with it were uncovered. Within them, there were clay platforms for food preparations, fireplaces, areas of intentional destruction and deposition of more than 70 vessels and other items. This allowed us to reconstruct burial rituals that had taken place there. Strict division of food preparation and probably food consumption was observed. Undoubtedly, the person who was buried in Nezvisko had a significant position in the community of early farmers. The analysis of the grave and associated remains uncovered at Nezvisko allows us to formulate some general comments and proposals concerning not only the burial rites, but also the social relations within Bandkeramik communities.

Keywords: Bandkeramik, Early Neolithic, unique burial, ritual-burial complex, half-cremated

G25 - Gifts from the earth – interpreting polished stone tool biographies and their symbolic, social and economic impact in the Neolithic

Session Organiser

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Michael Brandl / Austrian Academy of Sciences Austrian Archaeological Institute
Laura Dietrich / Martin-Luther-University Halle-Wittenberg
Danny Rosenberg / Laboratory for Ancient Food Processing Technologies (LAFPT), Head
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Abstract

The invention of polished stone tools, such as axes, adzes and chisels, played a crucial role in the processes involved in Neolithisation on a global scale. These tools were vital for establishing settled life and agriculture, by facilitating clearance of the land, woodworking, the construction of buildings and subsistence strategies. Accompanying the economic transformations caused by the introduction of polished stone tools, were processes associated with the social life of the early farming communities, attested by the use of rare exogenous raw materials, such as jadeite and nephrite. In this session, we invite researchers to explore and discuss the relationship between Neolithic societies – early and developed – across key areas witnessing socio-economic developments, involving the use of polished stone tools from various perspectives. These include techno-morphological, use-wear, contextual and raw material analysis, to reveal the full extent of the use and function of such implements, as well their role in the development of novel exchange networks, symbolic behaviour, wealth, status and social inequality.

Studying polished stone tools – research history, current status and future perspectives

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Abstract: The study of polished stone tools has traditionally focused on typology and chronology, leading to a narrow understanding of the social, symbolic, and economic contexts of these artifacts. Recent anthropological analogies and explorations of Neolithic polished stone tool procurement, production, use, exchange, and network relations reveal significant research potential. New geochemical technologies have been applied to indicate the provenance of polished stone tools and their distribution across regions. These studies uncovered large-scale networks and distinct symbolic behaviors linked to quarrying rare and exogenous rocks from remote places. These tools become "pieces of places," allowing researchers to reconstruct the object's biography from raw material to finished, used, reused, discarded, or deposited artifacts. Studies of the skills required to knapping and shaping, along with techniques of hafting and use-wear analysis, combined with deposition patterns, reveal novel aspects related to the value of these tools and fluctuations in wealth and inequality in different societies. Comparative studies on a superregional scale, are crucial for understanding the different values of polished stone tools made from various raw materials and for relating these objects to other artifacts such as lithics, ceramics, bones, shells, obsidian and metal. These trends demonstrate the current state of the art in polished stone tool research and highlight the future potential for advancing beyond our current understanding.

Keywords: Theories, methods, chronology, typology

Common and Rarer Polished Stone Tools from Neolithic Ulucak

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Abstract: Ulucak, located 25 km east of İzmir in West Central Turkey, is a small mound covering an area of ca. 1 ha with 11 m of stratigraphic sequence. Neolithic occupation at the site is represented by Levels VI through IV, dated from 6850/30 to 5670 cal.BC. Thus, it represents one of the earliest sites with evidence of farming and animal husbandry in western Anatolia. The basal layers of Ulucak (level VI) did not yield any stone axes/adzes. Thus, the entire assemblage of stone axes/adzes was found in Ulucak V and IV (6500-5700 calBC). The macroscopic analysis of 260 stone axes/adzes from the Neolithic layers at the site indicates that they were made from almost 30 different types of rocks, including both common and rarer raw materials. The rarer raw materials at Ulucak Höyük are represented by jadeitite and nephrite axes/adzes. Petrographic, XRD and whole-rock geochemical analyses of jadeitite-bearing jades indicate that they originated from the Cycladic islands (Syros and Sifnos), while the origin of nephrite polished tools have yet to be unknown. The chipped stone assemblage from Ulucak Höyük suggests that obsidian was sourced from the island of Milos throughout the Neolithic. However, the procurement of Melian obsidian at Ulucak increased sharply after the middle of the 7th millennium BC, when the first jadeitite and nephrite tools appeared. It is interesting to note that the increase in Neolithic sites in the Aegean overlaps with the intensive exchange networks between western Anatolia and the Aegean islands.

Keywords: Neolithic, Western Anatolia, Cycladic Islands

Neolithic Stone Axes from Crete and their Implications for the Wider Aegean

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Abstract: The excavations of Neolithic Knossos by J.D. Evans found one of the most securely stratified assemblages of polished stone axes (celts) in the Aegean. A restudy of the tools reveals geological sources from other islands. This shows a wider understanding of the islands where, sometimes, the traditional Neolithic artifacts (ceramics, architecture etc...) have yet to be found. This indicates a good understanding of geology because the selected stone must be shapable yet strong enough to withstand repeated blows. The lay of the land (or islands) was already known by the Mesolithic occupants of the islands. If, however, the first farmers were exogenous they may not have had extensive prior knowledge at the advent of the Neolithic. The concomitant beginning of celt use allowed for different materials in boat construction; perhaps accelerating a change from reed to wooden boats. The latter is very likely due to the needs of transporting of domesticated fauna to the island. Celts made a profound impact on island exploration and resource exploitation.

Keywords: Aegean, Island stone resources

Greenstone chisel-like adzes for carpentry were components of the Neolithic Package in Anatolia and the Balkans

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Abstract: In the present paper we are introducing chisel-like adzes as a new component of the 'Neolithic Package' of technological innovations in Anatolia and the Balkans. Chisel-like adzes which have a particular design, emerge in the core area of the Neolithization in the Levant most probably following significant changes in house architecture, like the introduction of rectangular timber and timber joints in the Late Neolithic. Although the preservation of house construction elements made of organic materials is poor in the archaeological contexts, we conclude, based on shape and use-wear analyses as well as on ongoing experiments, that we deal with highly specialized carpenter tools, which are transmitted towards the West together with other elements of the Neolithic package. Çukuriçi Höyük as pioneer settlement on the West Anatolian coast (starting c. 6700 calBC) and Svinjarička Čuka in the Central Balkans (starting c. 6000 calBC) among other sites encompasses a rich assemblage of chisel-like adzes, indicating an early adoption of architectural elements and of carpenter tools as key concepts of home during the Neolithization. Another -symbolic- meaning is mirrored in the raising networks of "greenstone" exchange in Western Anatolia and the Balkans as raw materials for the production of the specialized carpenter tools.

Keywords: Neolithic, Axes, Chisel, Western Anatolia, Çukuriçi Höyük

Tougher than the rest – quarrying jadeitite raw materials for polished stone tools in the Eastern Mediterranean region

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Abstract: In the Eastern Mediterranean region, polished stone tools are made from rare materials (jadeitite, nephrite, omphacitite, or eclogite) and common materials (serpentinite, andesite, basalt, gabbro, and hematite). Very few quarrying sites have been identified in this region, especially from rare materials like jadeitite or nephrite. Discovering the locations of previously unknown sources and quarry sites for polished stone tools can reveal the interrelations between local, regional, and superregional exchange networks. This paper focuses on some novel jadeitite sources in Greece and Turkey. Jadeitite has been highly desirable throughout human history due to its rarity, beauty, toughness, and resistance to breakage, making it ideal for high-prestige axes. Jadeitite polished stone tools are an unexplored group within Eastern Mediterranean prehistory. Recent discoveries have documented their existence at several Neolithic sites across the region. The identification of these jadeitite axes raises questions about their procurement sources and whether they can be located in the Eastern Mediterranean. Currently, only two jadeitite sources in this region have been reported in the geological literature: one on the Cycladic island of Syros and another near Orhanli/Harmancik in Western Anatolia. A Greek-Danish geological and archaeological survey was conducted to locate jadeitite quarries and habitation activities in the northern part of Syros. This paper presents the preliminary results from investigations on Syros and from a visit to the sources in Harmancik.

Keywords: Eastern Mediterranean, quarrying, jadeitite, network, symbolic depositions

{To Be or Not to Be an Agricultural Community...} Debating the Question from Portuguese Neolithic Polished Stone Tools Assemblages

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Abstract: As in other parts of Europe, the Neolithization of the western Iberian Peninsula – Portugal – is marked by the arrival of a new set of tools, among which polished stone instruments stand out. These are associated with new agricultural practices based on cereals and legumes, which are poorly represented in the archaeological record due to the scarcity of sediment flotation programs during the excavation of Early Neolithic contexts. Thus, in many sites, polished stone tools are the only evidence of a new economy, and their scarcity has been interpreted as a sign of the incipient state of Neolithic agriculture. However, recently excavated sites such as the Lameiras settlement (Sintra) have revealed an impressive array of cereal and legume remains in a habitat where polished stone is rare. Additionally, surface finds of decontextualized polished tools show how the off-site use/abandonment of these utensils can explain the reduced number of axes and adzes in Early and Middle Neolithic settlements in contrast with their abundance in megalithic funerary contexts. This scenario – feeble agriculture and rare polished tools in the Early/Middle Neolithic in Portugal – contrasts sharply with the situation identified at the end of the 4th and throughout the 3rd millennium BC, when pollen records, polished tool assemblages, and macro-plant remains provide direct and indirect evidence of increased agricultural practices. Discussing the polysemic role of polished tools in the maturation of Neolithic systems, based on key sites as Valada do Mato, Moita do Ourives, Vila Nova de São Pedro is this communication goal.

Keywords: Polished stone tools, Neolithic, Portugal, Agricultural

Neolithic axe production in Central Germany – technological aspects and lithic raw materials

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Abstract: Stone axes and adzes made from various types of metabasites have been used in Central Europe since the Mesolithic. These rocks – often incorrectly labelled as amphibolite – have been used for the manufacturing of tools (e.g., woodworking, butchering), weapons, and probably also as exchange value. But while their typology is relatively well defined, the production and use processes of these tools, along with provenance analysis, still lack comprehensive studies. For this reason, this collaborative interdisciplinary research project aims to bring new insights into the field of lithic raw material sources in Central Germany. The investigation of an extensive collection of edge-ground artefacts from Saxony-Anhalt and Saxony carried out in this context includes archaeometrical, morphological, and technological descriptions, as well as petrographic and geochemical analysis. To achieve a better understanding of the local and interregional raw material sources and exchange patterns, selected archaeological pieces as well as greenstone outcrops in Central Germany have been sampled and compared petrographically and geochemically with samples of the well-known Neolithic metabasite quarry of Jistebsko. The subsequent data shows new possibilities for fingerprinting the provenance areas of this specific kind of greenschist and offers a holistic methodological base for future studies. In addition, special attention is given to the noticeable amount of axe blanks and semi-finished products found in Central Germany. The close investigation of the present production traces, like sawing, flaking, or drilling, combined with the petrographic analysis allows us to draw conclusions concerning the technologies used for manufacturing greenstone tools.

Keywords: provenance analysis, neolithic, edge-ground tools, petrography, Chaîne opératoire

Grinding flint axe heads – an experimental approach

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Abstract: Since 2019, the authors experimented with several techniques to grind flint axe heads in order to reproduce the characteristic traces left on the originals from the Neolithic. The practical experiments are accompanied by microscopic examinations of not only prehistoric axe heads but also modern replicas. Having carried out six three-day grinding campaigns so far, we can use the data obtained to answer some unresolved questions about axe blade grinding and confirm or reject some theoretical speculations from the past, such as the question of whether sand or gravel needs to be added during the grinding process. Furthermore, our experiments not only allow us to make statements about working times and techniques, but also about what happens on the microscopic level on the surface of flint axe blades during grinding. In addition, we are now also looking at grinding stones, a category of finds that has rarely if ever been dealt with in literature and experiments.

Keywords: Flint axe heads, Neolithic, grinding, experimental archaeology

To Grind or Not to Grind – Axe Heads from Depositions of Neolithic Groups in Central and Northern Europe

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Abstract: With the first appearance of Neolithic groups in Central Europe (around 5500 BCE), stone tools, primarily axe and shaft hole axe heads, were deposited. These objects are often exceptionally large, making them unsuitable for usage. This paper presents a comprehensive overview and comparison of the ground axe and shaft hole axe heads from Neolithic depositions in Central and Northern Europe. The focus will be on the materials used and their resources, the manufacturing steps, and particularly the grinding process. There is often insufficient data on the time required for grinding axe heads. However, in the case of flint, it can be shown that it was a very labor-intensive process that increased exponentially with the size of the objects. It is surprising that, although edge grinding would suffice for functionality, axe heads were still extensively ground. This unnecessary extra grinding can be observed not only on common axe heads from settlements and graves but also on the longest axe heads from depositions. Using the early phase of the Funnel Beaker Culture (4100–2800 BCE) as an example, differences in the extent of grinding of axe heads compared to subsequent Neolithic periods can be identified. Additionally, it can be shown that around half of the axe heads from the Funnel Beaker Culture were not ground before their deposition. The possible reasons for this will be discussed in more detail in the paper.

Keywords: Labor-Intensive Process, Funnel Beaker Time, Axe Heads, Depositions, Ritual Behaviour

Flint, chalk and pigment: Tracing the symbolism of axeheads in northern Europe

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Abstract: The symbolic importance of axeheads in the Neolithic has been proposed through the deposition of often unused axeheads in hoards, as part of mortuary practices, or through their fragmented representation in deposits (that may only comprise of a single flake of a axehead). In this paper I will discuss an extension of their importance in Britain, where axeheads were also represented as chalk skeuomorphs, found in several Neolithic and Early Bronze Age contexts in Britain. That the axehead form was created in a material unsuitable for functional use, demonstrates how the symbolic nature of the axehead was culturally extended beyond their simple utilitarian use, and into a potent social symbol. Furthermore, red pigment is known from axeheads in the Netherlands (Wentink 2006), on chalk art from Britain and Belgium (Teather and Sørensen 2021) and within megalithic monuments and structures in Atlantic Europe (Bueno-Ramírez et al. 2019). I will discuss how red pigment, chalk and axeheads formed a trinity of related but distinct symbolic practices in the northern European Neolithic. Bueno-Ramírez, R. (+ 14). 2019. From pigment to symbol: the role of paintings in the ideological construction of European megaliths. In J. Müller, M. Hinz and M. Wunderlich (eds) *Megaliths- Societies- Landscape: Early Monumentality and Social Differentiation in Neolithic Europe Volume 3*. Bonn: Habelt, pp. 845-864 Teather, A. and Sørensen, L. 2021. Neolithic art at European flint extraction sites. *Oxford Journal of Archaeology*, 40: 232-249. Wentink, K. 2006. *Ceci n'est pas une hache: Neolithic Depositions in the Northern Netherlands*. M.Phil. thesis (<http://edna.itor.org/nl/projecten/a00308/>)

Keywords: axehead, skeuomorph, pigment, flint mines, deposition

Ritual depositions in a local perspective

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Abstract: Deliberate depositions of objects in wetlands are extensive from virtually the entire prehistory of southern Scandinavia. These were probably especially common during Neolithic times which is evident from the finds in a number of museum collections. Most extensive are the depositions that consist of flint axes. Almost all of these depositions have been found by the public during various works in former wetlands. One may ask whether it is possible to get an idea of how extensive the custom of depositing objects in wetlands really was? It is also important to relate the depositions to contemporary settlement. The depositions can vary in the number of axes and in different environments, suggesting different expressions of ritual activities. To try to get an idea of this, a special study was conducted of a limited area in the southernmost part of Scania, southernmost Sweden. Within the area, there was only one deposition of several flint axes stored in a museum collection. Previous inventories of the area have mainly registered objects from settlements on solid land. The effort was carried out through inventories, by field walking and visiting the farms in the area, registering the finds that have been recovered, and thereby gaining knowledge about which objects have been found and where they came from. This shows that almost all wetlands, even those of very limited extent, contain deposits of Neolithic objects.

Keywords: flint axes, Southern Sweden, wetland, ritual depositions

'Battle axes', fragments, and cup marks

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Abstract: In developed Neolithic societies across much of Europe, elaborate shaft-hole axes appear as a distinct type of polished axe. In line with the research tradition, we call them battle axes. This class of objects is well suited for addressing questions of symbolic behaviour for three reasons. 1. The elaborate design and skeuomorphic attributes, 2. The occurrence in graves, 3. The deposition of single finds and the treatment of fragments. While the first two reasons are well established research topics, the last one has long been a desideratum. This paper will first present some new observations on the distribution, typology and dating of the Western and Central European battle axe phenomenon between 4000 and 2200 BC. Then, on the basis of material from the third millennium BC from northern Germany, the deposition of battle axes in individual find contexts, the significance of fragments, and the secondary treatment of fragments will be discussed. Some fragments have been attributed with non-functional drillings or cup marks. It is argued that these additions are part of a symbolic treatment and that the cup marks on battle axe fragments are associated with the wider cup mark phenomenon, a symbolic pattern that persists into modern times.

Keywords: battle axes, single find deposition, fragmented objects, cup marks, northern Germany

The Lifeways of Scandinavian Middle Neolithic B Battle-Axes

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Abstract: The ground and polish battle-axe is a symbol of the Scandinavian Battle Axe Culture (BAC), 3000/2800-2300 BC, a period of profound economic and social change. The presence of battle-axes in the single graves, characteristic of the period, have been used to establish their symbolic significance, and suppositions of their function. Yet, we do not know what they were used for. Moreover, there is a lack of concrete data on the source and properties of the stone used to manufacture these prolific artefacts. Utilising data from pXRF analysis, use-wear analysis, and experimental archaeology from the "Battle-Axe Technological Lifeways" project, this paper seeks to address these gaps by evaluating how the lifeways of battle-axes reflect social changes and networks of movement. Through a post-humanist lens, it will explore the biographies of Scandinavian battle-axes by examining their manufacture, use, and deposition, their connections with various people and places, and the interactions individuals had with them.

Keywords: Use-wear, Stone Battle-Axe, pXRF, Scandinavian Battle-Axe Culture

Newcomers: Tracing Corded Ware Expansion through Provenance of Battleaxes

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Abstract: The spread of the Corded Ware complex in the third millennium BCE marks a significant shift in the Neolithic period of Northwest Eurasia. This transition in material culture, burial practices, and potentially subsistence economic models has been debated for over a century. Various models, including migration and cultural diffusion, have been proposed. Recent advances in ancient DNA (aDNA) analysis demonstrate a considerable influx of migrants from Eastern Europe, alongside a decline in genetic markers associated with previous Neolithic cultures. However, the dynamics and timescale of this process, including interactions with pre-existing Neolithic communities, remain unclear. As various results are beginning to underscore the multifaceted nature of this cultural transformation in prehistoric Europe, the importance of integrating diverse lines of evidence in current research is highlighted. On the Jutland Peninsula, acidic sandy soils have resulted in poor preservation of human remains, creating gaps in the aDNA record. Nonetheless, numerous battleaxes have been preserved in well-dated burial contexts in this region. A new study examines stone battleaxes from this and other parts of Denmark and from Southern Sweden, and preliminary results have indicated links to Central Europe. By combining raw material provenance studies with typochronological dating, the aim is to document long-distance contact networks between these areas and thus to contribute to a more nuanced model of the Corded Ware expansion and period.

Keywords: Corded Ware complex, provenance, migration, battleaxes, Funnel Beaker culture

Tracing Neolithic Craftsmanship: A Use-Wear Analysis of Polished Flint Tools from Stone Heap Graves in Mid-Jutland

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Abstract: This study showcases the utilisation of use-wear analysis on a selection of nine polished flint artefacts from a recently excavated series of Mid-Neolithic Stone Heap Graves in mid-Jutland (Denmark). The investigation aims to identify residuals and use-wear traces associated with the activities these artefacts were involved in before deposition. Using both low- and high-magnification microscopy (20x to 200x), the analysis assessed use-wear traces to infer the contact materials worked and the motions employed. The methodology included careful inspection under varying magnifications, revealing patterns of polish and wear indicative of specific contact materials and motions. Experimental replication projects, including replicas from the Ergersheim project, provided a framework for interpreting these patterns and linking them to distinct activities. Despite the absence of identifiable prehistoric residues, initial observations indicate that the tools underwent varying degrees of usage. The evidence suggests diverse artefact functions and kinematics. This research underscores the potential of use-wear analysis for understanding the craftsmanship and tool use in Middle Neolithic contexts. Further studies will enable this information to be integrated with broader archaeological interpretations, enriching our understanding of the social and economic practices of this period.

Keywords: Lithic use-wear analysis, Artefact biographies, Mid-Neolithic, Stone Heap Graves

A Functional Study of Ground Stone Axes (Gsa) Assemblages from Akwanga, Central Nigeria

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Abstract: A FUNCTIONAL STUDY OF GROUND STONE AXES (GSA) ASSEMBLAGES FROM AKWANGA, CENTRAL NIGERIA. Ground Stone Axes feature as a major cultural and technological marker for the Neolithic era and the Later Stone Age in the case of sub Saharan Africa. In most of the cultures where these culture materials have appeared, they have been largely interpreted as vital for the clearance of vegetation, the evolution of Agriculture and other subsistence activities. However, use-wear studies carried out on a collections of Ground Stone Axes assemblages from Akwanga, central Nigeria has revealed that these cultural objects probably served multiple functions and for carrying out several activities which hitherto has been neglected and un-explored. Some of the attributes identified with this archaeological specimen after carrying out the use-wear analysis include: wood fibre, collagen, fatty concretions and caked blood. All these have implications on the functional relevance as well as interpretations of the artefacts. Hence, this study basically attempts to present the findings of use-wear studies carried out on Ground Stone Axes from archaeological context. **Keywords:** Ground Stone Axes, Use-wear, Attributes, Later Stone Age, interpretations.

Keywords: Ground Stone Axes, Use-wear, Attributes, Later Stone Age, Interpretations

NEOProvenance: The Potential of Non-Destructive Protocols for Provenance Analyses of Polished Stone Tools

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Abstract: In the current contribution we present the results of a project initiated to conduct comprehensive provenance studies on polished stone tools housed at the Danish National Museum made from various raw materials such as flint, jadeite, amphibolite, and andesite. The main goal was to gain innovative insights into the exchange of prestige objects and uncover previously unknown networks within Stone Age societies. By tracing the origins, distribution, and contextual significance of these artifacts, the project aims to illuminate the complex social and economic interactions that characterized the prehistoric communities which produced these objects. This research explores the potential origin of the raw materials of these prestigious items as well as their distribution among groups, thereby revealing patterns of social connectivity and influence that have remained obscured until now. Through this examination, we seek to contribute to a deeper understanding of the cultural and social dynamics that shaped Prehistoric societies, offering fresh perspectives on how communities interacted. While there exist well established techniques for the characterization and provenance analyses of stone raw materials used for stone axes, their application is oftentimes hampered by the necessarily strict protocols for sampling sensitive archaeological materials from museum collections due to their largely destructive nature. For the current study, we explore and assess the potential of non-destructive and minimally invasive analytical protocols for the aforementioned lithic raw materials. The results can subsequently be compared with data obtained from complementary studies using conventional petrographic approaches.

Keywords: Neolithic Networks, Polished stone Tools, Lithic Raw Materials, Provenance Analyses, Non-Destructive Analytical Protocol

G26 - On people, tools, and plant foodways: defining new proxies for the Neolithization(s)

Session Organiser

Laura Dietrich / Martin-Luther-University Halle-Wittenberg

Laure Dubreuil / Anthropology Department, Trent University

Emanuela Cristiani / DANTE-Diet and Ancient Technology Lab, Sapienza University of Rome

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Abstract

The Neolithic marks a major turning point in human history, leading towards dramatic changes in lifeways, ideologies, societies and economies. In this session, our aim is to establish a global forum for research exploring people and plant intricate relationships within the context of Neolithization(s), considering their multifaceted nature encompassing technological innovations, dietary practices, agents, networks, and lifeways. We invite contributions that focus on the identification of new proxies - defined here as agents and components - of Neolithization, in addition to those related to the domestication of founder crops. These could encompass a wide range of topics, including plant food processing technologies, foodways and dietary habits, plant-people interactions, and the identification of specific tools and recipes at the onset of the Neolithization, local and over regional dietary strategies and plant resource management, along with long-term evolutions and changes in plant consumptions patterns such as storage, grinding, and cooking, techniques. To facilitate discussion on these topics, we encourage worldwide interdisciplinary contributions to the study of human remains and material culture. This includes new methodologies in use-wear and residue analyses, the study of dental macro - and micro-wear on teeth, ancient dental calculus, isotope analysis, metagenomics, as well as experimental and theoretical approaches applied for novel high-resolution reconstructions of Neolithic diets and food technology.

Cereal Grinding Rates: From Experimental Results to Ethnographic Facts

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Abstract: The literature includes more than a dozen reports on rates of experimental cereal grinding with millstone/handstone toolkits. There is considerable variation regarding experimental conditions and parameters, but the vast majority of published rates do not surpass 1 kilo per hour. Experimental grinders sometimes acknowledge the superior performances of their prehistoric or ethnographic counterparts, however, the implicit or explicit assumption is that millstones and handstones are low productivity tools, an idea reinforced by the endless hours women in traditional settings devote to cereal grinding on a daily basis. This paper asks: what are the grinding rates of proficient millstone/handstone users? There is not much relevant ethnographic information, but what is available points to rates as high as 5 kilos per hour. It is true that as a rule ethnographic grinders employ large tools, but it appears that people who know their craft can deliver impressive results even with small specimens. After exploring the reasons for the discrepancy between experimental results and ethnographic facts, we discuss its implications for our understanding of prehistoric and ethnographic life, and suggest among others that: the experimental results are misleading rather than indicative of prehistoric grinding rates; in the right hands millstones and handstones are highly productive tools; the long hours spent grinding grain in ethnographic contexts reflect the very large quantities of cereal products consumed on an everyday basis.

Keywords: cereals, millstones, handstones, grinding rates, experiments and ethnography

Uncovering Alternative Functions of Neolithic Grinding and Pounding Stones: An Analysis of Organic Residues Using Experimental Tools

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Abstract: Much of the research on ground stone tool use has been directed towards their role in processing plant materials, particularly cereals. This focus is particularly pronounced in studies centered on the Neolithic period of Southwest Asia, where the emergence and spread of agriculture, especially cereal cultivation, have been primary areas of investigation. The aim of this study is to develop a protocol for investigating organic residues left both by plant and animal products on grinding and pounding stones. Recently, some studies have challenged the application of organic residue analysis to lithic tools, while others have underlined the importance of developing reliable protocol and addressing pervasive problems of contamination and misinterpretation. Toward this goal, a blind test was implemented where the experiments conducted were not disclosed to the researchers who interpreted the organic residue samples. A focus was placed on exploring lipids. Samples were taken from processed matter (present-day foodstuffs) and stone tools before and after the experiment. We conducted gas chromatography-mass spectrometry (GC-MS) analysis to detect and identify biomarkers from organic residues and gas chromatography combustion isotope ratio mass spectrometry (GC-C-IRMS) analysis for measuring compound-specific carbon isotope of C16:0 and C18:0 fatty acids. Our initial results show that the matter identified through the analysis of residues aligns with the actual processed matters. Importantly, this research showcases the potential for recovering residues of diverse materials (beyond plants), which also have a great potential to have been used and processed in the past.

Keywords: Ground stone tools, Organic residue analysis, Lipid, Functional analysis, Neolithic

A systematic review on experimental archaeology and ethnoarchaeological case studies of plant food processing and cooking

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Abstract: Experimental and ethnoarchaeological research on plant food processing, cooking and broader culinary practices provide the means and referents for the identification of these practices in archaeological case studies. Such case studies can provide a crucial avenue for investigating cultural aspects of subsistence, and provide novel perspectives on subsistence change. In this paper we will present the preliminary results of a systematic scoping review of the literature on plant food processing and cooking in the archaeological and ethnoarchaeological literature. Our aim is to capture the current state of the art, highlighting the range of plant families, genera and species that are underrepresented in case studies of plant food processing and broader culinary practices, and whether these are likely to be limiting factors in the identification of culinary practices on archaeobotanical macro and micro remains. Our preliminary findings highlight gaps in research, such as a paucity of case studies with pulses and nuts in experimental work, and a disproportionate focus on cooking techniques that rely on dry-grinding. We will discuss how our preliminary results could direct future research to capture greater diversity of cooking techniques and a broader range of plant ingredients in experimental research, which would provide the necessary methodological and interpretative frameworks in capturing the complexities of hunter-gatherer as well as early farmer culinary practices. In turn allowing the assessment of shifts in plant reliance at crucial thresholds in prehistory, such as the periods leading up to and culminating in sedentary communities, earliest farmers and Neolithic habitations in Southwest Asia.

Keywords: Archaeobotany, Culinary practices in prehistory, Experimental archaeology

Preparing a surface: The “seasoning” of food processing ground stone and its implications for use-wear analysis

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Abstract: In Southwest Asia ground stone tools (GST) used in food processing, like stone mortars and querns, started proliferating during the end of the Epipaleolithic becoming near ubiquitous by the Early Neolithic. These tools, crucial for our understanding of past foodways and in particular “Neolithization” processes, have received heightened attention in recent decades. Increasingly researchers have applied microscopic use-wear and residue analysis to establish what kinds of foods GST were involved in processing. However, there is an aspect that most GST use-wear studies seemingly neglect to recognize: ‘seasoning’. Seasoning is the act of preparing the stone tool before initial use, by processing and then discarding a small amount of material, effectively “sealing” the active surface and preventing harmful grit and rock particles from entering the foodstuff. Not considering this crucial step in tool surface preparation potentially means that use-wear analyses, both qualitative and quantitative, fall short when assessing subsequent use. This paper, presenting the results of my research project ‘PRESUR’, aims to illuminate this issue within GST analysis. Through experiments the project tested ways of seasoning GST that would have been available to people in Southwest Asia 15,000 years ago. The project establishes what a seasoned tool looks like by tracking changes to tool surfaces through qualitative use-wear analysis, as well as analysing the effects of the process on the plant material used in seasoning. It suggests ways of refining established approaches in GST use-wear analysis and improving our understanding of past foodways.

Keywords: Ground stone tools, Foodways, Use-wear analysis, Experimental Archaeology, Southwest Asia

Microbotanical dental calculus analysis provides a new proxy for understanding animal domestication during the Neolithization

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Abstract: The Neolithic Revolution marks a major turning point in human history. In the Lower Yangtze Valley of China, the neolithization process began around 10000 years ago, encompassing significant technological innovations in pottery and lithic technology, the establishment of sedentary lifeways, and the domestication of plants and animals. Among these, the nature and initial conditions of animal domestication has been a long-debated issue, partially due to the limitations of traditional zooarchaeological methods. This study introduces a novel method for understanding the initial circumstances of animal domestication, using a case study of pig domestication at the site of Kuahuqiao. By analyzing starch, phytoliths, and parasite remains embedded in pig dental calculus, the results show that both morphologically wild and domesticated pigs consumed cooked plant foods, as well as human feces or fecally contaminated materials. This suggests that pig domestication in the Lower Yangtze thus likely initiated through a commensal pathway, whereby pigs invaded human settlements to scavenge human wastes. This research also provides a new approach for understanding animal domestication during the Neolithization in other world regions.

Keywords: starch, phytoliths, Domestication, Dental calculus, parasite

Transforming Grains, Shaping Societies: Insights into Ground stone Tool Use and Food Processing Techniques.

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Abstract: Ground stone tools such as querns and handstones are pivotal in understanding the socioeconomic frameworks and subsistence strategies of early human societies. This paper investigates the ethnoarchaeological aspects of these tools within several communities in southern Ethiopia, highlighting how variations in tool design are reflective of dietary practices. Specifically, the study examines how these tools are technically modified for multiple purposes, including the milling and crushing of cereals in various conditions such as fresh, soaked, dry, or roasted. Choosing cereals in different states significantly influences food preparation methods. Roasting, in particular, emerges as a critical pre-processing step that not only enhances flavour but also reduces the time and energy required for grinding, thereby conserving effort and improving milling efficiency. This adaptation reflects broader patterns of energy management within households, directly linking culinary practices to socioeconomic standing and tool usage. Furthermore, the paper presents experimental research on the milling and crushing processes of different cereal states to analyse the use-wear patterns on these stone tools, employing qualitative and quantitative techniques for detailed assessment. These experiments provide insights into the functional aspects of ground stone tools and their role in food processing techniques. By integrating ethnoarchaeological observations with practical experiments, this research can significantly contribute to a more nuanced understanding of the technological choices and subsistence practices during the Neolithic period. It further offers a comprehensive perspective on the evolution of tool use and dietary adaptations.

Keywords: Ethnoarchaeology, Experimentation, Cereals treatment, Use Wear and Quantification

Late Natufian, the first pre-domestic agricultures [13,000 – 1,5000 Cal BP]

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Abstract: We suggest that the southern Levantine Natufians – "hunter-gatherer society on the threshold of agriculture" – were the first pre-domestication agriculturists based on these pieces of evidence: 1. Agricultural terraces were built in Late Natufian single-period sites, like Huzuq Musa and Saflulim; 2. The development of sickles blades makes it possible to harvest green wild cereals and collect 50 liters of ripe barley grains stored in small siloes; 3. A sophisticated agrotechnological system includes threshing floors 320 narrow conical mortars for peeling and grinding barely spikelets, found in 32 Natufian sites; 4. Cereal food and unleavened bread, made from fine flour, was baked on hot ash. Remains of bread were discovered in Shubayqa 1 in Jordan; 5. The essential significance of the cereal's meals for the Natufian subsistence is emphasized by the symbolic ritual of feeding the dead with cereal food – narrow conical mortar boulders were placed in graves. Natufian pre-domestic agriculture and food production expanded in the PPNA communities, while hunter-gatherer groups lived alongside food-producing societies. The technological innovations of the Natufian of cultivating wild cereals and producing porridge, groats meal, and bread may be combined with the domestication of the founder's crops, enabling the agriculture revolution, which emerged 10,500 Cal BP.

Keywords: Natufian; pre-domestication agricultures; wild baely bread; agrotechnological system; Food production

Exploring the practices and social context of plants processing at Nahal Ein Gev II (Late Natufian, Southern Levant)

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Abstract: This paper discusses the unique ground stone collection of Nahal Ein Gev II (NEG II), a 12,000-year-old site in the Southern Levant. This settlement is dated to the end of the Natufian, a period of specific interest as it precedes the development of the first agricultural communities during the Pre-Pottery Neolithic. Recent analysis of the cultural remains found at NEG II led to the identification of characteristics rooted in the Natufian culture while other aspects, especially art, seem to pre-figure the following PPNA period. The evidence of plant exploitation is scarce due to the low preservation of organic material, as in many Natufian settlements in the area. Yet, evidence of plant processing is addressed here based on the analysis of the ground stone tools. The analysis includes typological classification, morpho-technological description, use-wear, residues, and contextual approaches. Our results show the range of implements and practices employed by the Natufian to transform and prepare plants. Comparison with other contemporary sites unravels some unique characteristics regarding the use of ground stone technology at NEG II. We examine the implications of our findings through two distinct lenses: firstly, by contextualizing plant processing within the broader social context, with a special emphasis on the communal versus individual utilization of ground stone tools and secondly by discussing the tools life history within the framework of daily and ritual activities at the site.

Keywords: Southwest Asia, Ground stone tools, Functional analysis, Plant processing

Wear marker, wear trajectories and wear states in the analysis of Neolithic grinding stones (case study Göbekli Tepe)

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Abstract: This paper presents a new methodological approach to the functional analysis of Neolithic grinding stones (case study: Göbekli Tepe) by experimentally simulating intensities of use through wear sequences. Grinding stones are highly mutable objects that undergo a sequence of (countless) successive wear states, which we call a wear trajectory. We have created experimental wear sequences to study deformation and wear progression under different variables and parameters. A wear trajectory represents a fluid frame of use of the object, while the wear states are single, representative 'frozen' moments of it, which we have documented in 3D, by microscopy and by tactile and visual analysis. By comparing deformations and mathematically modelling the wear trajectories, we are able to assess the use intensities of replicas and original tools, as well as function, movement and handling, beyond single visual comparisons of wear marks on tool surfaces.

Keywords: Göbekli Tepe, grinding stones, wear trajectories, experimental archaeology, quantification

Enjoying 'focaccia' in late-Neolithic Near East. A culinary tradition explored through integrated use-wear, phytolith, and organic residue analysis

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Abstract: Advancements in analytical techniques and the increasingly frequent interdisciplinary dialogue are leading to numerous and precise discoveries concerning the dietary aspects of past societies. This research focuses on one of the changes that must have occurred in the eating habits of fully agricultural communities of Late Neolithic Mesopotamia following the widespread use of ceramics. The results of a study of a selected sample of fragments of so-called husking trays found at sites in Upper Mesopotamia such as Mezraa Teleilat, Akarçay Tepe, Tell Sabi Abyad, and others will be presented. Through extensive experimental processes and analysis of archaeological fragments, including use-wear, phytoliths, and organic residues, insights are gleaned into culinary practices. The study suggests that these vessels were used for baking not only plain bread but even a product similar to a seasoned 'focaccia'. The research thus provides a vivid insight into the culinary practices of the period. As food is a deeply cultural act, the level of detail that current research can provide may constitute a key element in the future for better understanding these societies.

Keywords: eating behaviors, pottery, use-wear, phytoliths, organic residues

Macrolithic artefacts and plant micro-residues in dental calculus as an important sources of information on dietary habits at the Neolithic Tepecik-Çiftlik site (~7,100 – 5,800 cal BCE) in Central Anatolia

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Abstract: Tepecik-Çiftlik (~7,100-5,800 cal BCE) is an archaeological settlement mound located in the volcanic west Cappadocia landscape with unique uninterrupted occupation from the PPN to the Early Chalcolithic period. It is situated near the famous Göllüdağ Mts., an important source of obsidian which was widely distributed especially in the PPNB, and by additional stone sources primarily derived from volcanic origins, suitable for the manufacture of various macrolithic artefacts. Tepecik-Çiftlik presents at least of 10 layers in the excavated part of the mound, of which levels 3-6 provide the best information about different Neolithic phases. Not only does the site include a collective grave, but it has also yielded the earliest recorded examples of children buried in jars and seven unique examples of plastered skulls. Nutrition and the health structure of the community have also been studied in a holistic manner along with other archaeological data, using both morphological and isotopic methods. This lecture will present the latest data resulting from the analysis of use-wear from high-resolution silicon casts taken from the utilization areas of several grinding-milling tools, such as lower-upper stone sets and mortar-pestle sets, from the continuously inhabited Neolithic site. This use-wear data is supplemented with information obtained from the analysis of plant micro-residues (phytoliths and starch grains) from dental calculus and preliminary results from macrobotanical analyses to present a holistic approach to the plant processing strategies and foodway practices of the inhabitants of Tepecik-Çiftlik.

Keywords: Neolithic, Adaptation, Macrolithic artefacts, Dental calculus, plant micro-residues

A world up in the mountains: Neolithization and early villager lifestyles in the Southern Andes (Argentina, ca. 200 BCE-AD 900)

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Abstract: The Neolithization process in the Argentinian Andes resulted in a profound transformation in people's lifeways. As part of this transition, villagers increasingly relied upon a wide range of domesticated plants and animals, lived in more densely packed villages, and developed new technologies to support agropastoral lifeways. In the process of becoming villagers, early Andean farmers and herders unintentionally brought about changes related to daily life, including more people living closer together, greater social inequality, and new diseases linked to stock handling and living together in greater density. Andean villagers confronted these challenges by reorganizing household and community relationships, where people lived, and the linkages between humans, plants and animals, thereby forming a new material and social fabric in the face of ever-changing conditions across many different environments. This presentation examines Neolithization process in Argentina during the Formative Period (200 BC-AD 900), how people crafted new relationships with other humans, plants, animals, objects, and the environment they lived in that enabled fledgling communities to succeed over time. We bring together different data sets to discuss the development and consolidation of regional agropastoral lifeways. We present evidence obtained from (1) residue analysis on pottery, (2) archaeobotanical remains (seeds, phytoliths, and starches), and (3) artifactual analysis (pottery, lithic, and grinding stones). Ultimately, we argue that these practices formed part of an active set of daily activities contributing to the reproduction of autonomous domestic social organization, and that the world of villagers was shaped by the unfolding and iteration of farming practices across time.

Keywords: Andes, Formative Period, Households, Foodways, Daily practices

From Quarry to Quern: An Ethnoarchaeological Study of Grinding Stone Chaîne Opératoires in India

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Abstract: We examined the traditional basalt and granite grinding stone production in western and southern India, collaborating with craftsmen to analyze knapping strategies from quarrying to final shaping. After quarrying suitable blocks, three reduction stages were noted: rough-out creation, dressing and fine flaking, and final shaping with pecking. Analysis of waste products and grinding stone morphology at each stage yielded fresh insights into manufacturing progress and variability in debitage/tool shape throughout the reduction sequence. Craftsmen maintained symmetry assessments to ensure precision, guiding strategic flaking to boost knapping efficiency and minimize waste throughout the chaîne Opératoires. Basalt and granite reduction streams were compared. The study offers insights into technological strategies noted at Neolithic and Chalcolithic sites, situating grinding stones in socio-economic contexts, including work organization, socialisation, networks and exchange mechanisms, mobility, ritual aspects, and tool discard patterns. The study aids in constructing models for grinding stone manufacture and testing hypotheses for agro-pastoral subsistence and ritual behaviour in the archaeological record.

Keywords: Chaîne opératoire, Ethnoarchaeology, India, Grinding stones

New insights into the Neolithic denticulate sickles from Central China

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Abstract: Harvesting techniques serve as pivotal indicators of agricultural practices, technologies, and cultural traditions within ancient societies, thus constituting fundamental elements in the study of ancient foodways. Unlike the Neolithic flint-bladed sickles frequently found in Europe, the sickles used by the earliest farmers in Central China were ground, featuring denticulate edges. Although a series of experiments have been designed and carried out to study these special denticulate sickles, only a limited number of archaeological examples have undergone use-wear or residue analysis to date. This paper presents a case study conducted at the Neolithic site of Jiahu (7000 to 5500 BC), where farmers practised rice farming since the site's earliest occupation phase. The results of this study provide further insights into the functionality of the ground stone sickles, based on results from use-wear and phytolith analysis. By considering the archaeological context, this paper also discusses the potential significance of these specific ground stone sickles. Additionally, given that stone sickles did not appear until the site's second occupation phase at Jiahu, this paper investigates the possibility of a different harvesting method being adopted during the earlier period at the site.

Keywords: use-wear, phytolith, harvesting, sickle, early farming

Investigating Plant Use Through Ground Stone Tools In The Gobi Desert, Mongolia

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Abstract: Knowledge regarding plant use by ancient hunter-gatherers of the Gobi Desert in Mongolia is incipient, as organic remains seldom preserve in the context. There, the most reliable evidence of plant use is the adoption of Ground Stone Tool (GST) technology around 8.0k cal yr BP. This, along with the spread of pottery and bifacial flake technology, marks the beginning of the "Neolithic" period in the region. Through use-wear and residue analysis, the present research analyzed over 20 GST implements collected in the 1920s by the Central Asiatic Expeditions of the American Museum of Natural History (NY). The tools show evidence of grinding underground storage organs, legumes, and cereals; the results suggest the adoption of a broad-spectrum foraging strategy during a period of increased environmental moisture and higher vegetative biomass. The emergence of GST technology is often associated with a "Neolithic package" that leads to the development of agriculture and sedentary societies. However, this is not the case in the Gobi Desert, where economies based on hunting and gathering persisted until a shift to nomadic pastoralism around 3600 BP. Therefore, the region provides an excellent example of the complex nature of Neolithization.

Keywords: Gobi Desert, Ground stone tools, Use-wear analysis, Residue analysis, Plant use

Multiproxy analyses of human-plant interaction in the southwestern Baltic around 3100 BCE: following the {chaîne opératoire} from the fields to the meals

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Abstract: Dating to the Middle Neolithic (3270–2920 BCE), the settlement site Oldenburg LA77 is one of the earliest villages in the southwestern Baltic and is emblematic of the socio-economic shift from isolated farmsteads in the Early Neolithic towards population agglomeration in villages in the Middle Neolithic. This settlement is the best archaeobotanically analysed Neolithic site in the SW Baltic. The combination of macrobotanical and stable isotope analysis, supplemented by the study of phytoliths and starch grains preserved on grinding stones, the combined SEM- and chemical analyses of organic surface residues, and the lipid biomarker analysis on organics preserved in the ceramic matrix allow us for a comprehensive reconstruction of everyday activities in the long and complex process that starts with the cultivation of plants and ends with their transformation into meals. We trace household-based plant economy with specific spatial arrangement of these activities, identify distinct cultivation and processing techniques, reconstruct Neolithic recipes and observe related ritual activities.

Keywords: diet, {chaîne opératoire}, multiproxy archaeobotany, southwestern Baltic, crop cultivation

Variability of grinding systems in neolithization contexts of the VIth millenium BC

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Abstract: Neolithization processes are accompanied by major technological innovations, among which grinding tools take a large part, for the processing of cereals, legumes, tubers and other food products. Hence, the diversity of raw material choices and grinding systems from different neolithization contexts of the VIth millenium BC is questioning. At the light of current results from Caucasus, Western Mediterranean and western continental Europe, we will discuss how use-wear combined to residues analysis can help better understand these variabilities in food practices. This discussion contributes to highlight the cultural value and the importance of know-how transmission networks in food processing habits.

Keywords: neolithization; grinding tools ; use-wear analysis ; residues ; VIth millenium

Insight into Neolithic cuisine: a holistic approach for investigating charred food crust and absorbed residues from cooking vessels from Neolithic Stavroupoli (northern Greece)

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Abstract: The study of culinary practices and the components of past diets has received much attention in the past decades within the archaeological discipline, relying often on the study of the bioarcheological remains and material culture related to food production, preparation, consumption, and presentation recovered from archaeological contexts. In this sense, residue analyses of cooking vessels and charred food crusts represents a valuable resources for researching culinary practices and foodways in the past, providing direct evidence of where food has been cooked, and in the case of food crust, remnants of the food itself. Ancient charred food crust and absorbed residues from cooking vessels have been often the subject of molecular and microbotanical residue analyses to gain insight into culinary traditions and food practices in past societies. In this study, we aim to provide a holistic and multi-methodological approach to the study of past foodway practices and cuisine through the combined analysis of phytoliths, starch grains, lipids, isotopes, and ¹⁴C dating of charred food crust and absorbed residues from cooking vessels originating from Neolithic Stavroupoli (northern Greece). Results show that the inhabitants of Stavroupoli consumed C3 cereals (such as wheat and barley) and ruminant fats, while C4 plants (e.g., wild/weedy small millets) were regularly consumed by animals but only sporadically by humans. Moreover, this study has helped to evaluate the research potential of each of these methods for the study of charred food crust and absorbed residues, and how these could be combined to gain a better understanding of past cuisines.

Keywords: Foodways, Residue analysis, Cooking vessels, Neolithic Greece

If Ovens Could Talk: Bread Consumption in the Neolithic of the Central Balkans

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Abstract: The innovations that occurred and developed during the Neolithic led to significant changes in the human lifestyle. Pronounced sedentism and the increase of cereal cultivation, characteristic for the Neolithic, coincide with the emergence of a new thermal structure – oven. They are defined as enclosed fire installations typical for agricultural sedentary communities in the Middle East and Europe since the Neolithic. With that in mind, ovens can be considered as one of the innovations of the Neolithic period. At the territory of the Central Balkans, substantial differences are observed between the Early and Late Neolithic ovens, which are reflected in the selection of material, physical and technological characteristics. Early Neolithic Starčevo culture ovens were underground features located inside semi-subterranean dwellings, while Late Neolithic Vinča culture ovens were domed structures, modelled from mud plaster, located inside above-ground wattle and daub houses. As one of the main functions of these thermal structures was probably bread baking, experimental Early and Late Neolithic ovens were constructed and several bread baking experiments were conducted in order to determine the type of bread that could have been prepared inside these thermal structures. Different types of bread were baked inside these ovens and the results of the experiments indicated bread types most suitable for Early and Late Neolithic ovens. The aim of this presentation is to show which bread types were consumed at the territory of the Central Balkans during the Early and Late Neolithic and offer reasons for the differences in oven and bread types.

Keywords: Balkan Neolithic, Bread, Neolithic architecture, Oven

How did bread come to Central Europe? Investigations into the role of the Neolithic settlement of Brunn am Gebirge near Vienna in the spread of the eating habits of Europe's first farmers using grinding stones

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Abstract: The transition from an appropriative to a productive subsistence basis is closely linked to the concept of Neolithisation, which represents a key period in human history. This period is characterised by the first organisation of settlements with a permanent character, the emergence of agriculture, the domestication of wild animals and is accompanied by a change in material culture, which is particularly evident in stone tools. While this process took place in the Near East as early as the 10th and 9th millennia BC, it only began in Central Europe around 5500 BC with the formative phase of the Linear Pottery Culture. One of the most frequently represented categories of the so-called 'Neolithic package', a package of technologies and information that enabled the sedentary, productive way of life, are grinding stones, which can consist of both underhand and two-handed edge and over-edge runners or one-handed runners and were used as universal grinding devices for food and other materials, such as roots, berries, pulses, nuts or pigments. The Early Neolithic settlement of Brunn am Gebirge, Wolfholz (Austria), with houses of the formative and oldest phase of Linear Pottery, is most probably the place of origin of a certain type of over-edge runner, which was passed on from here to Central and Northwest Europe and became the main tool for the production of bread. This contribution presents the results of a current research project ('How did bread come to Central Europe?') and provides an insight into the kitchen practices of the Linearbandkeramik farmers.

Keywords: Early Neolithic, Linearbandkeramik, Foodways, Grinding Stones, Kitchen practice

G27 - Neolithic clay tokens and other counting objects

Session Organiser

Karol Szymczak / University of Warsaw

Michał Leloch / University of Warsaw

Abstract

The aim of this session is to discuss the somehow forgotten lately problem of the Neolithic counting objects which probably reflect value of certain goods. Such artefacts appear in the very beginning of PPN A, and were in use till the Iron Age. If we agreed with an idea of the significance of tokens presented for the first time by L. Oppenheim in 1959, we would touch one of the far reaching consequences of neolithization. It led to radical changes not only in economic relations, food production, way of life, and beliefs, but also in social organization of the Neolithic societies. Exchanging goods with the use of tokens/counters needs acceptance of the whole token system by wide groups of people and create the special type of social ties, which after a few millennia led directly to urban and state civilizations. Reflection on this aspect of neolithization should help to understand better the far going importance of this process for further human history.

Neolithic Clay Tokens and The Eastern Boundary of Their Occurrence in Central Asia

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Abstract: The paper discusses a problem of the clay/ceramic tokens present in many Neolithic sites of the unit recognized as Dzheytunian culture /ca 6200 - 4500 cal. BC/, spread on both sides of the Kopet dag mountain chain /present SW Turkmenistan and NE Iran/. If we accepted that this category of artefacts was used for counting and symbolized value of certain goods, we could suggest that Dheytunian society was tied not only with the common tradition of pottery ornamentation, but also by much stronger economical interrelationships. Such a common system of exchanging/trading goods could be the first step to build a new quality of social organization. The very beginnings of this process could be traced already from the earliest phases of PPN in the Near East /Xth mill. BC/. On the other hand, we can observe a sharp NE borderline of the tokens' appearance. Pastoral 'Kelteminarians' from the Kyzyl-kum, and upland 'Hissarians' were out of the unit integrated by the token exchanging system.

Keywords: Central Asia, Neolithic, Dzheytun/Jeitun, tokens

Possible Neolithic Counting Objects Other Than Fired Clay Tokens

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Abstract: In this paper we present the Neolithic objects of various raw materials, the objects that could play a similar role in trade transactions as fired clay tokens/counters. These objects are described in seven groups: 1. stone items intentionally shaped in a form of clay tokens /balls, cones/; 2. natural carefully selected, excellently round pebbles with grooved lines or crosses; 3. very regular, intentionally cut out stone discs; 4. Regular, round discs cut out from molluscs' shells; 5. cowrie shells, often with their tops intentionally rubbed out; 6. beads, especially those produces of semi-precious stones, or perforated molluscs' shells; fired clay animal figurines. All of these categories of artefacts are usually found accompanied by regular fired clay tokens.

Keywords: Neolithic, tokens, counters

Tracing the Transformations: The Role of Clay Tokens in Neolithic and Copper Age Societies of the Carpathian-Dniester Region

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Abstract: Different types of small clay objects, typically cones, disks, and pins, have been found at Neolithic and Copper Age sites between the Carpathians and the Dniester River. These objects, interpreted as tokens based on their similarity to Near Eastern artifacts, are first recorded in the early 5th millennium BCE at Late Neolithic Precucuteni-Trypillia A sites. A significant increase in the number and formal variability of these tokens is observed in the second half of the 5th millennium BCE, coinciding with the emergence of Copper Age societies and continuing into the 4th millennium BCE within the context of the mega-sites phenomenon. Notably, a shift in the deposition context of such objects is evident. In Neolithic sites, they are restricted to specific areas of settlements and are often found in hoards associated with figurines. In contrast, from the second half of the 5th millennium BCE onwards, their distribution within settlements becomes more widespread, with tokens found in various contexts, including houses, pits, enclosure systems, and pottery production units. By examining their distribution, context of deposition, typology, and metrics across different time periods and social settings, we test various hypothesis about their use and address the evolving roles and social meanings of such artefacts.

Keywords: tokens, neolithic, cucuteni-trypillia, clay objects

Clay Sealings from Neolithic Sumaki Höyük

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Abstract: Sumaki Höyük is situated in east of Batman province in the Lower Garzan Basin. The site, with in the affected region of the drainage basin of the Ilisu Dam was excavated for 5 seasons between 2007 and 2014. An area of 2180 m² was exposed and 7 Neolithic phases dated between 7.134±57 and 6.350-6.200/6.150 cal BC, and a short-term Middle Age settlement with 2 phases dating back to 833±51 cal AD were identified. The Neolithic phases have different settlement patterns, such as seasonal, short-term and sedentary. The most dominant feature of each phase is the preference of obsidian in the chipped stone industry. Another is the density of clay finds, especially in phases N5, N4, N3 and partly N2. Among 2400 clay finds, sealings have an important place with approximately 1130 pieces. Sumaki communities used the clay sealing practice on Early Mineral Tempered pottery, possibly wooden containers, and baskets to preserve things for a 'certain period of time'. Sealings are in different forms like amorphous, sphere, semisphere or lentil- and bead-shaped, etc. Human, animal and/or three-legged depictions can also be used as sealings. They were either pressed directly on the rim of a container or on a fabric or similar material covering the containers, including the handle; or a fabric or similar material covered over the containers was tied with strings and press on them. The traces were examined in detail with Iscope and compared with the data obtained from experimental studies.

Keywords: Clay Sealings, Sumaki Höyük, Pottery Neolithic, Lower Garzan Basin

G28 - Geological and Tectonic Influences on Neolithic Societies: Interdisciplinary Insights into Landscape Evolution and Human Adaptation

Session Organiser

Çetin Şenkul / Süleyman Demirel University, Türkiye

Abstract

The critical interaction between geology, active tectonics, and geomorphology and their impact on early human communities has long been a significant area of study in the natural sciences. The Neolithic period marks substantial advancements in human settlement and agriculture, profoundly influenced by the geological and tectonic contexts of the time. This session aims to explore how tectonic activities and geomorphological processes, particularly from the Last Glacial Maximum to the warmer Holocene epoch, affected landscape evolution and resource distribution. We are particularly interested in examining the transition from cold and dry climates to warm and humid ones and their dynamics in river valleys. We invite interdisciplinary research employing advanced methods and technologies to elucidate these dynamics. Contributions will investigate the effects of seismic activities and landform changes on Neolithic settlements, agricultural practices, and socio-cultural developments. This session aims to enhance our understanding of the resilience and adaptability of Neolithic communities to geological transformations.

Geological Evolution of Southeastern Türkiye: in the concept of plate configuration and its recent effect on the human life

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Abstract: The plate motions have a direct impact on geological evolution of any area, for example, Eastern Mediterranean and southeastern Türkiye. Plate tectonic event which is the closure of the eastern Tethys ocean is an important triggering mechanism for the plate configuration and climate transition between 17 to 11 Ma during the Middle Miocene around the area. The geodynamic evolution of the Arabian–Eurasian collision have still continued after the closure of Tethys ocean called as Bitlis–Zagros suture zone. Although the suture has been moving under the control of plate motions with a decreasing seismic activity recently, younger primary and secondary active faults have taken up the stress generated by plate movements and they started creating destructive earthquakes. A number of historical and recent earthquakes sourced from active faults have located around the southeastern Türkiye from the Middle Miocene to recent time. When the earthquakes started affecting the human life, they have been a significant phenomenon. Many of the settled area located on the southeastern Türkiye are constructed on the fault controlled areas such as Antakya and Şanlıurfa. It is obviously indicated that many archeological sites were damaged by large shaking events investigated by palaeoseismological and archaeoseismological studies. Some Antakya earthquakes in 115 (intensity: IX), 245 (intensity: X), 587 (intensity: IX, 60.000 deaths), 1822 (intensity: X, 20 000 deaths, tsunami) defined in the catalogues created huge amount of losses. In this concept, geological point of view is a factor that directly concerns not only the development of the earth but also human life.

Keywords: Southeastern Türkiye, Geological evolution, Archaeoseismology, Palaeoseismology

Geology and earthquake phenomenon about the Epipaleolithic and Early Neolithic Hunter-Gatherer settlements located in the Eastern Taurus Foothills

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Abstract: The foothills of the Eastern Taurus Mountains, including the Upper Euphrates and Tigris Basins, where an important thrust belt has developed since the Miocene Epoch and the earth has been shaped by this geological change, have formed a geography suitable for settlement during the period when the Epipalaeolithic and Early Neolithic hunter-gatherers lived in the region, especially with the effect of the intense tectonic activity in the Pliocene Epoch and Quaternary Period and the favourable climatic conditions that emerged in the Holocene Epoch. The impact of well-organised human societies with a complex social life from the Epipaleolithic to the early Neolithic settlements (11th to 9th millennium BC) has brought together many scientific disciplines, especially within the framework of the Stone Hills project focusing on the Urfa region. As part of these studies, a geoscientific study was initiated to investigate the geological formations of the regions where these societies settled. In addition, archaeoseismological studies initiated as part of the Taştepeler project are searching for traces of ancient earthquakes in the settlements of the region. For example, because of the preliminary archaeoseismological studies conducted in Göbeklitepe and Karahantepe, an attempt was made to reveal the effects of possible earthquakes in these settlements. It was found that the significant traces of deformation found were the result of landslides and other ground movements triggered by earthquakes. Some new insights have been gained, suggesting that changes in the architecture and construction techniques of the buildings may have been reshaped by the effects of the earthquake.

Keywords: Archaeoseismology, Geology, Taş Tepeler, Tectonic

Gnammas; are phenomenal geological structures for Epipalaeolithic and Early Neolithic civilization?

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Abstract: Gnammas are special geological structures that develop in the rocks of lithological made up of fine to medium-grained crystalline and clastic rocks (predominantly well-formed phaneritic texture granitoids especially K-feldspar rich granites, well-sorted clast-supported sandstones and micritic carbonates). While the first modern geological descriptions of these structures date back to the early 19th century, also referred to in the literature with different names such as rock-basins, weather pits or water holes. The formation of these geological structures is directly related to lithological, climatic, tectonic and geochemical processes. They mainly develops on horizontally stratified and/or massive geological units, where exposes in low-relief areas. In this study, firstly lithological and morphogenetic classifications of these own unique shapes geological structures, which were previously considered by human-made in a global perspective, will be conveyed. Afterwards, the characteristics of these geological features, where widely observed around the world, especially in Britain, Australia, Levant Region and especially around archaeological settlements within the Taş Tepeler project, will be presented. In this context, the combination of field observations and archaeological data from Urfa and its surroundings will be used to open a scientific debate by analysing the human impact of the geological formations in question from the Epipaleolithic to the Early Neolithic. In addition, this presentation will also introduce a new scientific project planned by us to reveal the geological processes controlling the formation of gnammas, especially in and around the archaeological sites around Urfa in respect from Taş Tepeler project.

Keywords: Gnammas, Geological structures, Epipalaeolithic and Early Neolithic, Taş Tepeler project

Geological, Geomorphological, and Geoarchaeological Investigations at the Sefer Tepe Excavation Site in Şanlıurfa

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Abstract: Our study examines the geological, geomorphological, and geoarchaeological features of the Sefer Tepe excavation site located in the Viranşehir district of Şanlıurfa. The area hosts the complex tectonic structures of Southeastern Anatolia and is situated on limestone formations dating back to the Miocene era, playing a crucial role in preserving artifacts and ancient settlements. Geological surveys around the excavation site have documented the region's rich fossil content and stratigraphic characteristics. Furthermore, the impacts of volcanic activities on the geological history and subsequent erosion processes have been detailed. Methodologically, field studies, fossil analyses, and stratigraphic measurements were conducted. The findings indicate that the limestone units at Sefer Tepe are from the Early Miocene and suggest that the area was once a marine environment in ancient times. Small artifacts, such as beads found during the excavation, were determined to be made of natural stones, potentially jade, serpentine, or labradorite. Additionally, a potential quarry area was discovered north of the excavation site. This study highlights the geological and archaeological significance of Sefer Tepe and contributes to a better understanding of the ancient settlement dynamics in the area. Ongoing research aims to provide further insights into the geological past and archaeological potential of the region.

Keywords: Sefer Tepe, Geoarchaeology, Geology, Geomorphology, Şanlıurfa

The Early Holocene (ca. 12,000-8000 BP) Paleoclimate of Anatolia: Assessing the Long-term Climate-Human Interactions

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Abstract: There has been a complex and dynamic interaction between human societies and climate. The changes in the past climate impacted not only the topography and the biostrata, it also shaped the co-evolution of human societies with their immediate environments. The Anatolian Peninsula always displayed immense ecological variability, which resulted from the topographic and atmospheric conditions of Anatolia. As the Neolithic research continues to reveal more data pertinent to Neolithic lifeways, there are more venues to assess the past human-environment interactions during this transformative era in the history of humanity. This presentation will focus on comparing different regions of the Anatolian Peninsula for their paleoclimatic (i.e., annual average precipitation and temperature) patterns through the perspective of global circulation and synoptic models during the Early Holocene (ca. 12,000-8000 BP). The comparison of the paleoclimate model results with multi-proxy based paleoclimatic reconstructions through pollen and isotope will clarify the intensity and direction of the long-term paleoclimatic changes. Against this complex background, the presentation will also make a comparative assessment human-environment interactions during the Neolithic between arid and non-arid regions of Anatolia. Such comparison will reveal important insights into how early food-producing economies adapted to the changes in their immediate environments.

Keywords: Anatolia, environmental proxies, modeling, Neolithic, paleoclimate

The impact of environmental changes on semi-submerged neolithic sites in eastern Sicily

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Abstract: Coastal sites in the vicinity of natural harbors, in inland geographic contexts, are considered an important pole for the advent of the neolithization process. There is substantial evidence that during the Neolithic in eastern Sicily, human settlements very close to the seaside were not static. They experienced a highly variable environment affected by devastating natural events between 7000-5000 BC. This contribution will focus on the results from aerotopographic and paleogeographic analysis from sites today partially underwater due to eustatic sea level changes and other factors such as tectonic uplift. These findings illustrate how ancient communities adapted to their changing surroundings, showcasing resilience and resourcefulness. Understanding these dynamics is crucial for reconstructing settlement patterns and subsistence strategies. This information is combined with data from material culture and paleoecology to reconstruct a wider scenario. Additionally, these analyses shed light on broader environmental shifts and their impact on human activities, offering valuable insights into early human-environment interactions and the adaptive strategies employed by prehistoric communities in response to climatic and geological changes. The integration of these data points provides a comprehensive view of how early Neolithic societies navigated and thrived in a dynamic landscape, reflecting their ingenuity and adaptability in the face of environmental challenges.

Keywords: Interdisciplinary, Neolithic, geomorphological process

The Ecosystems and Biological Diversity of Taş Tepeler

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G28

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Abstract: Southeastern Anatolia epitomizes a blend of historical depth and ecological richness, with Taş Tepeler standing out as a symbol of this region. This study meticulously examines Taş Tepeler's biogeographical structure, vegetation, and animal diversity, offering a multifaceted view of its natural complexity. Synthesizing insights from previous research, it provides a comprehensive overview of the region's biological richness, crucial for understanding its ecological dynamics. The study also addresses the impacts of human activities on biodiversity, emphasizing the need for conservation efforts amidst ongoing development pressures. By highlighting existing conservation programs, it proposes strategies to reconcile developmental imperatives with environmental preservation. Beyond ecological concerns, the research intersects with cultural heritage conservation by complementing prehistoric archaeology. It underscores the intrinsic link between ecological sciences and cultural heritage, presenting recommendations to bolster conservation initiatives. In essence, this study transcends disciplinary boundaries to explore Southeastern Anatolia's intertwined natural and cultural heritage. By advocating for sustainable practices and conservation strategies, our work reiterates Taş Tepeler's invaluable legacy for future generations, bridging the past with current ecological conditions.

Keywords: Biodiversity, Anatolia, Landuse, Heritage, Conservation

Geographical Characteristics and Transformations of Neolithic Settlements: A Spatial Analysis of Anatolia and the Taş Tepeler Complex

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G28

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Abstract: In the settlement history of Anatolia, the Taş Tepeler complex in southeastern Turkey, specific to the Neolithic Period, prompts a reevaluation of our understanding of human-environment relationships. As a complex of settlements with various characteristics, Taş Tepeler stands in stark contrast to contemporary settlement patterns, situated in a marginal area with arid and hot conditions when viewed in the context of modern ecological conditions. This contrast has increased interest in understanding the paleoecological characteristics of Neolithic settlements. This study aims to synthesize the primary geographical variable groups of topography, geology, soil, and paleoclimate, including their sub-variables, within geographic information systems. Additionally, by integrating archaeological data with geographical variables on a synthesis basis, the environmental characteristics of settlements within Southeastern Anatolia and the Taş Tepeler complex will be quantitatively and comparatively revealed through spatial analyses conducted with geographic information systems. Through this study, spatial information regarding the geographical characteristics of Neolithic settlements in Anatolia and Taş Tepeler has been obtained by synthesizing the characteristics of the period with those of the present day. By addressing Taş Tepeler in the context of archaeology and geography, this study offers an approach to representing the human-environment relationship.

Keywords: Anatolia, Taş Tepeler, Neolithic Settlements, Geographical Variables, Spatial Analysis

REGIONAL NEOLITHIC

Southwest Asia and Anatolia

R01 - Pathways of Pastoralism: The Dispersal of Herding Practices in Neolithic Southwest Asia

Session Organiser

Özlem Sarıtaş / Hitit University, BIAA, Türkiye
Derya Silibolatlaz / Gaziantep University, Türkiye

Abstract

The dispersal of herding practices during the Neolithic period represents a significant milestone in human history, reshaping societies, and landscapes across Southwest Asia and beyond. This session aims to delve into the intricate processes and impacts associated with the spread of pastoralism, exploring the movement of herding practices and their profound influence on Neolithic communities. Through an interdisciplinary lens, we will examine the origins, trajectories, and mechanisms of herding dispersal and the socio-economic and environmental transformations it engendered. Key themes will include the routes of herding expansion, the interaction between herders and indigenous agriculturalists, and the ecological implications of pastoralism. These presentations will highlight the latest archaeological findings, genetic studies, and environmental data that illuminate the patterns and drivers of herding dispersal.

Participants will gain insights into:

- The initial domestication and management of livestock and their subsequent spread across Neolithic landscapes.
- The role of environmental factors and climate change in shaping herding routes and practices.
- The social and economic impacts of pastoralism on Neolithic communities, including changes in settlement patterns, trade networks, and cultural exchanges.
- The adaptive strategies herders employ in diverse ecological zones and their interactions with sedentary agriculturalists.

This session will provide a comprehensive understanding of how herding practices are disseminated across Southwest Asia, transforming human-animal relationships and ecosystems. Attendees will leave with a deeper appreciation of the complexity and dynamism of Neolithic pastoralism and its lasting legacies. Join us for an engaging exploration of the pathways of pastoralism and the critical role of herding in shaping the Neolithic world. This session promises to offer valuable perspectives for scholars and enthusiasts interested in the history of human-animal interactions and the development of ancient societies.

Cattle Cults, Social Symphysis and Pastoral Systems in the Southern Arabian Neolithic

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R01

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²Ohio State University, Department of Anthropology

Abstract: Regardless of the actual origins of domesticated cattle in the Arabian Neolithic, evidence from southern Arabia suggests an independent emergence and development of mobile pastoral systems and the social networks supporting them. This paper firstly presents the picture of developing animal-based subsistence systems through the Neolithic of the Hadramawt region of Southern Arabia; we then contextualize this within a broader synthesis of Arabian and East African zooarchaeological evidence, alongside paleoenvironmental data for Neolithic landscape changes. Specific consideration is given to the rhythms of likely milk-producing cattle subsistence under monsoon seasonality. The aim is to: i) assess influences on the emergence of mobile pastoralism in Arabia; ii) explore the role of east African connections, particularly in relation to animal subsistence and cult sites; iii) challenge the dominance of diffusionist models of Levantine pastoral expansion. This paper underscores the significance of local adaptations over simple diffusionist models predicated on outdated core-periphery concepts.

Keywords: Cattle, Domestication, Arabia, Neolithic, Pastoralism

Evolution of Herding Practices: The Dispersal of Sheep and Goats from the Epipaleolithic to the Neolithic in Anatolia.

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R01

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Abstract: The transition from the Epipaleolithic to the Neolithic period marks a pivotal era in human history, characterized by significant advancements in agricultural and herding practices. This study investigates the domestication and dispersal of sheep and goats in Anatolia, exploring the socio-economic and environmental factors that influenced herding strategies from approximately 12,000 to 7,000 BCE. Our research synthesizes archaeological evidence, including faunal remains, settlement patterns, isotopic analyses, and genetic analysis to reconstruct early herding practices in this region. By examining sites such as Pınarbaşı, Boncuklu Hoyuk, Canhasan III and Suluin Cave, we trace the gradual shift from hunting-and gathering to pastoralism reliant on the herding of sheep and goats. These sites provide a comprehensive view of how early Anatolian communities managed livestock, adapted to changing climates, and developed new subsistence strategies. The findings reveal a complex interplay between human innovation and environmental adaptation. The initial stages of animal management involved selective hunting, followed by the establishment of controlled breeding programs. This progression was facilitated by climatic stability and the availability of diverse ecological niches in Anatolia, which supported the integration of herding into existing subsistence frameworks. The domestication of sheep and goats reflects not only technological advancements but also signifies profound shifts in human-animal relationships and economic structures. These developments had far-reaching implications, setting the stage for the rise of complex societies and agricultural economies in the Near East. To sum up, the dispersal of herding practices in Anatolia represents a cornerstone in the broader narrative of Neolithic innovations.

Keywords: Anatolia, sheep and goat domestication, herding practices, Neolithic, pastoralism

Exploring Pig Domestication During Pre Pottery Period B (PPNB) at Gre Filla in the Upper Tigris Region, Southeastern Turkey

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R01

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Abstract: Neolithization, characterized by radical changes in people's lives, their relation to each other, and with the environment, which is considered an important phase of human history. The core area of primary Neolithization, covers southeastern Anatolia and eastern part of central Anatolia. The archaeology of the Upper Tigris Region is marked by salvage excavations carried out in the flood zones several dams built on the upper basin of the Tigris River; Ilisu Dam. Gre Filla is currently among the settlements during Pre Pottery Neolithic (PPN A-B). The domestication of pigs in the Near East is a topic of ongoing research and debate among archaeologists and geneticists. While the exact timing and mechanisms of pig domestication in this region are still not fully understood, several hypotheses have been proposed based on archaeological evidence and genetic studies. The purpose of this study is to shed light on the understand the timing, process and impact of pig domestication at least as regard as Near East during the PPNB period. Additionally, wild boar remains were collected from cult area number 15. The evidence gathered here is crucial for understanding the routine and importance of wild boars in ritual activities during the PPNB period at Gre Filla. Therefore, understanding the functions of wild boars in ritual areas is also one of the objectives of this study.

Keywords: Upper Tigris; Gre Filla; Pre-Pottery Neolithic; Pig domestication; Southeast Turkiye.

Human-Animal Relations at Sırçalıtepe

Gülçin İlgezdi Bertram¹, Banu Öksüz², Semra Balcı³

R01

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Abstract: Human-Animal Relations at Sırçalıtepe Gülçin İlgezdi Bertram, Kırşehir Ahi Evran University Banu Öksüz, KUDEB, İstanbul Büyükşehir Belediyesi Semra Balcı İstanbul University Sırçalıtepe is a site dating to the Pre-Pottery Neolithic in the province of Niğde in Central Anatolia (Cappadocia). It is located very close to the Göllüdağ and Nenezi obsidian sources. Two C14 samples obtained from the excavation give dates of ca. 7600-7300 cal. BC. The site has an important potential for understanding the 8th millennium inhabitants of the region. Archaeological excavations at Sırçalıtepe have been ongoing since 2019. So far, two areas have been excavated: The western section (Trench 6L) with an obsidian workshop and the eastern slope (Trenches 11J and 10J) with settlement fill. In the settlement area, the remains of mudbrick walled, quadrangular/almost rectangular trapezoidal buildings with ovens/stoves, some of which were built in a contiguous order with red painted lime bases, were unearthed. In addition to these spaces, an area thought to be a garbage dump was also identified. Sırçalıtepe, with its rich obsidian finds and mudbrick architectural tradition, provides new information about the 8th millennium BC Neolithisation process of the Central Anatolia Region (Cappadocia). Zooarchaeological research started here in 2021. The studies focused on human-animal relations and domestication. It is seen that the subsistence economy in the settlement was based on sheep/goats and cattle. Pigs are almost non-existent. **Keywords:** Zooarchaeology, Central Anatolia, Pre-Pottery Neolithic, Sırçalıtepe, Human-Animal relations

Keywords: Zooarchaeology, Central Anatolia, Pre-Pottery Neolithic, Sırçalıtepe, Human-Animal relations

Unveiling Neolithic Dispersal: Early Cattle Herding in the Highlands of Central Anatolia, Tepecik Çiftlik

Can Yümni Gündem¹

R01

¹Batman University

Abstract: Title: Unveiling Neolithic Dispersal: Early Cattle Herding in the Highlands of Central Anatolia, Tepecik Çiftlik
Can Yümni Gündem
Abstract: Tepecik-Çiftlik Höyük is a significant archaeological site located on the southeastern central Anatolian plateau. Its continuous occupation history spans from the Early Neolithic to the Late Roman/Byzantine periods. This multi-period site provides a unique opportunity to study the long-term developments in human settlement and subsistence strategies. This research focuses on the results of comprehensive archaeozoological research conducted on the Early Neolithic layers of Tepecik-Çiftlik Höyük. Our findings reveal critical changes in the region's animal economy, marked by the introduction and establishment of domestic cattle herding. Detailed analysis of faunal remains indicates a transition from a predominantly hunting-based subsistence strategy to increasingly relying on managed livestock, specifically cattle. This shift reflects broader patterns of Neolithic dispersal and domestication and highlights the adaptive strategies employed by early human communities in response to environmental and socio-economic factors. The emergence of domestic cattle in the pastures of Tepecik-Çiftlik Höyük signifies a major development in the Neolithic period, contributing to our understanding of early agricultural practices and their impact on landscape transformation. By integrating zooarchaeological data with contextual archaeological evidence, we aim to reconstruct the dynamics of human-animal interactions and their role in shaping the cultural and ecological landscape of Central Anatolia during the Early Neolithic. This research provides valuable insights into the processes of domestication, animal husbandry, and the spread of agricultural communities across Anatolia and beyond.

Keywords: Archaeozoology, Cattle Herding, Central Anatolia, Neolithic

Does the emergence of domestic animals coincide with pastoralization?: The rapid introduction and delayed development of livestock economy in the Southern Caucasus

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R01

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Abstract: A series of archaeological missions during the past two decades have confirmed that Neolithization in the Southern Caucasus took place around 6,000 BCE, when numerous farming villages appear in alluvial plains along the tributaries of two major rivers: Kura and Araxes. In this paper we examine the pastoralization process of the region based on the analyses of faunal materials from three archaeological sites in West Azerbaijan. The result here can be summarized as below. 1) Four main livestock (sheep, goats, cattle and pigs) were rapidly introduced in the animal economy of the region. 2) But the young male kill-off and exploitation of secondary products (milk or wool) only appear in the later phase of Neolithic period, while the demographic profiles of caprine from the earliest Neolithic sites display exclusively meat-oriented pattern. Regarding young male kill-off and use of secondary products as the typical pastoralist strategy, which was already established in the Southwest Asia where Caucasian livestock originated, it can be interpreted as that the first farmers of the region exploited their livestock in a different, more hunter-like manner. On the other hand, the demographic pattern for caprine from the later Neolithic would indicate a local development of animal management.

Keywords: Southern Caucasus, Neolithization, Young male kill-off, Secondary products

R02 - Before the Neolithic: Epipalaeolithic and Mesolithic Communities in Anatolia and Surrounding Region

Session Organiser

Çiler Altınbilek Algül / Istanbul University, Türkiye

Çiğdem Atakuman / Middle East Technical University, Türkiye

Douglas Baird / Liverpool University, UK

Semra Balcı / Istanbul University, Türkiye

Abstract

Many features of the Southwest Asian Neolithic seem to have gradually emerged during the Epipaleolithic period. For this reason, the detailed study and interpretation of archaeological data from the late Pleistocene and often beginning of Holocene in particular areas is extremely important for understanding the Neolithization process of the larger region. Although the Epipalaeolithic period is well defined in the Southern Levant, our knowledge from sites in Anatolia, the Aegean Islands, Cyprus and the Northern Levant is limited. An important factor has been the lack of research on the late Pleistocene in the region outside the Southern Levant. This situation is gradually changing with the recent discoveries of Epipaleolithic and Mesolithic sites in various areas of Anatolia, indicating that the potential of the region is much higher than initial perspectives.

The aim of this session is to re-evaluate the presence and nature of the Epipalaeolithic and Mesolithic communities of Anatolia, the Aegean Islands, Northern Levant and Cyprus in light of recent discoveries. In this respect, presentations are expected to focus on material cultures, regional variability, residential strategies and mobility, subsistence and economy, responses to climate and environmental changes, long-distance relationships and socio-cultural networks, and choice of settlement areas. Furthermore, we also welcome the discussion of ancient DNA studies regarding the early pre-Neolithic contexts in SW Asia.

Climatic and Environmental Dynamics in Anatolia: From the Last Glacial Maximum to the Early Holocene

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R02

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Abstract: During the period from the Last Glacial Maximum (LGM) to the Early Holocene, Anatolia's environmental landscape underwent significant transformations influenced by climatic and vegetational changes. During the LGM (approximately 26,000-19,000 years ago), Anatolia experienced cold and arid conditions, with steppe vegetation dominating the interior regions while forested areas persisted along the Black Sea and Mediterranean coasts. The Younger Dryas (approximately 12,900-11,700 years ago) brought a return to cooler and drier conditions, disrupting earlier patterns of warming and increased precipitation. As Anatolia transitioned into the Early Holocene (approximately 11,700-8,200 years ago), the climate ameliorated, becoming warmer and wetter. This period is characterized by the expansion of forest biomes, particularly in western and northern Anatolia, fostering the growth of mixed oak and coniferous forests. The shift in vegetation was paralleled by the development of human societies, moving from mobile foraging to more sedentary agricultural practices. These environmental changes, characterized by alternating periods of stability and fluctuation, profoundly impacted the region's biodiversity and human adaptation strategies. This study aims to examine pollen records, lake sediments, and archaeological data obtained from Buldan-Yayla, Paleokuleönü, and Eber lakes, as well as the Sultansazlığı marsh in Anatolia. By analyzing these sources, the research seeks to reveal how climatic variability influenced settlement patterns, subsistence strategies, and the broader Neolithization process in Anatolia and its surrounding regions. Understanding these dynamics provides valuable insights into the resilience and adaptability of ancient human communities to environmental changes.

Keywords: Anatolia, Palynology, Paleoenvironment, Glacial-Interglacial Transitions, Holocene

A New Epi-palaeolithic Site in Western Taurus: Kızılın

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R02

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Abstract: Kızılın is situated in the rural area of Yağca neighbourhood, Çakmak locality in the Döşemealtı district of Antalya province. It is situated at an altitude of 407 metres above sea level. The unlit inner part of the cave is characterised by a very sloping terrain, and no excavations have been carried out in this area. Excavations are only conducted in the terrace. Apart from the partially natural eroded layers at the top, the settlement is almost undisturbed. New excavations have been ongoing since 2018. The analysis of chipped stone artefacts indicates that the Epi-palaeolithic Period at Kızılın must have continued until the 11th millennium BC. However, the latest definite dates are within the 14th millennium BC. In this area, both geometrical and non-geometrical microliths were found together, and a core chipping strategy with more unidirectional inferences was encountered. Two sandstone figurines were recovered from this late unit. One of the figurines is a human head with a broken and missing body. It is probable that this is a female figurine. The other figurine is a human figurine with a complete but unworked face, arms and legs. It may be a twin. The dating of the lower layers, represented by technically bidirectional cores and typologically non-geometric microliths, to the 20th millennium BC indicates the presence of Early Epi-palaeolithic finds at Kızılın.

Keywords: Türkiye, Kızılın, Epi-palaeolithic, Chipped stone, Figurine

Epipaleolithic Layers of Karain B (Mediterranean Region, Turkey)

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R02

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Abstract: Karain, which has the longest occupied cave in Turkey, is located on Katran Mountain, Western Taurus. The Epipaleolithic levels, which consist of three units (PI.1, PI.2, PI.3) in the chamber B, provide important data on the cultures and economies of the hunter-gatherer groups at the end of the Pleistocene. These levels, dated between 20.600-16.990 BC, provide rich data in terms of lithics, faunas, ornamentals and fire areas in the LGM, the coldest phase of the Pleistocene. The lithics are characterized by the blade/bladelet industry, which is produced from uni/bidirectional prismatic cores. The tools consist of macro and micro types. Among the macroliths, endscrapers predominate, and they are accompanied by denticulated, notched, retouched blades and burins. Among the microliths, non-geometric backed bladelet exhibit a dominant technology. Very dense remains of fauna have been found at Epipaleolithic levels. Among them, the macrofauna stands out and the vast majority are fractured. These fractures are usually related to butchering processes. To a lesser extent, marine and terrestrial mollusk shells are encountered. These may have played a role in nutrition, but they were also used by beading. The bone tool industry consists of awls and needles. Considering the finds and other centers in the close vicinity, the Karain B has a key role in establishing the Epipaleolithic chronology of the region.

Keywords: Karain, Mediterranean, Lithic technology, Epipaleolithic, Hunter-gatherer

Epipalaeolithic Hunter-Gatherers of the Central Taurus: Eşek Deresi Cave (East Mediterranean/Türkiye)

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R02

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Abstract: The natural passes within the Central Taurus Mountains and the Cilicia region have been an important land bridge between Central Anatolia in the north and the Levant in the south. However, in addition to this characteristic, the region seems to have been homeland to communities since the early prehistoric periods, likely due to favourable living conditions. Eşek Deresi Cave, located in a valley extending northwards at the foothills of the Central Taurus Mountains, is one of the archaeological sites discovered in Anatolia by chance in recent years. The discovery of artefacts exhibiting Natufian characteristics of the Southern Levant during the surface surveys was the primary reason for initiating the excavations at the site. Among the finds, there are lunates, large number of ground stones, small pendants, dentalium shells and an incised stone. According to the data obtained so far, the Epipalaeolithic levels of the site are dated between 13.300 BC and 10.631 cal BC (2 sigma). One significant feature of the site is that the settlement, which began during the temperate Bølling-Allerød period, continued through the cold and arid Younger Dryas. There are very few sites dating to the Younger Dryas in Anatolia, making Eşek Deresi Cave particularly significant in this regard. This contribution aims to highlight different aspects of the most recent work in the cave by our team, focusing particularly on the contextualization of the site in a wider socio-cultural and economic context.

Keywords: Epipalaeolithic, East Mediterranean, Eşek Deresi Cave, Hunter-Gatherers, Anatolia

New light about the Epipaleolithic in Cyprus: the settlement of Pakhtomena

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R02

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Abstract: Until now, the Epipaleolithic period in Cyprus was documented by two small sites dated to the 11th millennium B.C. Recent research at Pakhtomena, in the south of the island, recently provided new data on the occupations that preceded the first Neolithic settlements. We present here the preliminary results of this research, which revealed the rests of a temporary settlement characterised by various stone structures sealed by a thick Holocene palaeosoil. The radiocarbon dates place this occupation at the end of the Bölling-Alleröd climatic phases. It is currently the earliest Epipaleolithic site in Cyprus, raising the question of early contacts between the island and the mainland in the eastern Mediterranean.

Keywords: Epipalaeolithic, Cyprus

The Epipalaeolithic in central Anatolia; excavations at Pınarbaşı

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R02

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Abstract: The Epipalaeolithic of the Fertile Crescent demonstrates evidence of a range of developments in settlement, mobility, symbolic expression, relationships with plants and animals and adaptation to climate change. In addition, these seem quite variable around the Fertile Crescent. Excavations at Pınarbaşı provide important insights into the nature of Epipalaeolithic occupation of the Anatolian plateau and the extent such developments are witnessed there. We present evidence from the 2004 excavations, ongoing work on the 2004 material and some of the recent results from renewed work with insights into nature of occupation, seasonality and mobility, symbolic behaviours, aDNA results from humans and animals, human interactions with plants and animals. We put these results into comparative perspective with the Epipalaeolithic of the Fertile Crescent.

Keywords: Epipalaeolithic, Anatolia, sedentism, mobility, symbolism

A General Overview of the Epipaleolithic Cultures of Direkli and Yusufun Kayası Caves and Material Culture Assessment

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R02

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Abstract: A General Overview of the Epipaleolithic Cultures of Direkli and Yusufun Kayası Caves and Material Culture Assessment. Direkli and Yusufun Kayası Caves are located in a geography within the borders of the Mediterranean Region of the Anatolian Plateau. Both caves represent two different stages of a cultural period in different ecological niches of this geography, in different locations. The cultural period represented mainly includes the Epipaleolithic material cultures defined in the Eastern Mediterranean geography. The cultural fillings of both caves, which represent the beginning and end of a cultural structure explained as Natufian in particular, have presented us with an industrial continuity consisting primarily of chipped stone and spatial arrangements that can be explained with abstract concepts. When these concrete and abstract findings are analyzed by taking into account their locations, they enable us to reach an end-Epipaleolithic cultural structure with Anatolian characteristics. In the Epi-Paleolithic cultures with Anatolian characteristics, the hunter-gatherer economy was slightly exceeded and differences in the nutritional economy began to emerge. This contributed significantly to the development of the pioneering behavioral models that opened the door to Neolithization.

Keywords: Epipaleolithic, Direkli Cave, Yusufun Kayası Cave, Anatolia, Production and management

Natufian phenomenon in the northern Levant: A case at Dederiyeh Cave, North Syria

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R02

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Abstract: The Natufian is a late Epipalaeolithic cultural entity that is believed to have emerged in the southern Levant in the 15th millennium BCE and then spread northward. Since it is regarded as the antecedent of the Neolithic cultures that followed, studies on its development in subsistence economy, social organization, and material culture are essential for understanding the origins of the Neolithic of the Levant. However, most of the previous studies have concentrated on the southern Levant, namely the Natufian “homeland,” while the potentially comparable entities in the northern Levant and further beyond are still to be defined. In light of the recent progress in the ongoing research on the Epipalaeolithic–Neolithic transition in Southeast Anatolia, it would be useful to review the findings of Natufian research in the northern Levant. In this paper, we summarize the Natufian findings from the northern Levant, focusing on the Dederiyeh Cave in northwest Syria. The Natufian occupations at Dederiyeh Cave are known to have lasted from at least the second half of the 15th to the end of the 14th millennium BCE. Given its location on the current Turkish border, the cave provides a valuable reference point for evaluating new materials emerging in Anatolia.

Keywords: Terminal Pleistocene, Sedentary hunter gatherers, East Asia, Horticulture, Complex society

The Epipaleolithic period in the Mardin Area

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R02

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Abstract: Recent archaeological excavations in the Boncuklu Tarla, Çemka Höyük, and Körtik Tepe settlements in the Upper Tigris Basin have provided a number of finds from the pre-PPNA Period, the Younger Dryas. The new data also opens up the concept of the Proto-Neolithic Period to discussion again, which has been controversial for a long time in the East Jazeera and Northwest Zagros Region. In this context, several sites discovered in Mardin area make it possible to re-examine the transition to sedentary life in Southeast Anatolia. These archaeological finds show that there were some semi-sedentary or sedentary communities in this region, which exhibits unique geographical and climatic features, starting with the Younger Dryas Period. This is different from the Natufian culture that is thought to have emerged in the Mediterranean temperate climate zone and is known only in the Southern Levant Region.

Keywords: Epipaleolithic, Mardin, Southeast Anatolia, Mesopotamia, Turkey

Late Epipaleolithic Hunter-Gatherers of Northwestern Anatolia: Ballık Cave, İzmir/Turkey

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R02

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Abstract: Ballık is an archaeological cave site located within the provincial borders of İzmir in western Turkey. The Pleistocene deposits in the site have been dated to Epipaleolithic period which is globally characterized by generally cold climatic conditions. The initial settlement of Ballık Cave occurred during the Bølling-Allerød interstadial period when the climate was comparatively warmer. The cave was occupied by hunter-gatherer groups for approximately a thousand years and was subsequently abandoned at the onset of the Younger Dryas, a period marked by a sudden cooling of the climate. According to the latest radiocarbon (C14) analyses conducted at TUBITAK-MAM, the deposits in Ballık Cave have been dated to 11,856-10,806 cal. BC. The cave is situated in a strategic location that potentially illustrates cultural interactions between the Aegean islands and contemporary sites in Anatolia. A total of 10,520 knapped stone artifacts were recovered during the excavations at Ballık Cave. This study focuses on the techno-typological analysis of these knapped stone artifacts. Additionally, the artifacts were compared with those from Epipaleolithic sites in the Aegean islands and Anatolia, revealing both similarities and differences.

Keywords: Epipaleolithic, Northwestern Anatolia, Hunter-gatherers, Lithic, Techno-typology

Gedikkaya Cave in North-western Türkiye: the Epipalaeolithic layer that connected to ritual activity

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R02

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Abstract: Gedikkaya Cave, in north-western Türkiye, was occupied during several distinct periods. The Epipalaeolithic occupations coincide with a period in which human populations appear to have been mobile for reasons that are still not fully understood, but which may have been associated with climatic events such those as following the Last Glacial Maximum (LGM). The cave likely served as a temporary or variable-term shelter for transient populations in these times. Artefacts dating to the Epipalaeolithic suggest links between European Upper Palaeolithic cultural entities and the Pre-Pottery Neolithic A cultures of Anatolia and the Levant. This paper discusses features from the Epipalaeolithic layers that appear to be connected to ritual activity. It considers the emergence of prehistoric rituals, and the chains of causation that may underlie a prospective 'ritual pit' that formed around a stalagmite, and some associated artifacts, which date to 14,500–11,200 BC. It is proposed that these are evidence for well-developed trans-regional cultural identities and complex symbolism structures in which ritual practices persisted across millennia.

Keywords: Epipalaeolithic, Ritual Pits, Gedikkaya Cave, Western Anatolia

Koskarlı Cave: The First Epipaleolithic Site Excavation in the Southeastern Black Sea Area

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R02

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Abstract: The prehistoric cultures in the Trabzon area are poorly understood due to the lack of insufficient archaeological data. Therefore, the Trabzon Survey Project (TYAP) started in 2018, and the first cave excavation, Koskarlı Cave, started in 2024, change the status of the prehistory of the south-eastern coast of the Black Sea region from what was once known as “terra incognita” to a region whose early prehistory is albeit partly much better understood than before. Koskarlı cave, situated in Düzköy district in Trabzon area is located at an elevation of 1020 m above the sea level. The lithic assemblages show the use of a variety of raw materials. Flint and obsidian artifacts are scattered on the floor, both at the entrance and inside the cave. Red, green, and yellow flint predominate. The sources of the raw materials are not known yet. The origin of the rare obsidian finds is also unknown. The cave is of great archaeological importance since it represents the first example of Epipaleolithic lithic artifacts in Pontides. Besides, the south-eastern part of the Black Sea Basin, in which also the Trabzon province is located, constitutes a transition area between Anatolia and Caucasus. This location makes the Trabzon area unique in terms of regional transit routes for prehistoric time periods as for today. In this presentation, the results of the first excavation season carried out in Koskarlı Cave in 2024 will be evaluated as part of both Caucasus and Anatolia-centered chrono-cultural discussions.

Keywords: Black Sea region, Epipaleolithic, Lunates, Trabzon, Cave excavation

Patterns of the Neolithization in the Aegean: A synthesis of Material Culture and a-DNA Evidence

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R02

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Abstract: The processes of Aegean Neolithization are still a paradox despite the increase in research over the last decade. Debates about the issue are often formed along opposing lines: demic diffusion vs. local acculturation. Within this context, the proponents of the demic diffusion hypothesis prefer to see the Aegean Neolithization as a result of westward human population migrations from the Levant and central Anatolia, whereas the proponents of the local acculturation hypothesis emphasize local development based on the lively presence of Mesolithic communities, interacting with the eastern Mediterranean, Anatolia, and the Greek mainland during the Late Pleistocene-Early Holocene time span, preparing the scene for alternative scenarios of Neolithization in the region. In an attempt to shed light on the issue, we collected multi-feature material culture data from 91 sites, covering the areas of Greece, Thrace, Anatolia, Levant, and North Mesopotamia) from a time period between 14000 and 5800 BC. Our data set involves the recording of 58 features that involve such data as obsidian, lithics, pottery, architecture, and post-mortem rituals. We discuss the results of these analyses with reference to ancient DNA findings of forty-three archaeological sites.

Keywords: Aegean Neolithization, ancient DNA

R03 - Unravelling the Knot: Network Approaches to the Study of the Neolithic Transition in Southwest Asia and Beyond

Session Organiser

Camilla Mazzucato / University of Copenhagen, Denmark

Abstract

Over the past decade the study of the past has been increasingly influenced by network thinking, a period in which archaeological research has seen a sharp increase in the use of network concepts and formal applications across different scales and methodologies. Network methods offer flexible and effective concepts and statistical tools for describing, investigating and analyzing how entities relate to other entities within complex and integrated structures. The flexibility of network methods is manifested in the wide range of approaches that have been applied to archaeological data that span from studies drawing on physics and complexity theory to others inspired by sociology or by Actor Network Theory (ANT), assemblage and entanglement theory.

Recent studies have revealed the Neolithic transition as a protracted and multi-centered process defined by a diverse landscape of social and subsistence strategies across Southwest Asia. Within this context, networks have been increasingly used as both conceptual devices and formal applications to model relations at different scales using diverse datasets. This workshop provides a venue for showcasing new research that applies network methods to the study of the Neolithic transition and for discussing how network representations and models can be of help in disentangling the way the Neolithization process developed in Southwest Asia and beyond.

Multiscalar and multiply-material: archaeological networks are not the poor relative of social networks but key to understanding the Neolithic transition in Southwest Asia.

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R03

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Abstract: Social network analysis has a long history of use for the study of social relationships and structures in extant human societies, and recent work has begun to explore its potential for studying the social changes which occurred in prehistory, including those which may have formed part of the Neolithic transition in SW Asia. However, archaeological applications of network methods necessarily rely on the use of material culture, rather than empirically observed social relations, to reconstruct past social networks. Here I argue that such an approach is more than simply a fallback borne of necessity and the 'absence' of 'better' data: the burgeoning development of specific network methods and theory for archaeological and historical datasets has demonstrated that the use of material culture, and indeed potentially multiple other lines of evidence, to help understand aspects of past networks actually offers some very positive benefits. In fact, the significance of material culture during the Neolithic transition in SW Asia makes specifically socio-material networks a particularly useful tool for understanding the long-term trajectory of change throughout this period. These benefits can be further realized by comparing and combining these socio-material networks with those which are increasingly being derived from other lines of evidence such as bioarchaeological and genetic datasets, as well as by explicit consideration of the multiple spatial and social scales of analysis allowed by network methods, within and between local communities and regional-scale networks. Such multi-modal and multiscalar approaches potentially offer invaluable insights into the way Neolithic societies and cultures developed.

Keywords: Networks, Material culture, Multiscalarity, Social relations

Modeling Obsidian Exchange Networks during the Establishment of Neolithic in Southwest Asia

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R03

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Abstract: The long-distance exchange of exotic objects is one of the hallmarks of the Neolithic origins. Many aspects of this trade are still enigmatic, such as the social organisation that made the transfer of objects possible or the implications of the regional interactions in the spread of Neolithic innovations. Obsidian is a privileged material for the study of trade, as the sources of origin of this rock are well known, and its distribution can be easily tracked along the Fertile Crescent. In previous papers, we showed that the down-the-line model, hypothesised by C. Renfrew as the mechanism of exchange by interaction between neighbouring villages, cannot convincingly explain the distribution of obsidian in archaeological sites. Instead of this regular network model, we suggested a complex one in which some sites were hubs allowing long-distance exchange. In this communication, we develop previous work through modelling obsidian trade in the Eastern wing of the Fertile Crescent, exploring the possible maritime transfer of obsidian to the Southern Levant and identifying sites that played the role of hubs in obsidian network exchange.

Keywords: Obsidian, Exchange, Social Complex Network, Modelling

Cilicia between Central Anatolia and the Levant: Evidence of obsidian exchange from the Epipalaeolithic to the Neolithic period

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R03

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Abstract: The sourcing of obsidian offers the possibility to trace not only the exchange of raw material but also the mobility of the people who carried it from the geological sources to the archaeological sites. Moreover, obsidian provenance studies can also track the technology-transfer across regions, concerning the spread of important prehistoric techniques employed in artefact knapping. Our presentation focuses on a key region in the south of Türkiye, Cilicia, which lies at the crossroads of several cultural areas. More specifically, we will present the preliminary results of the provenance studies of obsidian artefacts from Eşek Deresi Cave (Mersin), spanning between the Epipaleolithic to the Neolithic, alongside the outcomes from obsidian sourcing of the material coming from the extensive surveys of the Mersin-Adana region. The initial results from this contribution attempt to discuss the role of Cilicia, one of the largest plains in the eastern Mediterranean, as a focal point of cultural connections between Anatolia, the Levant and even Cyprus, as well as between plains and mountains, in a hypothetical “Levantine Corridor”, primarily based on obsidian. The discussion will also examine the communication routes and their ability to be resilient and withstand changes in the environment and socio-cultural advancements over time in this undoubtedly significant area.

Keywords: Cilicia, Obsidian sourcing, Exchange of raw material, Epipaleolithic, Neolithic

Using network variance to investigate social relations at a micro-scale. Socio-material archaeological networks and biological ties at Çatalhöyük

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R03

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Abstract: Recent advances in archaeogenomic studies made available to archaeological research a large amount of data that has the potential to further our understanding of past social dynamics, at different scales. However, to properly integrate these data within archaeological narratives, new methodological and theoretical tools are required. In this study we propose a Network Science framework to integrate material culture and archaeogenomic data at an intra-site scale and to investigate biological relatedness and material culture distribution at the Neolithic site of Çatalhöyük. Methodologically, we propose the use of network variance to explore the concentration of biological relatedness and material culture within networks of houses. This approach allowed us to observe how material culture similarity between buildings gives valuable information on potential biological relationships between individuals and how biogenetic ties concentrate at specific localities on site.

Keywords: Çatalhöyük, Network Science, aDNA, kinship, Neolithic

R04 - Socio-economic and Symbolic Changes During the PPN-PN Transition in the Near-East (7th millennium cal. BC): Paces, Causes and Processes

Session Organiser

Julien Vieugue / CNRS – French National Center for Scientific Research, France

Peter Akkermans / Leiden University, Netherlands

Arkadius Marciniak / Adam Mickiewicz University in Poznań, Poland

Akira Tsuneki / Tsukuba University, Japan

Abstract

The decisive shift made by the Near Eastern societies towards a fully developed Neolithic way of life (the so-called Second Neolithic Revolution) occurred during the 7th millennium cal. BC. This pivotal period is characterized by deep economic (eg. emergence of pottery, development of pastoralism), social (eg. emergence of villages structured in neighborhoods) and symbolic (eg. scarcity of burials, increase of figurines) changes. However, this major turning point in the history of Near Eastern communities remains poorly understood due to the fragmentation of research in terms of chronological periods (Pre-Pottery Neolithic vs Pottery Neolithic), geographical areas (Northern vs Southern Levant, Upper vs Lower Mesopotamia, etc.) and disciplines (physical anthropology, archaeozoology and archaeobotany, pottery and flint studies, etc.). This session questions the paces (When?), the causes (Why?) and the processes (How?) of the various changes that led to the consolidation of the Neolithic way of life during the 7th millennium cal. BC. in the different regions of the Near East. We would like to invite various scholars who have studied this historical transition from the thorough analysis of the multiple artefacts (stone and ceramic vessels; lithic tools; stone and clay figurines) and ecofacts (faunal and botanical remains; human bones) found at major stratified sites in the region (Mesopotamia, Levant and Anatolia). We will favor case studies comparing several categories of prehistoric remains or Neolithic villages.

And Now for Something Completely Different: Between the LPPNB and PN in the Early 7th Millennium

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R04

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Abstract: The catastrophic consequences of the 7,500-7,400 and the 7,200-6,900 BCE droughts radically changed the Neolithic in the Southern Levant; The first event caused the abandonment of all MPPNB settlements in the Rift Valley and west to the Mediterranean Sea and created the phenomenon of the growth of the LPPNB megasites in the Jordanian highlands. In consequence, MPPNB social principles no longer sufficed to satisfy the for the densely packed conglomerations of residents from different areas of the region. LPPNB transformations of social organization, architecture, and – above all – ideology only minimally resembled earlier cultural forms. The second event witnessed the onset of another devastating decline in population, and the subsistence economies of the megasites failed almost entirely, and by 6,900 BCE, megasites were either abandoned or resident populations reduced significantly as the descendants of the early migrants to the megasites dispersed back towards the western and southern parts of the region. As culturally different as the LPPNB was from the MPPNB, the sociocultural configuration of the PPNC/FPPNB villagers of the early 7th millennium bore little resemblance to the LPPNB complexity in all respects. Changes in food storage practices set the stage for the subsequent emergence of mid-7th millennium use of ceramic containers for storage and processing of food products.

Keywords: PPNC/FPPNB, Social organization, Ideology, Megasite, Migration

Understanding socio-economic and symbolic changes during the PPN-PN transition in the Levant: the renewed excavations at Sha'ar Ha`Golan

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R04

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Abstract: The decisive shift made by the Levantine societies towards a fully developed Neolithic way of life occurred during the 7th-millennium cal. BC. This process was accompanied by deep economic (emergence of pottery, development of pastoralism), social (emergence of proto-cities), and symbolic (scarcity of human burials, increase of anthropomorphic figurines) changes. However, the cultural processes that led to this major turning point remain poorly understood due to the scarcity of refined stratigraphic excavations of the Pre-Pottery Neolithic/Pottery Neolithic transitional layers (6600-6200 cal. BC). Because it has a unique stratigraphic sequence (2m thick) covering the entire 7th millennium cal. BC, the village of Sha'ar Ha`Golan is a key site for explaining the various changes that characterize this historical period. We will present here the new excavation project undertaken on this major open-air settlement located in the Upper Jordan Valley - in particular, the scientific issues and the excavation methodology, as well as the results of the first three excavation seasons.

Keywords: Second Neolithic Revolution; Southern Levant; 7th millennium cal. BC; Yarmukian culture

Change or Break? Elements for the analysis of the transition between the PPNB and the PN. Observations based on the data from Tell Halula (Middle Euphrates Valley, Syria).

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R04

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Abstract: The end of the 7th millennium and the transition between the phases known as the PPNB and the PN constitute one of the most interesting cultural and socio-economic developments for the study of Neolithic populations in the Near East. Archaeological records show significant variations affecting various areas such as settlement distribution, technologies, burial practices, etc. What historical explanation can be given for this change? Interpretations by different schools and/or authors have emphasized both causal variants of a climatic nature, as well as population variations/change or the need to generate economic changes driven by resource overexploitation and exhaustion of the economic model. These general interpretations undoubtedly require a dialectical relationship with the data and their confrontation with the review/regeneration of explanatory hypotheses. This communication attempts this type of analysis based on the data and studies carried out for the site of Tell Halula (Euphrates Valley, Syria) in its regional context, and particularly with the data generated for this same type of study in the northernmost part of the Euphrates Valley, now in the territory of Turkey, in Akarcay Tepe (Bireçik).

Keywords: Halula, Middle Euphrates Valley, Pottery Neolithic, PPNB

From Boncuklu to Çatalhöyük; transformations in 8th Millennium BC central Anatolia from 'PPN' to 'PN'.

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R04

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Abstract: This paper will examine the nature of transformations through the 8th millennium cal BC in inter-related aspects of social practices, household behaviour, mobility, plant and animal exploitation, and community interactions in the Konya plain. It will utilise the richly textured evidence base supplied by the proximate sites of Boncuklu and Çatalhöyük, bridging the beginning and end of the 8th millennium, to understand a localised transformation to the PN involving continuities and change. We also put these also in a broader framework provided by other sites in the plain and central Anatolia more generally.

Keywords: Anatolia, continuity, change, households

Animal economy during PPN-PN transition: Dispersal of domestic ungulates to the eastern upper Tigris basin and beyond

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R04

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Abstract: Upper Tigris and Euphrates basin in southeastern Turkey/ Northern Syria was a core region of domestication of sheep, goats, cattle and pigs in the PPNB period. The faunal data from Çayönü that covers the entire PPN and early PN, early PN Salat Cami Yanı and Sumaki Höyük are compared in this paper, allowing to examine the changes in animal resource exploitation over 3000 years in southeastern Anatolia. Further east, we will also examine the faunal remains from Jarmo in the foothills of the Zagros mountains. The process of domestication took at least 1000 years to complete until the practice of livestock keeping prevailed in the end of PPN. In the domestication center, domestic ungulates became dominant in the faunal assemblage by the end of Late PPNB, while hunting of local wild mammals continued whenever possible. These domesticates accompanied the PN settlers when they began to form early PN settlements in the eastern part of the upper Tigris region. By 5000 BCE, domestic ungulates were introduced to the Caucasus.

Keywords: Domestication, Neolithic, Ungulates, Upper Tigris, Southeastern Anatolia

Populations and Burial Practices at The End of the Pre-Pottery Neolithic Period in Southern Levant (7100-6300 Cal BC): Cultural and Biological Aspects of Shifting Agro-Pastoral Societies.

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R04

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Abstract: The first half of the 7th millennium BC, also known as the Pre-Pottery Neolithic C (PPNC), was a chaotic period. The settlements flourishing during the end of the 8th millennium were abandoned during the first half of the 7th millennium, hence the term "Palestinian Hiatus" proposed by J. Perrot. While the occupation of sites in the northern Levant continued and ceramics gradually emerged, a real cultural break was described for the southern Levant. Indeed, the main sites were almost abandoned, and smaller settlements appeared, which suggests that communities were highly mobile. In this context, ceramics in the southern Levant appeared 500 to 700 years later than in the northern Levant on a massive scale (Early Pottery Neolithic: 6300-5900 Cal BC). The numerous burials recently uncovered have allowed us to tackle the early 7th millennium question. Analyzing funerary archaeology and biological anthropology through those burials enabled us to observe the funerary treatments and certain social practices of populations that were completely unknown and yet the main protagonists of the last stage of the Neolithic process in the Levant. The results suggest a continuity between the PPNC and the rest of the Pre-Pottery Neolithic periods: individuals are buried in the habitat, in a wide variety of positions and orientations. However, new funerary practices, as the earliest evidence of cremation, emerged during the PPNC. Several of these traditions were observed during the subsequent period, the Early Pottery Neolithic, when the deceased were not allowed in the inhabited area.

Keywords: Pre-Pottery Neolithic, Funerary archaeology, Treatment of the dead, Southern Levant

The Transition of the Relationship between the Living and the Dead from PPN to PN Societies: Tracing Funeral Practices

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Abstract: Keeping the dead close to the living was common during the long development of Neolithic societies in the Near East. Dying was not only part of life cycle; the dead, especially their bodies, were part of life too. The living-dead relationship, funerary practices and burial places witnessed major changes and shifts during the development of the Neolithic societies. During the Pre-Pottery Neolithic periods (PPN), there was a strong buildings-burials relation, which is intertwined with the ancestor's-related transformation, and memory and identity-based funerary rituals such as removing and plastering the skulls. Despite these customs persisted into the Pottery Neolithic period (PN), they sharply decreased, and the dead were gradually liberated from homes to crowded outdoor cemeteries such as in the northern Levant. The changes in the location of the burials and the decline in building-burials relation might be attributed to the social changes during the transition from the PPNB to the PN periods. People in the PN period did not maintain a fixed ancestral place as in the PPN periods, rather, there was diversity in the burial context and places that reflected the diversity of household practices and indicated increased household autonomy. This paper presents the association between the living and the dead and the role of funeral practices in the life of Neolithic societies and determining the burial place.

Keywords: PPN-PN transition, funerary practices, living and the dead, burial location, social changes

The PPN-PN Transition in Lithic Technology: Insights from Tell el-Kerkh in northwestern Syria

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Abstract: The PPN-PN transition has long been a subject of debate in the prehistory of the Levant. Many researchers view the decline of PPNB material culture as indicative of a collapse in PPNB communities. One notable aspect of this decline is seen in lithic traditions. Specifically, some researchers have highlighted the abandonment of the bidirectional blade technology of the PPN type (traditionally known as naviform technology) and the reduction in the production of large projectile points during the PPN-PN transitional period. The decline of PPNB lithic traditions is often regarded as a pan-Levantine phenomenon. However, data from Tell el-Kerkh and other sites in northwestern Syria suggest a different regional context. The aim of this presentation is to illustrate the changes in lithic traditions primarily from the PPN to PN periods at Tell el-Kerkh, and to highlight the existence of regional differences during the PPN-PN transition between the West and East of the northern Levant. This discussion will provide fundamental information on lithic traditions, including when and how changes occurred during the PPN-PN transition, thereby enhancing our understanding of the Neolithization process from different regional perspectives.

Keywords: Bidirectional blade technology, Tell el-Kerkh, projectile points, PPN-PN transition, Northern Levant

Clay Containers during the PPN-PN Transition: The Case of Tell el-Kerkh, Northwest Syria

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Abstract: One of the most remarkable discoveries revealed by the excavations at Tell el-Kerkh is a burnt building in the late Pre-pottery Neolithic B period. The building most likely functioned as a storage facility because at least fourteen barrel-shaped clay bins were installed in the exposed area. This can be regarded as one of very early pieces of evidence of a communal storehouse rather than a private one. Furthermore, it brings up discussions on the origin of pottery in Western Asia. The earliest pottery vessels found throughout north Syria and southeast Turkey are similar in design and fabrication. Tell el-Kerkh has provided its own example, the so-called Kerkh Ware. Nevertheless, any similar attributes between the bins and Kerkh Ware are lacking, although both are clay containers. This suggests that a principal concept of the earliest pottery was portability, while the abovementioned bins were fixed in the storehouse. However, both portable pottery vessels and fixed large-scale storage facilities, including bin clusters, possibly contributed to enhancing people's mobility. Improved mobility would have supported new subsistence strategies with unsettled lifestyles such as nomadism, transhumance, and transport. These strategies appeared on the basis of establishing the sedentary farming society, due to various changes that occurred in terms of culture, society, economy, and technology during the late Pre-pottery Neolithic B and Late Neolithic periods. Therefore, the two types of clay containers, namely bins and pottery, were developed in the same historical context of the final stage of Neolithisation.

Keywords: clay bin, pottery vessel, storage, portability, mobility

Searching for the Initial Pottery Production with New Data, Sumaki Höyük and its setting in SW Asia

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Abstract: The beginning of the Neolithic, associated with the invention of pottery, has been an essential topic in the research of Southwest Asian archaeology. Studies conducted in the last 20 years clearly outline that the initial pottery appeared in several sites both in Upper Mesopotamia and Northern Levant in the first quarter of the 7th millennium BCE (such as at Tell Sabi Abyad, Tell Seker al-Aheimar, Mezraa Teleilat, etc.). While there may be variations in cultural attributes across sites, the early pottery has similar characteristics, including a hole-mouth shape, well-burnished, generally dark-surfaced and mineral-tempered pottery (mostly volcanic minerals). Mineral-tempered potsherds were scarce in the Initial Pottery Neolithic layers across in most sites (excluding Sumaki Höyük), but their frequency increased towards the middle of the 7th millennium BCE. There was also a gradual change in the temper choice, which started with the whitish carbonates to basalt, gradually being replaced with plant inclusions. Due to its shapes, mineral tempers, and lugs, it has generally been suggested that the initial mineral-tempered pottery was served for cooking purposes. This study brings new data from Sumaki Höyük focusing on the beginning and development of pottery technology to explore local vs. external characteristics aiming to contextualise the emergence of pottery of the Upper Tigris Basin in the wider area and address its relations to the Neolithic way of life in Pottery Neolithic societies through the 7th millennium BCE.

Keywords: Neolithic, Initial Pottery, Upper Mesopotamia, Sumaki Höyük

Cultural and historical processes in the Neolithic of eastern and central part of the Fertile Crescent according to pottery technology

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Abstract: The ever-increasing number of clay vessels finds from the “Pre-Pottery” Neolithic of the Near East makes it possible to single out several conditional “centers of pottery origins”. How independent they are and how interconnected with each other is not yet clear. Since the beginning of the “Pottery” Neolithic period, two centers of ceramic production are clearly recorded on the territory of the Fertile Crescent, which are very different from each other: the North Levantine-Mediterranean and Zagros. Probably, it can be also single out the center in the foothills of the Taurus. The middle of the Fertile Crescent is influenced by the western and eastern centers, but differently in certain periods of the Neolithic. In the first half of 7th millennium cal. BCE strong influence of the North Levantine-Mediterranean center is noticeable. From the middle of the 7th millennium cal. BCE, the Zagros influence on the pottery technology of the Fertile Crescent middle became predominant along with the reciprocal signs of Western influence, indicating the intensification of mutual contacts between the population.

Keywords: Fertile Crescent, Pottery technology, Neolithic

Reflection of the Turkish Eastern Mediterranean's Late Neolithic Lifestyle on Pottery: The Case of Domuztepe

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Abstract: The definition of Turkey's Eastern Mediterranean Region refers to the part between Mersin, where the Taurus Mountains reach the Mediterranean, in the west, and Gaziantep, on the banks of the Euphrates, in the east. This area can be divided into three sub-sections: Cilicia, Amuq, and Aksu-Euphrates basin. Geographical features and archaeological material culture can make this distinction. The most striking excavation of the Late Neolithic Period in the area in question is Domuztepe, located close to the intersection of Amanos and Taurus. The Domuztepe excavations, carried out by an American-British team between 1995 and 2012, have been carried out by Ankara Hacettepe University since 2013. Concrete evidence of the lifestyle of the settlement during the Late Neolithic has been unearthed in Domuztepe during the excavations carried out by both the former team and the new team. In particular, the images of the lifestyle in the paint-decorated motifs on the pottery attract attention. Domuztepe findings show that the settlement was in close contact with Syro-Cilicia on the one hand and Upper Mesopotamia, primarily Balikh, on the other.

Keywords: Domuztepe, Halaf, Late Neolithic, Pottery, Narrative scenes

Pits, Pots and Bodies at Uğurlu Höyük: The Case of the Poly-Pod Box Pottery

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R04

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Abstract: Poly-pod box pottery is special type of ceramic vessel that is widely observed across a broad region encompassing Western Anatolia, Greece and the Balkans during the 7th and 6th millennia BC. This type of pottery is thought to have palyed some purpose during rituals and commonly used to infer the particular paths of westward diffusion of the Neolithic way of life. This study aims to present an analysis of 68 pieces of poly-pod box pottery identified at Uğurlu Höyük (Gökçeada), one of the earliest Neolithic sites in the North Aegean. At Uğurlu Höyük (Gökçeada/Imbros), poly-pod box pottery has been found in all archaeological fillings since the beginning of pottery use in Phase V (6600-5900 BC). However, it is particularly abundant in the ritual area excavated in Phase III (5500/5400-4900 BC). Based on various comparisons and contextual analyses, on various comparisons and contextual analyses, this study argues that box pottery served visual functions that encouraged participants to negotiate the emergent concepts of house and household over vast geographical distances.

Keywords: Neolithic, Aegean, Ritual, Figurines, Poly-Pod Box Pottery

A look at the Halaf culture evolution through the prism of the painted pottery morphology

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R04

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Abstract: The classification of morphology of painted Halaf pottery from Yarim Tepe 2 settlement (Iraq) was realized as a hierarchically subordinate system of Stable Varieties of Shapes (SVS) of two taxonomic levels. Until the present, the results of the distribution of SVS of upper taxonomic level groups have been published. However, the distribution of lower taxonomic level groups also has a dating value and allows us to present in more detail the evolution of the mass ceramics in the cultural deposits of Halaf settlements. Inter alia, the appearance of slightly outcurved rims on a number of native Halaf forms, first appeared in the middle part of Yarim Tepe 2 cultural deposits, obviously correlates with the influence of 'Ubaid related shapes. Also, among the assemblage of Yarim Tepe 2 painted pottery, were identified SVS groups susceptible to foreign cultural influences in a different degree. This fact allowed us to assume the presence in the set of painted ceramics, related to the "table ensemble" of forms associated with both everyday life and maybe ritual. Another one of the particular but important observations is the traced evolution of vessels of the "cream bowls" variety, which allowed us to identify diachronic trends towards the development of greater openness from "bowls" to "plates" and to a weaker profiling of vessels of this variety.

Keywords: Halaf culture, Pottery morphology, Stable Variety of Shapes

Earlier or later? New insights on the chronology of the main Early Pottery Neolithic cultures in the Southern Levant

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R04

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Abstract: The chronology of the different Early Pottery Neolithic cultural entities in the Southern Levant has been the subject of strong debates among the scientists for decades. According to the specialists of this time period, the “Yarmukian” culture would be earlier, contemporary or later than the “Jericho IX-Lodian” one. However, the chronological data (either relative or absolute) so far available for the Early Pottery Neolithic in the Southern Levant remained very fragmentary, preventing to give a clear answer to this question. The stratigraphic sequence of the main EPN open-air settlements had so far not been reconstructed in details; The pottery styles (in particular the decorative motives) were not always studied accurately; C14 dates were too limited in number. In order to fill this gap, we carried out the stylistic analysis of the pottery assemblages coming from 7 major EPN sites in the Southern Levant: Sha’ar HaGolan and Munhata (Jordan valley), Nahal Zehora 2, Nahal Zippori 3 and Tel Itzakhi (Jezreel valley), as well as Lod and Nahal Yarmouth (Sorek valley). We will present here the results of this study that shows both complex chronological evolutions and regional variations.

Keywords: Early Pottery Neolithic, Southern Levant, Yarmukian and Lodian cultures, 7th millennium cal. BC

Filling the blanks: The Pre pottery and Pottery Neolithic settlements in Tabarja Wata Slam (TWS100), Lebanon

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Abstract: Tabarja Wata Slam 100 is a new Neolithic site on the Lebanese coast, north of Beirut. Large-scale excavations uncovered a major pre-Pottery and Pottery Neolithic settlement with architectural remains, burials, combustion features, flint artefacts, and a wide variety of special finds. The site's occupation started in the eighth millennium BC and continued throughout the Middle and the Recent PPNB as well as the Pottery Neolithic (between 8164 Cal bC to 6593 Cal bC). Studies currently underway indicate these were farming, herding and fishing communities. Material cultures comprise chipped stone artefacts, ground stone tools, stoneware, white ware and pottery vessels. Data on faunal remains is strongly suggestive of a hypothesis of domestication of boar on site. Fish remains, bone fish hooks, stone weights and anchors point towards deep sea fishing; the latter may well represent the earliest examples known on the Levantine coast. Botanical remains comprise domestic plants and pulses and may well represent one of the earliest centers for crop cultivation on the Levantine coast. Symbolism is also well represented with more than 300 stone figurines and incised stones. The discovery of TWS100 provides new support for the existence of dispersal routes originating from the Northern Levant which challenges the dispersal scheme previously proposed for the colonisation of the Lebanese coast from the Damascus region through the Beqaa. This places the site on a crossroads suggesting it may have played an important role in the dispersal of the various components of the PPNB and the Pottery Neolithic throughout the Levant.

Keywords: Lebanon PPNB pottery Neolithic coastal settlements

Changes in Human Representation in Southern Levant in transition from pre-pottery Neolithic to pottery Neolithic – a Preliminary Analysis

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Abstract: In this paper we will discuss preliminary research encompassing the change in human representation (primarily in the form of figurines) in the transition from pre-pottery Neolithic to pottery Neolithic in the Southern Levant, looking at available data from Sha’ar Hagolan, Munhata, Ain Ghazal and other sites occupied during the 7th-6th millenia. This research will synthesize the data qualitatively, through context, and analysis of figurative representation to propose hypotheses for the transition of ritual practice and community cohesion from the PPN to PN. We hope to test these hypotheses more thoroughly by studying material from the upcoming excavation seasons at Sha’ar Hagolan, making close observations of the context of human figurines (including quantity, relative position to rooms, floors, walls and other features) as well as figurine orientation, material, manufacture, stylistic representation, etc., as excavations continue from PN to PPN layers.

Keywords: figurine, PPN, PN, transition, representation

Genomic insights into changing social structures and gender roles in Neolithic Anatolia

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Abstract: Here we will summarize recent work from the METU/Hacettepe Ancient DNA Team on Neolithic period human remains from Anatolia, conducted mostly as part of our NEOGENE project. We will first discuss results on genetic kinship ties among individuals buried within the same structures in Neolithic villages. Our observations derive from PPN/Aceramic sites such as Çayönü, Boncuklu, and Aşıklı, as well as PN sites including Barcın, Tepecik-Çiftlik, Köşkhöyük, and Çatalhöyük, with the latter represented by over a hundred genomes. The data suggest changing practices with time, with genetic ties among individuals buried in the same building becoming sparser. Second, I will discuss possible indications of gender role differentiation in Neolithic Anatolian settlements based on several observations, including sex-biased mobility among and within communities, as well as differential treatment of female and male subadults. Our results contribute to the growing understanding of changing lifeways in Neolithic Anatolia through three millennia.

Keywords: archaeogenomics, kinship, gender

From the Display of Identity to the Beginning of Book-keeping: The Seals and Sealings in the PPN-PN Societies

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Abstract: The social transformation from the Epi-Paleolithic to the Neolithic in West Asia is characterized by growing sedentism and farming. Amidst this social transformation, there was an increase in people's attachment to land and desire for rights. Ancestor worship and the emergence of identity signify this growing desire among people. In the PPNA-EPPNB societies of southeast Anatolia and northern Levant, people constructed competing large shrines to show ancestor worship, while also creating small "engraved plaques" with symbolic designs to represent their identity. In Late PPNB societies, engraved plaques gradually disappeared and were replaced by stamp seals, especially in northern Levant. The earliest stamp seals were plate seals, similar to engraved plaques, with no evidence of sealing with stamped seals. Stamp seals likely served to represent the identities of individuals or human groups. This trend continued into the early PN period; however, by the mid-7th millennium BC, clay sealings with seal impressions began to appear. Stamp seals were used to seal and protect valuables within containers. By the end of the PN period, seal-impressed bullae appeared, indicating that seals were used not only to protect goods but also for managing goods, such as labeling. The presence of bullae and the storage of opened clay sealings indicate that these items were utilized for bookkeeping purposes. The Neolithic sealing system was the forerunner of the clay tablets that later appeared during the Late Chalcolithic period.

Keywords: seal, sealing, identity, protection, book-keeping

R05 - Death, Ritual and The Social Transformations In The Near Eastern Neolithic

Session Organiser

Ali Metin Büyükkarakaya / Hacettepe University, Türkiye
Marin A. Pilloud / University of Nevada, USA

Abstract

For a long time, archaeologists and anthropologists have studied the perception of death in the Neolithic Near East populations with very different types of evidence. Among the striking results observed in these studies is that rituals related to death show similarities in communities that seem to have adopted the new lifestyle, but also have many differences. It can be estimated that the intra-regional and inter-regional evaluations of the similarities and differences observed in death practices are useful in understanding the worldview and social structures of the Neolithic people, as well as in discussing the relations between settlements in different geographies. In addition, the use of pigments observed in funerary practices, the diversity in terms of different burial types and grave goods continue to be important issues worth examining, while the examinations made in the settlements show that people lived with their dead in most Neolithic settlements and their remains were used in the rituals of the living. Post-burial interventions (secondary burial practices, dismemberment) or plastered skulls seem to emphasize the functionality of rituals related to death in maintaining order in these communities, dealing with the dead and their remains, or that rituals related to death are deeply involved in life. In addition to all these, bioarchaeological information about Neolithic human societies reveals important lines of adaptation to the natural environment and social transformation. Therefore, it would be appropriate to include the results of the bioarchaeological research on lifestyles in our session. In this context, the main purposes of this session are to showcase the local characteristics of the practices, and to examine the evidence of rituals related to death as a tool of socio-cultural transformation in these societies, along with other bio-cultural adaptations that generate the new lifestyle.

Transforming the skulls of males, females, and children in Neolithic Anatolia and the Levant

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R05

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Abstract: Near Eastern Neolithic skulls and crania, typically found buried in contexts where they were separated from their intact postcranial skeletons, may have been selected for curation, decoration, and placement within the home or community after initial burial for a variety of reasons. Apart from the discussion of whether the now deceased person was male or female, adult or child, young or old, ancestor or enemy, insider or outsider, bioarchaeological and ethnographic studies suggest complex life histories may well have been entangled in the selection and treatment of Near Eastern Neolithic skulls. This presentation focuses on the plastered skulls and crania excavated from the sites of Köşk Höyük in Anatolia, and Tell Ramad, Jericho, and 'Ain Ghazal in the Levant, and examines the similarities and differences of the local, spacial, and temporal characteristics of the practice of cranial modeling and decoration along with evidence of genetic relatedness, social violence, and markers of group identity.

Keywords: Neolithic, Anatolia, Modeled Skulls, Bioarchaeology, Burial Practices

Evaluation of the results of archaeometric studies of plastered skulls found at Tepecik-Çiftlik

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Abstract: One of the most prominent finds among mortuary practices in the Southwest Asian Neolithic Period is plastered skulls. These finds, which have been observed in the Levant and Central Anatolia since the Pre-Pottery Neolithic Period, have a special importance because, unlike other archaeological finds, they are produced from human remains, and in this respect, plastered skulls can be handled and examined in many different contexts. One of the areas of investigation is the materials used in the production of plastered skulls. Tepecik-Çiftlik, one of the archaeological settlements where plastered skulls were found in Central Anatolia, is located in the Volcanic Cappadocia sub-region and is a key settlement that provides information about the Neolithization of Southwest Asia and Europe, especially with its uninterrupted stratigraphy dating back to the 7th millennium BC. In this contribution, new results from the analyzes (XRD, XRF, FT-IR, Raman Spectrometry, paleoradiology) performed on the materials used in Tepecik-Çiftlik plastered skulls are presented. The available data indicate a serious diversity in the materials used for the stabilization, and in the masks as colorants during phase of the production of the plastered skulls examined. Also, the study provides new insight into previously observed knowledge about the regeneration phases of plastered skulls.

Keywords: Paleoradiology, Pigments, Lime, Southwest Asia, Clay

Towards the interpretation of cut marks on plastered skulls from Neolithic Tepecik-Çiftlik, Central Anatolia (Türkiye) through a new programme of combined use-wear analyses

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Abstract: Different forms of skull cult have been encountered throughout the prehistory of Southwest Asia, attesting to widespread mortuary practices and rituals. Remarkable examples come from the Pre-Pottery and Pottery Neolithic contexts in the Levant and, less frequently, central and southeast Anatolia. These practices include exposing skulls that are occasionally painted, plastered, or remodelled, sometimes adorned with ornaments like shells and obsidian. Cut marks on crania provide significant insights into modification steps, often involving fine, precise defleshing cuts to remove soft tissue and scraping marks to clean the skull surface. At the Neolithic site of Tepecik-Çiftlik in Central Anatolia, seven skulls with plaster remains were documented in situ within two graves. Notably, the skull "TP 105 D" of a female adult (25-40 years old) shows numerous deliberate cut marks on the parietal and frontal bones. We initiated a new use-wear analysis programme, employing metallographic and confocal scanning microscopy to document the position, direction, size, number, depth, and incision extensions. This analysis provides information about the tools used (likely obsidian and other softer tools) and the activities (cutting, sawing, scraping). This study aims to test assumptions concerning the cleaning and preparation of the scalp for plastering versus other potential activities. The final goal is to understand the spiritual and social practices of early agricultural societies involved in mortuary rituals. Finally, a step further is made in comparing the TP skull with trophy skulls from an ethnographic collection from Papua New Guinea and archaeological skulls with cut marks from the Mesolithic-Neolithic Lepenski Vir.

Keywords: cut marks, plastered skulls, Neolithic, Central Anatolia, mortuary rituals

Social memory and mortuary practice in Çatalhöyük

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R05

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Abstract: Social memory has been argued to be a key component in the formation of the large Neolithic village site of Çatalhöyük, Turkey. This assertion has focused on daily practice centered within the house, and may have extended to more architecturally elaborate houses as a central repository for memory and symbolism. Surrounding this discussion of social memory, there has been less focus on human burials; particularly on the treatment of human remains for interment. Recent research within Çatalhöyük has begun to focus more intensively on mortuary practice, particularly the processing of human remains before, during, and after interment. The peoples of Çatalhöyük had an intimate association with the deceased and employed practices which included skull retrieval, skull and limb removal, postmortem defleshing, and the creation of plastered skulls. Such practices would have played an important role in social memory; providing a corporeal means of connecting with the dead and incorporating these practices and remains physically within the home. We argue that the postmortem processing of remains in conjunction with other daily practices centered on the house all served to reinforce social structure and practice, and ultimately influenced the realization of Çatalhöyük.

Keywords: secondary burial, mortuary practice, social memory

Commemoration of the dead through mortuary and architectural use of pigments at Neolithic Çatalhöyük, Turkey

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Abstract: The cultural use of pigments in human societies is associated with ritual activities and the creation of social memory. Neolithic Çatalhöyük (Turkey, 7100 - 5950 cal BC) provides a unique case study for the exploration of links between pigments in burials, demographic data and colourants in contemporary architectural contexts. This study presents a combined analysis of funerary and architectural evidence of pigment use in Neolithic Çatalhöyük and discusses the possible social processes underlying the observed statistical patterns. Results reveal that pigments were either applied directly to the deceased or included in the grave as a burial association. The most commonly used pigment was red ochre. Cinnabar was mainly applied to males and blue/green pigment was associated with females. A correlation was found between the number of buried individuals and the number of painted layers in the buildings. Mortuary practices seem to have followed specific selection processes independent of sex and age-at-death of the deceased. This study offers insights about the social factors involved in pigment use in this community, and contributes to the interpretation of funerary practices in Neolithic Anatolia. Specifically, it suggests that visual expression, ritual performance and symbolic associations were elements of shared long-term socio-cultural practices.

Keywords: Ochre, Cinnabar, Pigments, Burial practices, Symbolism

Investing in the Dead: Exploring Funerary Treatments in the Levantine Epipalaeolithic-Neolithic Transition

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Abstract: The Levantine Epipalaeolithic-Neolithic transition is a time of considerable social, economic, and environmental change as exhibited by the exceptional diversity of sites, lithics, and funerary treatments throughout the region. Burials from the Late Epipalaeolithic and PPNA, specifically, have long since been of interest to archaeologists. This is due, in part, to their relative frequency compared to the earlier Epipalaeolithic, their considerable variation, and their potential to reveal information about early Neolithic social structures. However, there continues to be a strong bias in much of the literature focusing on grave goods and ornamentation, at the expense of well-rounded funerary studies considering all aspects of a funerary treatment. Ornamentation, while undoubtedly important, is only one aspect of a mortuary and funerary practice which results in a burial. Here, I present my methods and preliminary results from the Ph.D. research evaluating the relative levels of investment in funerary treatments of the Levantine Epipalaeolithic. My research aims to better understand the various ways that a community may engage with, manipulate, or interact with the dead, and how these factors may be influence, and be influenced by, social organization. These preliminary data also highlight the importance of recording, analyzing, and publishing all aspects of funerary remains in order to gain a clearer picture of the world of the dead in communities of the past.

Keywords: Mortuary Archaeology, Epipalaeolithic-Neolithic Transition, Levant

A unique early-middle PPNB funerary area from the Lebanese coast: Tabarja Wata Slam 41 (TWS41)

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Abstract: Lebanese data on mortuary practices during the PPNB is very scarce. The discovery of a unique Early-Middle PPNB funerary area in Tabarja Wata Slam 41 (TWS41) brings substantial data on the mortuary practices of the Neolithic communities which inhabited the Lebanese coast. The stratigraphic sequence of the mortuary centre is complex and involved both primary and secondary burials exceeding a 100 individual accompanied by a rich assemblage of 167 grave goods of which the majority were stone beads. Burials included crouched skeletons, commingled bone deposits, secondary human deposits, a triple skull deposit, 'configured clusters' of human bones and a slab-built circular feature which may have functioned as a funeral pyre. The discovery of this unique funerary area provides significant new support for the existence of autochthonous social and ideological traditions across the Levant during the PPNB and raises new issues about the type of settlement it reflects as well as concerning the differences in social differentiation, symbolism, and perhaps local belief systems across the region. The radiocarbon dating of the early phase of the burial sequence challenges not only the origins of the PPNB in Lebanon but it also pushes back its arrival at the Mediterranean coast to earlier than what was previously believed. With its location on the coast of Lebanon and in a distinctive setting facing the Mediterranean Sea, TWS41 may have been at the crossroads of various traditions and may have played a major role in the dispersal of specific cultural traits during the PPNB.

Keywords: PPNB funerary customs skull removal

Burying Memories: A Ritual Pit Complex at Neolithic Prasteio Mesorotsos, Cyprus

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Abstract: The long-lived site of Prasteio Mesorotsos in western Cyprus was first occupied in the Pre-pottery Neolithic period and continued to be inhabited throughout prehistory. The island of Cyprus represents a circumscribed landscape that was being negotiated amongst pluralistic Neolithic communities, and establishing connections to particular places seems to have been an important element of the Neolithization process. The early inhabitants of Prasteio Mesorotsos exhibited ritual behavior that created a link to this location, which can be seen in a discrete pit complex, wherein a series of shallow pits were made, into which ritually broken items were carefully deposited before being covered. This practice began when the site was only seasonally occupied, but continued throughout the Neolithic period when the site was permanently settled, even into the Late (ceramic) Neolithic. In addition to special broken ritual objects being deposited in the pit complex, human remains were also deposited, including what is likely to have been a complete human head. In this sense, human remains are part of the broader spectrum of objects that relate to memory and ritual. The establishment of the new concepts of territoriality, intra-regional heterarchy and cultural identity involves relating memories to a location, and this ritual pit complex appears to have been a way for those establishing this as their home to literally bury their memories in the soil, which in turn maintained a living connection to this special place.

Keywords: Ritual, Neolithic, Sedentism, Cyprus, Memory

Life and Death on the Fertile Coast: New Evidence For Neolithic Lifeways and Burials On The Islands Of The United Arab Emirates.

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Abstract: In the last five years, archaeological excavations by the Department of Culture and Tourism Abu Dhabi have revealed extensive evidence for Neolithic settlements across the islands of Ghagha, Marawah and Dalma, off the coast of Abu Dhabi. These excavations have uncovered the earliest stone-built structures in the Arabian Gulf dating a period equivalent to the PPN in the broader Near Eastern Region. While limited aspects of the subsistence strategy reflect inputs from elsewhere in the region (e.g. domesticated animals), the vast majority of material culture production and subsistence strategies were reliant on local resources that were plentiful as a result of localized climate change and alterations in the sea-level. Exploitation of these prompted rapid social transformation. The most recent excavations on the island of Marawah have also indicated a unique set of mortuary rituals, conducted during peri- and post-mortum phases which strongly indicate a growing sense of place-making that is linked to both life-cycles and the centrality of the sea.

Keywords: Arabia, Neolithic, Marawah island, Fertile Coast, Burial Rituals

Architecture of the Voskehat burial ground

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Abstract: Architecture of the Voskehat burial ground. In 2017 and 2023, the expedition of the SRCHC of the Ministry of ESCS RA conducted archaeological excavations at the Voskehat burial ground. This site is located 35 km west of Yerevan. In addition to tombs, an ancient cult complex with petroglyphs and megaliths was discovered in this territory. The two-layered tomb No. 31 stands out as a fine example of construction art. The upper tomb, where earthly sacrifice was performed, was surrounded by round basalt slabs. The lower tomb, made of slabs, was filled with several layers of dismembered human bones, all overlaid with slabs of tufa. The three walls of this tomb are made of thin tuff slabs arranged orthostatically, with the eastern wall made of flat stones set on a cantilever. The relationship between the tiles of the side walls and the flat-stacked slabs. This is something reminiscent of the principle of forming the composition of the roofs of houses called "Hazarashen". It can be stated that the stone tombs of Voskehat demonstrate a unique architectural style, representing constructions of two pronounced forms: round (upper tomb) and rectangular (lower tomb). The ceilings of these tombs were built using the principles of false vaults and "Hazarashen". Based on the ancient beliefs that regarded tombs as eternal "dwellings" of the dead, we can conclude that the construction of tombs in Voskehat reflects the architectural style characteristic of Neolithic-Chalcolithic dwellings in Armenia.

Keywords: Armenia, burial ground, architecture of kurgans, construction, ritual

Mortuary Practices of the Pre-Pottery Neolithic Period at Gre Filla, Diyarbakır, Türkiye

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Abstract: Gre Filla (Ambar I) Höyük is located in the Upper Tigris Basin in the Southeastern Anatolia Region. The Pre-Pottery Neolithic A (PPNA) and Pre-Pottery Neolithic B (PPNB) levels at the mound are dated to 9300-7500 BCE according to calibrated C14 results. The mound is located at the foot of the Southeastern Taurus Mountains, next to the Ambar Stream, which is one of the sources feeding the Tigris River. The archaeological findings from the excavations have revealed that the lives of the inhabitants of the settlement were not only similar to those of other contemporary settlements in the region, but also had their own unique characteristics. In this study, we discuss the findings regarding the mortuary practices of 8 PPNA and 11 PPNB graves at Gre Filla. The distribution of the graves according to the settlement plan, biological sex and age groups, grave goods, burial types, and macroscopic, paleodemographic and paleoradiological examination results of the skeletal remains are evaluated. The grave with inhumation type burials belonging to individuals of both sex and all age groups have been unearthed inside and outside the structures belonging to the PPN levels. A significant portion of the burials are primary burials, and burials with grave goods are not many. The results of this study on the burial remains, together with other archaeological information on the ritualistic behavior of the human groups that lived at Gre Filla, provide a new contribution to the understanding of the symbolic world of Neolithic communities from the Upper Tigris Basin.

Keywords: Southeastern Anatolia, Burial, Ritualistic behavior, Paleodemography

Mortuary Pathways at Late Neolithic Tell Sabi Abyad, Syria

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Abstract: The mortuary practices of the Late Neolithic in Southwest Asia exhibit substantial regional, temporal, and intra-site variations. Although this diversity remains poorly understood, it has been argued to be the product of dynamic societal changes, localized beliefs, diverse kinship groups, and a culture of improvisation. This study focuses on the mortuary record of Tell Sabi Abyad, Syria, which spans the 7th to early 6th millennium cal BC, offering a site-specific and temporal perspective. It centers on the social transition of death but emphasizes the interconnectedness of mortuary rituals with broader societal dynamics. The findings reveal rich diversity in mortuary pathways at Tell Sabi Abyad, demonstrating normative patterns with alternative options at various stages. It is argued that the intricate interplay between the living and the dead, dynamic conceptions of death, and factors such as changing lifestyles and community dynamics contributed to this diversity. The study underscores the necessity of detailed deconstruction of the mortuary programme and site-specific analysis to comprehend the complex relationships between mortuary practices and cultural, social, and environmental factors during the Late Neolithic.

Keywords: Late Neolithic, Mortuary practice, Syria, Death and burial, 7th and 6th millenium BCE

Archaeotological Analysis of the Graves found at Pendik Höyük in İstanbul

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Abstract: Being one of the methods employed to obtain information from archaeological remains, Archaeothanatology is an analytical system designed to evaluate the deceased and the society to which they belonged from the perspective of death phenomenon. Pendik Höyük, located on the Asian side of İstanbul, is a pottery Neolithic settlement and was discovered during the construction work of the Baghdad Railway in 1908. The excavations carried out as part of public works in various periods have revealed that the site was a large settlement. This presentation will examine the burials unearthed during the excavations conducted between 2012 and 2014 as part of the project entitled “Marmaray- Halkalı Suburban Railway Improvement Project. The archaeological excavation site has been limited only to the railway line, which measures about 200 metres long and 30 metres wide. The Neolithic layer of the site contains more than 50 burials. In order to determine the burial practices and their archaeological contexts, a great deal of data was collected considering some questions such as “who was buried; where and how”. Burials of different ages and sexes were unearthed in the spaces between the buildings. One can assume that two distinct practices have been employed based on the taphonomic analysis of burial practices: single/multiple primary burials and reorganisation of the burial environment. By comparison with the pottery Neolithic settlements in the Marmara region in terms of burial practices, the site at Pendik Höyük appears to have both unique characteristics and share some common features with the contemporary nearby settlement.

Keywords: Archaeothanatology, Pendik, Neolithic, Burial Practice, İstanbul

Mortuary Rituals in Neolithic Anatolia: New insights into Social Change and Cultural Interactions

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R05

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Abstract: The Neolithic period represents a significant transformation in humanity's relationship with nature, characterized by the establishment of permanent settlements and the adoption of agricultural subsistence strategies. These changes inevitably led to profound social transformations within communities. Mortuary practices serve as critical indicators for understanding these social changes, revealing insights into Neolithic people's worldviews and social structures. This study investigates the diverse mortuary rituals observed in the Neolithic settlements of Anatolia. By examining death-related symbolic behaviors from archeological records and analysis of secondary interventions, this research highlights both intra-regional and inter-regional similarities and differences in mortuary practices among Anatolian Neolithic settlements. Data from different parts of Anatolia like Central Anatolia, Southeastern Anatolia, and Northwestern Anatolia, is analyzed to explore and interpret these mortuary behaviors, comparing them with those of other settlements during the Pre-Pottery Neolithic (PPN) and Pottery Neolithic (PN) periods in Southwest Asia. By examining the diversity of mortuary rituals from the PPN to PN periods, this research aims to shed light on regional interactions and cultural transformations. Understanding these shifts provides a comprehensive perspective on the socio-cultural adaptations and transformations in Neolithic communities, revealing the complex interplay between ritual, death, and social change. This study underscores the role of death rituals in maintaining social order and integrating the deceased into the lives of the living.

Keywords: Anatolia, Neolithic, Burial, Ritual, Skull Cult

Palaeodietary Analysis of the Gusir Höyük Neolithic Population utilising Stable Isotope Analysis

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Abstract: Palaeodietary reconstruction studies in past human populations are a key focus of bioarchaeological research. These studies often incorporate multiple lines of evidence and the application of multi-faceted methodologies to obtain a comprehensive and in-depth perspective. Such approaches to investigating palaeodiet include dental and oral health, osteological stress indicators, archaeobotanical and zooarchaeological research, as well as stable isotope analyses. The number of studies applying stable isotope analyses to examine dietary habits in ancient Anatolian human populations has increased in recent years. The application of stable isotope analysis to the Gusir Höyük population will allow for a better comprehension of dietary habits and subsistence practices, and changes in them, during this pivotal period in the development of human society. Intra-population socio-cultural aspects such as demographic variation in dietary habits, changes in dietary habits over time, and the weaning process and its related implications will also be able to be explored through stable isotope analyses. With these research topics in mind, stable isotope ratios of carbon, nitrogen, and sulphur were analysed on bulk bone collagen extracted from 118 human bone samples and 25 contemporary faunal bone samples.

Keywords: Stable isotopes; Anatolia; Palaeodiet; Neolithic; Southeast Türkiye

Physiological Stress in the Pre-Pottery Neolithic Population of Gusir Höyük

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Abstract: Gusir Höyük, situated within the Siirt province of southeastern Turkey, is one of several hunter-gatherer settlements from the Pre-Pottery Neolithic Period. The stratigraphic layers of this archaeological site date back to the 10th and 9th millennia BC and provide invaluable information about the PPNA period, as well as the transition from PPNA to PPNB, in the Upper Tigris basin. During the excavations at Gusir Höyük, a total of 125 burials were uncovered, with several instances of multiple burials. The skeletal remains of approximately 178 individuals (138 adults and 40 non-adults) were examined in the Anthropology Laboratory at Anadolu University. While 30 males and 30 females could be identified among the adult skeletons, it was not possible to estimate the sex of more than half of the adult skeletons using osteological methods. This presentation will examine the prevalence of physiological stress indicators observed in the skeletal population from Gusir, focusing in particular on porotic hyperostosis, cribra orbitalia, and osteoperiostitis. The data will be analysed using the osteological paradox approach, which considers the effects of heterogeneous frailty and selective mortality in the sample population. It has been proposed by various scholars that the incidence of childhood physiological stress and associated mortality increased during the Neolithic period in conjunction with the adoption of agriculture and village life. Given the limited availability of PPNA skeletal samples and related data, it is currently unclear how these groups differed in terms of stress relative to Neolithic agricultural communities.

Keywords: physiological stress, mortality, human remains, PPNA, Gusir

Determination of Dietary Patterns in the Tepecik-Çiftlik Neolithic Population through Stable Isotope Analysis

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Abstract: This study examines the dietary habits of the Pottery Neolithic period (7100–6000 BC) population of Tepecik-Çiftlik. The diachronic changes that occurred between the layers of the Neolithic period (from bottom to top; 5, 4 and 3) and variation in dietary habits by sex and age groups are discussed. This study applied stable isotope analyses of carbon ($\delta^{13}\text{C}$) and nitrogen ($\delta^{15}\text{N}$) from human and animal bulk bone collagen, together with previously published archaeological, anthropological and elemental analysis data. The sample population consists of 21 adult individuals: 10 males and 11 females. Stable isotope values obtained from animal bones recovered from excavations were evaluated as a local reference to help reconstruct the nutritional model of the population. The means and standard deviations for $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ are $-19.5 \pm 0.2\text{‰}$ and $11.3 \pm 1.1\text{‰}$, respectively. Males had a wider range in $\delta^{13}\text{C}$ (0.4‰ compared to 0.8‰) and female individuals had a wider range in $\delta^{15}\text{N}$ (3.8‰ compared to 2.2‰). The males overall tend to have $\delta^{15}\text{N}$ values above 10.6‰ . The difference observed in $\delta^{15}\text{N}$ values between males and females is statistically significant. No statistically significant difference was found between the different Neolithic period layers and age groups. The stable isotope values of the sampled population indicate a C3-based diet with mixed inputs of animal and plant protein. Additionally, the values seem to suggest that males likely had a slightly greater input of animal protein into their diet relative to the females.

Keywords: Stable isotopes; Anatolia; Palaeodiet; Neolithic; Cappadocia

Sub-adult diet and the weaning process at Neolithic Tepecik-Çiftlik

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Abstract: Tepecik-Çiftlik, a Neolithic settlement located in the Cappadocia region of Central Anatolia, within the boundaries of Niğde province in modern Türkiye is crucial for helping us to better understand social behaviour and human mobility in the Neolithic, as well as relations between different groups. To investigate dietary habits, subsistence practices, and intra-societal variations stable carbon and nitrogen isotope analysis has been conducted on the Neolithic human and faunal population. Further to this, 21 sub-adults were also sampled for stable carbon and nitrogen isotope analysis to examine sub-adult diet, complementary feeding, and the cessation of breastfeeding as part of the weaning process. This isotopic investigation is complemented by a previously conducted study using Sr/Ca ratios from bone apatite of the same population. The $\delta^{13}\text{C}$ values of the sampled sub-adults range from -19.8‰ to -19.0‰ with a mean of $-19.4\text{‰} \pm 0.2\text{‰}$ and the $\delta^{15}\text{N}$ values range from 8.0‰ to 15.2‰ with a mean of $11.0\text{‰} \pm 1.7\text{‰}$. The isotopic data suggest a very early onset of complementary feeding (ca. 0.2 years of age) and a brief breastfeeding period, with the cessation of breastfeeding and this very brief weaning process completed by ca. 1-1.5 years old. This early commencement of complementary feeding was likely a deliberate social and cultural choice, supported by the presence of bowls and feeding spoons in the graves of very young babies and infants. However, this cultural choice may also have affected the mortality profile of the Neolithic population.

Keywords: Weaning Process, Stable Isotopes, Anatolia, Palaeodiet, Trace Elements

R06 - New Paradigms in the Study of the Neolithic of Central Anatolia 20 Years After the First Synthesis

Session Organiser

Ali Umut Türkcan / Anadolu University, Türkiye

Arkadiusz MARCINIAK / Adam Mickiewicz University in Poznań, Poland

Abstract

Archaeological study of the Neolithic of Central Anatolia started seriously in the 1950s with pioneers from the British Institute of Archaeology. After 60 years of intensive research, especially at Çatalhöyük, Aşıklı and Can Hasan, it became clear that the region had a far-reaching impact on both Near Eastern and Anatolian archaeology. The early years of the Mellaart era yielded spectacular discoveries that have yet to be surpassed, as the iconic Fat Lady figurines, paintings, and reliefs on the walls of elaborate shrines showed a different and more developed phase of the Neolithic universe and triggered the development of different theories pertaining to egalitarian and urban society. The scope of Çatalhöyük Research Project resulted in a better understanding of the settlement's spatial extent and changes over time, as interpreted in social and regional terms.

On the other hand, the first real attempt at discussing the Central Anatolian Neolithic started only with the CANeW (Central Anatolian e-Workshop) project. The 2001 meeting allowed the results of previous research to be summarized and Central Anatolia to be placed in the context of Neolithic lifeways on a pan-regional scale. As it has now been more than 20 years since this meeting was held, there is a need for a new synthesis that takes into consideration both the work carried out during this period and changes in the domain of archaeological praxis. How has it progressed with intensive excavations of Boncuklu, Çatalhöyük, and Cappadocian sites, primarily Aşıklı Höyük, taking into account a variety of new discoveries, the use of innovative methods and techniques, and an open access policy that makes the data available to the public? How far has the Çatalhöyük and Boncuklu Research Projects influenced our understanding of the Anatolian Neolithic in the "grand picture" of cultural history between East and West? The session is also aimed at presenting current work at Neolithic and Early Chalcolithic sites, as evidenced by new excavations (Canhasan, Gökhöyük) and many intensive surveys over the last 10 years.

Reassessing the Neolithic Çatalhöyük Inhabitants' Perception of Life and Death

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R06

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Abstract: In the 2022 field season at Çatalhöyük, a multiple burial was discovered in a new excavation area known as the "North Terrace", located on the East Mound. The burial, found beneath the northeast platform of a partially excavated building, dates back to 6480-6641 cal BCE. This multiple burial, houses seven individuals, ranging from infants to old adults, both females and males. Its contents provided opportunities for several 'first-time' discoveries, offering valuable insights into the long-debated burial practices of the Çatalhöyük community. Among these discoveries were a skull with evidence of trepanation and scalping, an intact vulture claw with a forearm, and desiccated human remains, all of which add to the uniqueness of the site. In this presentation, we will explore these discoveries and place them within the broader context of Çatalhöyük's burial practices, aiming to shed light on their significance in understanding the Neolithic community's attitudes toward death and their relationship with the natural world.

Keywords: Çatalhöyük, Burial practice, Trepanation, Dessication, Scalping

Re-evaluation of evidence for "practical" kinship at Çatalhöyük

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R06

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Abstract: As a major early sedentary farming community, Çatalhöyük has served as an important site for investigating the effects of the transition from foraging to food producing lifestyles on social organization, including kinship. Early interpretations of social organization suggested the site was home to a matriarchal society organized into matrilineal descent groups. More recent investigations of kinship using dental, aDNA, and isotopic data have yielded equivocal results that do not support the early characterization of Çatalhöyük as matriarchal and matrilineal. Collectively, the phenotypic and aDNA studies found that intramural burial practices were not biologically kin-structured, contributing to a consensus view that social relatedness, fictive (or “practical”) kinship, and house society organization were fundamental to social organization in this early farming community. Although provocative, this consensus interpretation of Çatalhöyük social organization may be founded upon misconceptions about the composition of residential kin groups. The present study evaluates published phenotypic, aDNA, isotopic, and archaeological data using more rigorous interpretive models based on specific descent and postmarital residence strategies. Results indicate that rather than some form of fictive kinship, families at Çatalhöyük were organized into bilocal residential-household groups under bilateral descent. While there were practical elements to household group formation and maintenance, kinship was based on biosocial relatedness not solely or primarily on social and cultural affinity.

Keywords: Çatalhöyük, Kinship, Postmarital residence, Biodistance

Late Neolithic Funerary Structures at Çatalhöyük

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R06

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Abstract: This paper examines the transformations of burial practices at Çatalhöyük in the Late Neolithic. They involved the transition from in-house burials to specialized funerary structures, as represented by Sp. 327, Sp. 248 from the TP Area, and B. 173 from the East Area. Deriving from archaeological evidence and demographic data, it offers insights into Late Neolithic burial practices. Particularly intriguing is the clustering of adult burials and spatial differentiation observed within these chambers, indicative of shifting societal dynamics and cultural beliefs. Through a comparative analysis of the architectural and ornamental features of these funerary structures from the last three hundred years of the occupation of the Neolithic settlement at Çatalhöyük, this study indicates a divergence from the hitherto dominant intramural interments, implying a considerable transformation in burial rituals. This study underlines the necessity for interdisciplinary research to elucidate the societal significance and cultural implications of burial practices at Çatalhöyük, shedding light on the complexities of prehistoric funerary traditions. This paper underscores the need for a more nuanced understanding of burial practices across different temporal periods. The discussed transformations well align with broader socio-cultural changes towards the end of the Neolithic at the settlement and beyond.

Keywords: Çatalhöyük, Late Neolithic, Funerary structures

The Late Neolithic non-residential quarter in the East Area at Çatalhöyük

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Abstract: The last three hundred years of the occupation of the Neolithic settlement at Çatalhöyük it has marked the abandonment of the densely packed settlement consisting of clusters of houses. It was replaced by a series of structures of different types located in different parts of the former settlement and its immediate surroundings. Its main element was a non-residential quarter located in the easternmost part of the settlement in the East Area. It consists of four non-residential structures built around a large open plaza. The main structure in this complex consists of an elaborate building with 14 platforms and an auxiliary structure. The other elements include a freestanding charnel house and a paraphernalia storage structure. In this paper, I intend to provide a comprehensive overview of this Late Neolithic non-residential quarter, its construction, character, chronology and eventual abandonment. Its significance will be discussed in the context of changes in the social geography of the Neolithic settlement at Çatalhöyük during the last centuries of its occupation.

Keywords: Çatalhöyük, Central Anatolia, Konya Plain, ceremonial structure, charnel house

Discussion of Çatalhöyük and Central Anatolia Neolithic Pottery Sequences in the Light of New Research

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Abstract: The focus of this study is to examine the Çatalhöyük Neolithic pottery sequence based on new evidence and to compare and discuss it in terms of chronology and tradition with the pottery assemblages of other contemporary settlements in Central Anatolia. Between the late 8th millennium BC to the early 6th millennium BC in Çatalhöyük, pottery developed and differentiated in terms of technology, form, purposes of use and symbolism, and also increased in quantity through the 7th millennium BC. This process of change was the subject of considerable research until 2017, when the Ian Hodder excavation period ended. However, the formal development and environmental comparisons of Neolithic pottery remained incomplete. In this study, some evaluations will be made in this field. The first observations and analyzes of the "Eastern Area" ceramics, which started to be excavated after 2017 and represent the last phase of the Neolithic Age, will also be included in the content of this study. In addition, within the scope of the study, the results of some of my previous studies on Erbaba pottery assemblages, which are contemporary with Çatalhöyük and most of which have not been published yet, will also be shared. The settlements to be compared and discussed include Boncuklu Höyük, approximately 10 km away from Çatalhöyük, where the earliest Neolithic pottery in the region has been identified so far, Gökhöyük Bağları Höyük in the same basin with Erbaba in the west, Can Hasan Höyük in the southeast, and Köşk Höyük and Tepecik-Çiftlik Höyük in the Cappadocia region.

Keywords: Neolithic pottery sequence, Çatalhöyük, Central Anatolia

“A Neolithic Town: Çatalhöyük” and its Urban Quandary: A new discussion of old debate within recent evidence.

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Abstract: 60 years of research at Neolithic Period Anatolian Site Çatalhöyük have had an unprecedented impact on archaeology. One of its premises was the discussion on beginning of urbanism with another phenomenon site of Jericho in Palestine, which was discovered soon earlier. They have generally been listed first cities on the literature of urban history and culture history. After nineties, this narrative has almost been lost or not discussed. Thus, the phenomenon of urbanism of this ‘mega-site’ from the perspective of the Neolithic Çatalhöyük in Anatolia is still unparalleled after 60 years on. At 13 hectares, with 18 levels of Neolithic occupation spanning 1100 years, and peaking at around 7000 inhabitants, settlement is considered to be an important source of evidence regarding the transition from settled villages to urban agglomeration. In order to examine many questions and debate on research agenda by Çatalhöyük studies like could the urban trajectory of any given region be a local story? What makes the settlement different from the other mega sites in Neolithic Period? Do we see any same patterns of Urbanistic settlements on following periods until Late Chalcolithic towards West like Western Anatolia and Balkans? The presentation will also present current work at Çatalhöyük of new data on an excavated new residential quarter divided by a Street on abandoned Northern Submound in Middle Phase along with new area excavated on Eastern Slopes of Mound which is giving new transformed households and an old tradition of shrine in the final period of the settlement.

Keywords: Çatalhöyük, Urbanism, Anatolia, Neolithic Period, Quandary

The Intertwinement of Mundane and Symbolic Behavior in the Neolithic: The Example of Cooking Pots at Çatalhöyük

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R06

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Abstract: In Neolithic archaeological contexts, symbolic elements are often seen as key indicators of belief systems. While the phrase "if not functional, then ritual" is not explicitly used in anthropological or archaeological literature, it effectively summarizes the idea that objects or actions lacking an obvious functional purpose may have ritualistic or symbolic significance. The interpretation of archaeological material frequently involves differentiating between functional and symbolic uses, a significant and ongoing debate. Many researchers acknowledge that in past societies, daily life practices often intertwined functional and symbolic aspects, indicating that objects with symbolic meanings and those with practical uses were not always distinctly separate. Early Neolithic pottery assemblages provide crucial data on raw material sources, settlement stratigraphy, production technologies, daily life, environmental interactions, and food consumption. Despite this, they are often considered among the most modest, archaeological finds due to their simple forms and surface treatments, of mundane daily life. The Neolithic pottery from Çatalhöyük faces a particular challenge; it appears overshadowed by the settlement's elaborate symbolism. The extent of elaboration in the material reflections of symbolic behaviors varies widely. Items such as wall paintings, sharp bull horns attached to benches, plastered painted skulls, figurines, or pottery adorned with elaborate images are typically classified within this domain. However, plain, undecorated cooking pots occupy a gray area, especially since they are often found in fill contexts. This presentation explores the presence and potential reasons for symbolic behavior identified through a limited number of in situ pottery finds at Çatalhöyük.

Keywords: Neolithic, Central Anatolia, Çatalhöyük, Pottery, Symbolic Behavior

Late Neolithic imagery of Çatalhöyük East Area

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Abstract: Recent excavations in the previously unexplored East Area of Çatalhöyük have revealed a significant array of Late Neolithic artifacts adorned with imagery. The aim of my paper is to present repertoire of imagery finds, along with items potentially linked to ritual practices from the East Area. The evidence comprise exceptional examples of human and animal figurines, clay cuboid objects with incised anthropomorphic and geometric motifs, as well as various bone and stone objects. They are different from the typical early Neolithic 'classic' Çatalhöyük imagery and notably, majority of them were recovered from special contexts. One particularly distinctive trait of the East Area is a practice involving the deliberate placement of broken sherds within the architectural context, possibly related to burial rituals. The team from Adam Mickiewicz University in Poznań uncovered a structure interpreted as a charnel house. Within one of its small rooms, a unique feature was discovered: a 'ledge' adorned with dozens of potsherds affixed to the wall. Additionally, pottery fragments constituted an important element of the special deposits and were placed in association with human skeletons. Moreover, scattered individual sherds with a bucranium motif, were found in other areas. This paper will discuss those finds, in the context of the broader Anatolian and Near Eastern Neolithic.

Keywords: Late Neolithic, Çatalhöyük, imagery, pottery

South of the Konya Plain (Current studies Current data)

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R06

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Abstract: In the 1960s, Ralph Solecki and Jacques Bordaz carried out surface investigations in the south area of the Konya Plain. Excavations were carried out in 1964-65 under the direction of Jacques Bordaz in Suberde and in 1966-67 in the Erbaba. These excavations provided the first information about the earliest settlers in the region. Rescue excavations were carried out between 2002 and 2005 as part of the DSI's concrete canal project on the eastern edge of the settlement, which was called Kanal Höyük when it was discovered by Mellaart (registered as Gökhöyük Bağlar Höyük). Although research on the prehistoric period in the south of the Konya Plain began in the 1960s, the Neolithic and Chalcolithic periods of the region have not been fully understood due to the lack of long-term scientific studies. In 2020 began surface research into the prehistoric period around Lake Suğla. As part of this study, known settlements were visited and their current situations were recorded. In addition, new settlements such as Akkise/Yahyalı Höyük, Balıklava/Karayaka Höyük, were identified in the vicinity of Lake Suğla. Based on the results of the surface investigation, the excavations in Gökhöyük Bağlar Mound began in 2023 under my direction. When the results of the archaeological investigations carried out between 2020 and 2024 are evaluated in general, it is found that the region was more intensively inhabited than known during the Neolithic and Chalcolithic periods. Moreover, smaller finds such as obsidian and pottery have shown that the region has an intensive relationship with Çatalhöyük.

Keywords: South Of The Konya Plain, Gökhöyük, Neolithic, surface research

A View from the Highlands to the 'Central Anatolian Neolithic': New Insights from Tepecik-Çiftlik (Niğde, Türkiye)

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R06

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Abstract: Tepecik-Çiftlik is a Neolithic and Early Chalcolithic settlement located in the Volcanic Cappadocia region of Central Anatolia. So far, ten levels dating from 7100 to 5800 cal. BC have been identified at the site. As the bedrock has not yet been reached, information about the earliest inhabitants of the settlement is not yet available. The site is one of the rare settlements in Central Anatolia with such a long and uninterrupted stratigraphy. This feature makes it possible to trace the social, cultural, and economic changes of the settlement over time. Archaeological investigations at the site have shown that almost every level had a different settlement pattern throughout the long period of occupation. This "variable" settlement process distinguishes Tepecik-Çiftlik from other contemporary sites in Central Anatolia. In this context, Tepecik-Çiftlik is considered an important archaeological site for understanding the diversity and complexity of the Central Anatolian Neolithic. This paper presents an overview of the data from Tepecik-Çiftlik, which has been excavated for more than twenty years and discusses the contributions of the excavations to the understanding of Neolithic-Early Chalcolithic cultures in Central Anatolia.

Keywords: Tepecik-Çiftlik, Central Anatolia, Neolithic, Early Chalcolithic

Manufacture and Function of Engraved Obsidian Arrowheads from Tepecik Çiftlik (Cappadocia, 7th Millennium BCE)

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R06

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Abstract: Engraved obsidian points have long been identified in Neolithic Central Anatolia (7th millennium BCE). Most researchers consider them as “hunter marks”, meaning signs made by hunters to recognise their projectiles on their victim or prey. This hypothesis is based on comparisons with ethnographical data. However, there is no explanation for the very random distribution of these incisions and for their rarity among the chipped stone industries. Indeed, engraved arrowheads have only been found at Can Hasan III, Çatalhöyük and Tepecik. At the Neolithic and Chalcolithic mound of Tepecik Çiftlik (Cappadocia), the first engraved point was identified a few years ago by S. Balci. The ongoing study performed by the authors of this presentation has led to the identification of a dozen more engraved arrowheads. The technological and use-wear analysis proposed here allows us to understand how, where, when, and what for these engravings were made. Comparison with engraved points from other sites, especially Can Hasan III, leads to a reconsideration of previous interpretations and a better understanding of this uncommon practice.

Keywords: Engraved arrowheads, Central Anatolia, Neolithic, Obsidian

Contextualising Sırçalıtepe 8th Millennium BCE site near obsidian sources – new highlights from the Neolithic of Cappadocia, Central Anatolia

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Abstract: Central Anatolia is one of the formative zones of the Neolithic way of life. The initial knowledge of the Neolithic period of Cappadocia is based on surveys conducted in the 1960s, during which new Neolithic sites and obsidian sources were discovered. The first excavations began at Aşıklı Höyük, marking the onset of the settled life in the region, which were followed by Musular, Tepecik Çiftlik excavations, and Kömürcü Kaletepe obsidian workshop expeditions in the 1990s. These fieldworks underlined the significance and development of the Neolithic occupation in the Volcanic Cappadocia and largely contributed to understanding the interregional networks based on the production and exchange of obsidian blades in the Neolithic across SW Asia (particularly the Levant and Cyprus). Recent fieldwork at Sofular, Balıklı, and Sırçalıtepe provided new insights into various aspects of the Central Anatolian Neolithic, such as defining specific features of local Early Neolithic and highlighting the proximity of certain sites to obsidian sources. This presentation focuses on the new data gained from Sırçalıtepe, located in modern Kayırlı (Niğde), making it the closest Neolithic site to the Göllüdağ and Nenezi Dağ obsidian sources. Sırçalıtepe excavations started in 2019. The site shows well-stratified layers dating back to the 8th millennium (7600-7100 BCE). The site exhibits regional characteristics, such as mudbrick houses, abundant obsidian artefacts, developed bone industry, grinding stones and small finds, along with distinctive features like obsidian workshops within a Neolithic context.

Keywords: Volcanic Cappadocia, Central Anatolia, Sırçalıtepe, Early Neolithic, Obsidian

The Neolithic at the Çakılbaşı (Aksaray) Site

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Abstract: The Neolithic at the Çakılbaşı (Aksaray) SiteIn Aksaray, the Pre-Pottery Neolithic (9th and 8th millennia BC) is known with Aşıklı Höyük, Musular and Balıklı. Our knowledge of the Pottery Neolithic (7th and early 6th millennium BC) in the region is very limited. The Aksaray Prehistoric Survey (AKYA), which started in 2021, with its holistic approach to the prehistoric chrono-cultural past of Aksaray, focuses on processes that are not known from excavations. In this context, the settlement of Çakılbaşı has been re-examined and new findings related to the Pottery Neolithic have been made. Çakılbaşı is located on the edge of the Karasu spring in the Gülağaç plain, about 4 km from the nearest source of obsidian, Nenezi. Survey evidence indicates a continuous occupation from the 8th to the early 4th millennium BC. In addition to the Nenezi obsidian deposit, the Göllüdağ-Kömürcü and Kayırlı sources were also used in Çakılbaşı, where bifacially retouched arrowheads, unipolar and bipolar blades of different technologies were found in large numbers. The red slip burnished ware from the settlement differs from the examples known from the Musular settlement (5850 BC) in the region and is associated with levels 5-4 and 3 of Tepecik-Çiftlik (6650-6000 BC). Aksaray lies on one of the main routes for the transmission of Neolithic lifestyles from the Near East to Europe. This study compares the obsidian and pottery finds from Çakılbaşı with sites in different cultural regions of Central Anatolia and discusses the place of the region in the Neolithisation process.

Keywords: Aksaray, Çakılbaşı, Red Slipped Burnished Wares, Neolithisation in Central Anatolia, Techno-typology of the obsidian chipped stones

Prehistoric Investigations in Nevşehir, Cappadocia.

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R06

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Abstract: Geologically, “Volcanic Cappadocia” refers to the southeastern part of Central Anatolia. This specific region is divided into three different areas based on the articulation of the volcanic geography. The Middle Volcanic Cappadocia, mainly refers to Nevşehir city and its peripheral area comprising the volcanic domes around the Acıgöl and Derinkuyu areas. However, volcanic landforms spread out to the whole city. The prehistoric archaeology of the Volcanic Cappadocia is based mainly on research conducted by İstanbul University’s department of prehistoric archaeology. However, all of these projects focused on the western part of the region and produced limited data for the other areas of Volcanic Cappadocia. The only available data on the prehistoric archaeology of the Middle part of the Volcanic Cappadocia (Nevşehir) were based on the survey projects which were carried out in the 1960s and the 1990s. With the exception of Ian Todd’s surveys in the 1960s, these projects focused on specific parts of the region without a holistic perspective, thus reducing the role of this central area in the prehistory of the Volcanic Cappadocia region. The Nevşehir Neolithic Survey (NENESU) started with the specific aim of obtaining an integrated view of the role of the central Volcanic Cappadocia in both Cappadocian and Central Anatolian prehistory by means of recent survey methodologies. This paper aims to present results from the 2019-2024 seasons of the NENESU Project in the Nevşehir which could be called as Middle Volcanic Cappadocia.

Keywords: Nevşehir, neolithic, prehistory, survey, Middle Volcanic Cappadocia

Northernmost Frontier of the Central Anatolian Neolithic – New Evidence from the Çorum Prehistoric Surveys

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R06

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Abstract: Despite significant archaeological work in Central Anatolia, the northern part of the region, including Yozgat, Çorum, and Çankırı, remained underexplored. To address this deficiency, archaeological surveys were initiated in Çorum in 2020. Unlike Southern Central Anatolia, characterized by volcanic landscapes, wide plains and closed basins, Northern Central Anatolia features a much more dynamic geography, shaped by the Northern Anatolian Fault Line, numerous mountain ranges and depressional plains and interconnecting river systems. Instead of focusing on alluvial-covered plains, known from the nearby Chalcolithic settlements, such as Büyükkaya and Büyük Güllücek, the Çorum surface survey targeted rocky areas and slopes. This strategy proved effective, as over 50 new prehistoric sites were identified, dating back from the Paleolithic until the Bronze Ages, where our investigations focused on the presence of Epipaleolithic, Neolithic and Chalcolithic. Most prominent collections show vast number of lithics, often lacking significant pottery presence. Certain assemblages show the combined use of local radiolarites and cherts and the scatters of more than 600 obsidian. These attest to the use of pressure bladelets, notches and oblique truncations, and fully exhausting cores, so far not attested in the regional contexts. On the other hand, pottery assemblages documented from various find spots provided clear evidence for the presence of the Late Neolithic and Early Chalcolithic periods in the region for the first time. In this presentation, we aim to introduce these new data from the Çorum province by focusing on the Neolithic evidence to discuss the north-south connections in Central Anatolia and beyond.

Keywords: Northern Central Anatolia, Çorum, Survey, Pottery, Lithics

Archaeobotanical Analysis of Neolithic Çatalhöyük North Terrace Area Excavations

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Abstract: In this study, archaeobotanical analysis of the plant remains obtained from the spaces dated to 6500 BC in Çatalhöyük North Terrace Area that was exposed in 2021 adjacent to the former excavated area (Northern Area on submound) of Hodder Era. As a result of the studies carried out between 2021 and 2023, it was revealed that there was a wide variety of plants, especially cereals and legumes in new opened building (180) and many spaces. They are chronologically related to the Middle Phase of Çatalhöyük, levels VII and VI B. These results from the area show a big diversity of agricultural products of the Neolithic Çatalhöyük settlement and the plant richness within the natural vegetation around the site. Moreover, in a burned floor of space (66) that was burned and later filled, probably the oldest known example of Çatalhöyük bread that has survived to the present day in a holistic form due to the special conditions of its debris was identified in these studies. This example and its context also showing food preparation has brought a new perspective on nutrition and product processing methods of the Ceramic Neolithic period in Anatolia with other former porridge-like meal finds. The findings have also revealed new results about the Neolithic people's agricultural processing, food preparation, consumption activities and the utilization of plants for different purposes with current detailed studies from Hodder Era Excavations in Northern Submound.

Keywords: Neolithic, Çatalhöyük, Archaeobotany

Investigation of Agriculture in Inner West Anatolia in the 6th millennium: Archaeobotanical Analysis of Kanlıtaş Höyük

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R06

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Abstract: This paper presents the findings of archaeobotanical investigations conducted at the Early Chalcolithic settlement of Kanlıtaş in inner West Anatolia. The excavation, spanning from 2014 to 2019, unearthed a hilltop settlement with significant similarities to the nearby Orman Fidanlığı site, indicating a distinct cultural region with connections to the Early Balkan Vinca culture. Kanlıtaş served as a bridge between Southern Marmara and Central Anatolia and provided the first archaeobotanical evidence for the region. Archaeobotanical samples were collected from various contexts such as silos, ovens, middens, and graves. The results revealed a diverse array of plant remains, highlighting the agricultural practices and resources utilized during the period. Einkorn and emmer were crucial staples in the diet, supplemented by barley and legumes grown for both human and animal consumption. Lithic tools with silica residues on flint blades were identified, suggesting their use in cereal harvesting and reed processing, providing insights into agricultural tools of the era along with a big array of grinding stones at the site. Of particular interest was the discovery of abundant plant remains in a grave, believed to be the earliest human burial in Kanlıtaş and the Upper Porsuk Valley. The diversity of seeds and the presence of plant remains in the grave hint at ceremonial or ritualistic practices associated with burial, supported by teeth analysis indicating a diet rich in carbohydrates from cereals. This study contributes a comprehensive archaeobotanical perspective to the Final Neolithic in old chronology and Early Chalcolithic period as new chronology Anatolia of a big part of inner West Anatolia, offering insights into agricultural strategies, dietary patterns, and potential ritual practices of ancient communities in the region.

Keywords: Archaeobotany, Kanlıtaş, Agriculture

Telling Small Tales: Revealing the Hidden Stories of Pınarbaşı, Boncuklu Höyük and Çatalhöyük, Anatolia through their microfaunal assemblages

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R06

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Abstract: This paper focuses on results from the analysis of microfaunal assemblages from three key sites in the Konya Plain, Anatolia, which span the Epi-Palaeolithic to the Late Neolithic period: Pınarbaşı, Boncuklu Höyük, and Çatalhöyük. Using traditional taxonomic and taphonomic methods, coupled with geometric morphometric and aDNA analyses, we were able to show that human occupation and activity gradually altered the species diversity of the microfaunal community over time. While the anthrodependent house mouse was absent at the more ephemeral site of Pınarbaşı, it was found in low numbers in internal areas in the later levels of the village of Boncuklu, while it was by far the dominant taxa at the proto-urban site of Çatalhöyük, where microfauna also played a role in the ritual life of the site. The abundance of frog, toad, water vole and water snake at Pınarbaşı, and Boncuklu indicate that the environment was wet in the past, and at Boncuklu there is evidence that frogs and potentially water vole were consumed as part of a Broad Spectrum Economy.

Keywords: Anatolia, microfauna, Çatalhöyük, Boncuklu Höyük, Pınarbaşı

Archaeometric Investigation of Neolithic Çatalhöyük Plaster Samples

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R06

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Abstract: Wall and platform samples from different houses in the Çatalhöyük South and North areas, spanning various time periods, were characterized using XRD, ICP-OES, FTIR, EPMA, SEM-EDS, and Micro-CT analysis methods. This allowed for a comparison of plasters used on walls and floors, wall plasters believed to be painted for ritual purposes, and plasters used in the memory house with those in other houses, focusing on raw materials and plastering techniques. The examination of plasters in terms of time and space aimed to answer archaeological questions about Çatalhöyük society, such as whether there was knowledge sharing or competition among households. The analysis results confirmed two different plastering techniques: single-layer and multi-layer plastering. Single-layer plaster using marl was identified in Building 17, dated to the Early Period. In contrast, the multi-layer plaster technique, utilizing marl and soft-lime, was observed in Buildings 80, 89, 96, 114, and 131, dated to the Middle Period. It was understood that the primary raw materials for plastering techniques were either marl alone or a marl/soft-lime couplet. Despite similarities in elemental and mineralogical aspects, the plaster samples exhibited quantitative differences in elements and minerals between some houses. Possible reasons for these variations include the non-homogeneity of the raw materials used, sourcing raw materials from different regions, and application differences, such as changes in the ratio of marl to soft-lime.

Keywords: Çatalhöyük, Neolithic Plaster, Raw Material Analysis, Archaeometric Analyses, Cultural Heritage

R07 - Epipalaeolithic and Early Neolithic Hunter-Gatherers in the Eastern Taurus Foothills

Session Organiser

Necmi Karul / İstanbul University, Türkiye

Eleni Asouti / University of Liverpool, UK

Joris Peters / Ludwig-Maximilians-University of Munich, Germany

Abstract

The foothills of the Eastern Taurus, including the Upper Euphrates and Tigris basins, contain some of the earliest and best-known habitation sites associated with the beginning of cultivation and herding in Southwest Asia. Since the mid twentieth century, archaeological fieldwork has revealed several late Epipalaeolithic and early aceramic Neolithic habitation sites dating from the 11th to the 9th millennia cal BC. Currently the region is witnessing a resurgence of intensive large-scale fieldwork in the context of the Tas Tepeler project, focused in the Urfa region, alongside ongoing projects in South-Eastern Anatolia generating increasing evidence for a higher density and diversity of settlement than previously thought. Despite some local differences, the available data suggest the existence of societies from the very beginning that were well organized and had a complex social life. The aim of this session is to query old and emerging data from different perspectives including settlement organization, the development of architecture, new technologies, the relationship of sites to the changing landscape and climate, plant and animal resource exploitation and management, and regional networks and symbolic expression, in order to explore the environmental, economic and socio-cultural dynamics that framed the motivation for the transition to settled life. Comparative perspectives with neighbouring regions including the Levant and northwest Zagros, will also contribute novel insights to our understanding of the diversity of the Neolithization process across Southwest Asia.

From cave to village and back: revisiting old theories with new data in the Epipalaeolithic of the Taurus-Zagros arc

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R07

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Abstract: Recent fieldwork by the University of Liverpool in the Zagros region of northern Iraq has begun addressing long-standing gaps in the Epipalaeolithic archaeology of the Eastern Fertile Crescent including the chronology, subsistence strategies and palaeoenvironments, and material culture. In the last 2 years, excavations at Ashkawta Rash Cave, have produced new evidence challenging current paradigms for the nature of late Epipalaeolithic habitation in the northwest Zagros at the end of the Bølling–Allerød Interstadial and into the Younger Dryas (c. 13,000-11,900 cal BP). Excavations at Ashkawta Rash Cave in 2023 and 2024 have revealed a lithic industry nearly identical to that of neighbouring Palegawra Cave, which contains a longer radiocarbon dated sequence extending back to the LGM, alongside a material culture assemblage that prefigures innovations traditionally associated with Neolithic open sites known from Northern Iraq and Eastern Anatolia. This presentation outlines select initial results of our fieldwork to date at Ashkawta Rash, focusing on the emergent continuities and differences with published early aceramic Neolithic sites from the Taurus-Zagros arc, and their implications for exploring the diversity of hitherto under-investigated late Palaeolithic lifeways in this region of SW Asia.

Keywords: Epipalaeolithic, Northwest Zagros, cave habitations

Not to Domesticate the Landscape But to Adapt to it! (Local Environmental Crises Motivated New Inventions in Architecture from PPNA to PPNB: Çayönü)

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R07

¹Çanakkale Onsekiz Mart Uni. (retired)

Abstract: One of the traditional criteria for PPNA-PPNB transition using architecture is the shift from round semi-subterranean dwellings to rectilinear structures with rounded corners. What drives this change? A 'trend' or some environmental effect or social event? Almost all the North Mesopotamian and Levantine PPN sites have been abandoned at the beginning or first half of Early PPNB and these areas have not been occupied in PPN anymore. Çayönü PPNA community had displayed exceptional behavior. Even though suffering from frequent floods or torrents caused by the river in the north, the community has solved the environmental crises through a new invention: grill-planned structures. Today, this invention is simple for us. But after living nearly 1000 years in subterranean or semi-subterranean dwellings, moving to structures with raised floor levels conceptionally should have affected the community's lifestyle. The grill-planned structures (including the grill-channeled transitional buildings) became a predominant plan type in the last quarter of PPNA and in almost half of the PPNB at Çayönü (continue till Mid PPNB). With each renovation of the grills, the architectural development is evident with the production of lime-plastered floors. The general motto of the Çayönü people seemed to be 'Not to domesticate the landscape but adapt to it.' What is the motivation (stimulation) behind instead of searching for a new homeland but continue occupying 'their land' is mysterious. In this paper, hunter-gatherer adaptations to the chosen landscape rather than its 'domestication' are discussed on Çayönü data.

Keywords: Diyarbakır, Çayönü, PPNA, PPNB, Grills

Continuity and Change in the Northern Border of the Upper Tigris Region throughout the Neolithic Period: Evidence from Gre Filla and Kendale Hecala

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R07

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Abstract: The cultural continuity and change throughout the Neolithic period have been subject to several theoretical approaches, especially basing on the data obtained by the excavations from the Levant and the Middle Euphrates region. Salvage excavations carried out within the Ilisu Dam project in the last two decades revealed data on the Neolithic period of the Upper Tigris region; however, recent salvage excavations conducted on two sites, located ca. 800 meters to each other, to be affected by the Ambar Dam brought out data on the northernmost most part of the region. Gre Filla was inhabited by settled hunter-gatherers in the Pre-Pottery Neolithic period, and Kendale Hecala by farmers in the Pottery Neolithic and Early Chalcolithic periods. The material culture and the socio-economic structure at both sites seem to had been influenced from the geographical properties, climatic conditions, life style and subsistence strategies. This paper aims to discuss probable factors regarding the continuity and change in architecture, artefacts, depictions, symbolism and behaviour.

Keywords: Neolithic, Settlement Layout, Upper Tigris, Gre Filla, Kendale Hecala

Special buildings found at Hasakeyf Höyük in the Upper Tigris Valley

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Abstract: Hassankeyf Höyük is an Early Neolithic site located in the Upper Tigris Valley and was mainly occupied during the second half of the 10th millennium cal. B.C. The botanical and faunal evidence show that the site was settled by hunter-gatherer-fishers. A series of special buildings, at least seven, were uncovered in almost the same location with different levels. These buildings are larger in scale than other domestic structures, and some have particular features such as stone pillar, channel-like stone rows, and stone paved raised floor (platform). These structures in the lower layers are circular and subterranean, but in the upper layers they have been transformed into rectangular plan with rounded corners. It seems likely that only one special building was functioned at certain period of time and these structures were used for communal rituals. Repetitive rebuilding activities of the special buildings at Hasankeyf Höyük indicate that the place where they were continuously constructed was recognized as significant and special for the community.

Keywords: Early Neolithic, Upper Tigris, special buildings

Comparative perspectives on the south-east Taurus foothills. The view from Jebel Sinjar to the Chemchamal valley in the 11th-8th millennia cal BC.

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R07

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Abstract: Taking a transect from Jebel Sinjar to the Chemchamal valley this paper analyses key evidence for developments from a series of Neolithic sites spanning the 11th to 8th millennia cal BC. These sites include Qermez Dere, Nemrik, M'lefaat, Magzaliya, Satu Qala, Zawi Chemi Shanidar, Karim Shahir and Kharaba Qara Chewar. Evidence for developments in residential strategies, plant and animal exploitation, other technologies, households, community and inter-regional interactions are considered across this zone. The question of the role of increasing sedentary behaviours in technological and other changes are considered. Issues relating to the nature of the Epipalaeolithic-Neolithic transition, continuity and change in this zone are considered building on and integrated with Professor Eleni Asouti's preceding presentation on the Epipalaeolithic of the northern Zagros. Comparative perspectives with the south-eastern Taurus are then explored.

Keywords: Zagros, Neolithic, sedentism, change, continuity

Diversity and similarity of material culture and its interpretation at the beginning of neolithization in Upper Mesopotamia: a general outlook.

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R07

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Abstract: The northern Mesopotamian Early Neolithic Period (Pre-Pottery Neolithic A) serves as a basis for the study of symbolic and ritual iconography, as well as important information for the study art in this region. However, the interpretation of these finds is mostly carried out on the concepts of belief or ritual with a symbolic emphasis, however very little research has been carried out on the iconographic features, object form, and the regional distribution of these objects. After recent archaeological studies in northern Mesopotamia (Northern Iraq, North Syria and the Southeastern Anatolia Region), the number of known settlements that were inhabited in the earliest stages of the Aceramic Neolithic period is increasing, and new data is being revealed on painted art in this region. Although these findings are interpreted mostly in a symbolic and socio-cultural context, it is known that the concept of iconography in the region varies within itself. In this context, it is important to examine the regional distribution of the archaeological finds, which are important for the study of Early Neolithic art in northern Mesopotamia, the regional distribution rather than the symbolic interpretations, and the introduction of regional similarities and differences.

Keywords: Northern Mesopotamia, Symbolism, Neolithic Aceramic A, Neolithic Period, Diversity and Similarity

Neolithization west of the Euphrates: New evidence from both sides of the Amanos

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Abstract: Research of Late glacial and Early Holocene societies has focused on the upper Euphrates and Tigris drainages during the past two decades, but far less attention has been paid to the western edge of the Eastern Taurus foothills. Recent survey (EPKİBAP, 2016-2020) identified Epipalaeolithic sites on each side of the Amanos Mts. Late Epipalaeolithic (Northern Natufian) materials align with sites such as Dederiyeh (Afrin drainage, northwest Syria) and Direkli (Kahramanmaraş). Direkli was a late summer-early fall station in the Taurus uplands, Dederiyeh a more permanent lowland camp, and the EPKİBAP sites more transient stations. The evidence is consistent with transhumant movement between winter-spring lowland camps and upland summer stations, and limited tendency toward sedentism. Radiocarbon evidence from Direkli suggests that Late Epipalaeolithic adaptations continued into the first millennium of the Holocene, i.e. the PPNA period of northern Mesopotamia. Neolithic developments in the Amanos area seem delayed compared to northern Mesopotamia – apart from Ain el-Kerkh in the Rouj basin, the oldest recorded Neolithic villages on the east side of the Amanos are Late PPNB, and no Aceramic Neolithic sites have definitely been identified on the west side of the Amanos. This paper reviews the evidence for Epipalaeolithic and early Neolithic occupation on each side of the Amanos Mts, and explores reasons for the delayed Neolithisation of foraging groups in these areas.

Keywords: Epipalaeolithic Amanos neolithization

Settlement Pattern of Şırnak/Cizre, Silopi, İdil and Mardin/Nusaybin Archaeological Survey Area during Neolithic Halaf

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R07

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Abstract: The Turkish Government implemented a substantial regional development program for southeastern Anatolia that entails the building of a number of dams on the Euphrates and Tigris rivers and their tributaries. After the application of this program, it has started to cause the destruction of important cultural capacity in the dam reservoirs and will also continue to affect many archaeological and historical sites which are located within the borders of further dam projects that are in the planning phase. The “Şırnak/Cizre, Silopi, İdil and Mardin/Nusaybin Archaeological Survey” was formed to document the archaeological sites found in dam impact area that will be destroyed by the construction of the Cizre Dam and irrigation canals. The survey area roughly extends from the 2100 m elevation contour to the arbitrary line to south, along the 350 m contour, where the international borders between Turkey, Syria, and Iraq, marked by the Tigris, the eastern Khabur, and Hezil rivers. In this paper, we will shed light on the distribution of Halaf sites and how the environmental characteristics of the area were responsible for the settlement patterns during Neolithic Halaf period of this specific area. Since the geographical region consisting of modern districts of Cizre, Silopi, Idil and Nusaybin is supported by small perennial or spring-fed tributaries of the Tigris that crosses the plains; a possible connection will be revealed between water resources and settlement locations.

Keywords: Late Neolithic, Halaf, settlement pattern, Cizre, Tigris

Karahantepe: in the context of construction of the Neolithic Societies.

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Abstract: In Southwest Asia, the rapid growth of relatively large, year-round settlements indicates an increased population density during the Holocene. Although the dynamics of change in daily life and social organization are similar throughout the region, there are differences in the first settled communities. One of the most striking examples of cultural variation is observed in the Eastern Taurus, where sites are distributed across a range of habitats, including plains, riverine areas, and highland regions. The architectural concept and symbolic elements observed at sites on the Haran Plain's highlands are distinct from those of their contemporaries. Until recently, Nevalı Çori and Göbeklitepe were the most representative examples of this period. Nevertheless, the research conducted at Karahantepe, which commenced in 2019, has yielded new data about the PPNA and B periods. The site has revealed the combination of residential and non-residential buildings, which has enabled the creation of a detailed picture of the pattern of the settlement organization. Furthermore, the presence of a complex of special buildings with different plan types allows us to identify the functional differentiations of special buildings. Moreover, the research conducted at the site indicates that the significance of human depictions is on the rise. This is of great importance, as it provides insight into the social and cultural aspects of the settlement. The construction of gathering spaces and special buildings, the incorporation of symbolic elements within them, and the high level of artistic production all contribute to the significance of communal activities.

Keywords: Karahantepe, Special Buildings, Neolithic art

The beginning of sedentarisation in the Şanlıurfa Plateau: Çakmaktepe

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R07

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Abstract: Çakmaktepe, located approximately 20 km west of Şanlıurfa, was discovered in 2021 during the Şanlıurfa Archaeological Survey Project (ŞAYA). In the same year, excavations began as part of the broader Taş Tepeler project. Çakmaktepe reflects an earlier stage of the process of sedentism compared to other Pre-Pottery Neolithic settlements in the Şanlıurfa region. The excavation at Çakmaktepe has uncovered round-planned, subterranean single-room dwellings and large structures, both carved meticulously into the limestone bedrock. These remains provide significant clues about settled hunter-gatherer communities' daily and social lives. One of the large structures at Çakmaktepe has been fully excavated. The pillars found around the large structure are notable, since they are worked pillars fragments but have not yet taken on a "T" shape which is typical of later examples. In the houses, the bedrock was utilized as the floor. In areas where the bedrock was too steep, gravel was compacted with earth to level the floors with a technique that will be later perfected to create the famous "terrazzo" floors of later settlements. The data obtained from these structures provide significant insights into the transition from foraging to agro-pastoralism, which is one of the greatest innovations in human history. According to the chipped stone material found in the El-Khiam points, which are mostly known from the Levant, Çakmaktepe is dated to the early PPNA (10000-9500 BC).

Keywords: Çakmaktepe, Şanlıurfa Plateau, PPNA, Neolithic, Sedentarisation

Sayburç a mid-9th millennium settlement on the Şanlıurfa Plateau.

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Abstract: Sayburç is a single-period site dating to the middle of the 9th millennium BC, in the Early PPNB period, on the Şanlıurfa plateau. The settlement developed horizontally over a relatively large area, with two occupation areas identified. A similar settlement pattern is observed in both areas. The dwellings and special buildings are interwoven and adjacent to each other, with the presence of more than one special building being noteworthy. Although the special buildings are relatively distant from the monumentality of the structures known from the PPNA in the region, the same features have been retained in form. The presence of benches and T-shaped pillars inside the buildings, as well as their arrangement, is a strong continuation of the previous period. Although the dwellings are not very standardized in terms of plan, they are fully residential in character with areas such as benches, niches, buttresses, hearths, and utilitarian finds. The use of T-shaped pillars is also observed in the dwellings. As a settlement where daily life and the sacred are intertwined, Sayburç provides detailed information about the lifestyle, daily practices, and beliefs of the period.

Keywords: Sayburç, Early PPNB, Special Buildings, Neolithic dwellings

A Pre-Pottery Neolithic View from Another Stone Hill: Renewed Excavations at Harbetsuvan Tepesi

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R07

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Abstract: The Pre-Pottery Neolithic period in southwest Asia saw fundamental changes in prehistoric human lifestyle. Archaeological research at Göbekli Tepe and recent discoveries from Karahan Tepe and related sites in southeastern Anatolia, in particular, demonstrate that the pathways involved complex processes and human-nature interactions including plant and animal domestication, population dynamics, socio-cultural change, multiple technological innovations, and monumentalism in short and/or longer periods. But to understand the full dynamics of the Neolithic transition in the densely populated Şanlıurfa area, we need to take another view with a holistic approach including contemporaneous smaller sites on these monumental mega-sites. In 2022 the renewed research project started as a joint mission between the Chiba Institute of Technology, the University of Tokyo, and the Şanlıurfa Museum. Our new project focusing on Pre-Pottery Neolithic sites in the Şanlıurfa area aims to clarify the nature of the Neolithization processes from both humanity and geoscience perspectives in the region, in close collaboration with the Taş Tepeler Project. This paper presents the initial results of the renewed excavations and geophysical surveys conducted in 2022 and 2023 at a small site called Harbetsuvan Tepesi. The excavations revealed that this limestone hilltop site of less than 1 ha in size contained multi-phased rectangular structures, mostly dated to the Early PPNB. We discuss the Pre-Pottery Neolithic architecture and stratigraphy of the site based on the current data, the general layout of the settlement as revealed by geophysical surveys, and the periodization supported by new radiocarbon dates.

Keywords: Pre-Pottery Neolithic, Taş Tepeler, stratigraphy, settlement, radiocarbon dates

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Abstract: Sefertepe is an archaeological site dating to the Pre-Pottery Neolithic Period in the Viranşehir district of Şanlıurfa. The settlement is predominantly composed of a quadrangular planned building complex built by articulating with each other. There are also wall sequences of oval-planned buildings and it is possible to mention the presence of both residential and public buildings in the settlement. T-shaped and flat pillars with and without decoration, hearth areas, benches and niches are noteworthy as building elements in the architecture. There is a rich diversity in terms of both tool technology and symbolic elements (in terms of raw materials and forms). In terms of architecture and finds, Sefertepe is similar to the contemporary Neolithic settlements in the Euphrates Basin, especially Göbeklitepe and Karahantepe, as well as the contemporary settlements in the Tigris Basin such as Boncuklu Tarla, Çayönü and Gre Filla. Sefertepe is an important settlement in terms of understanding the Neolithic Period because of its interaction with the Tigris and Euphrates basins and the combination of elements unique to both basins as a result of this interaction.

Keywords: Neolithic, Pre-Pottery Neolithic, Architecture, Euphrates/Tigris, Neolithization

A Neolithic Mega Village in the Harran Plain: Gürcütepe

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R07

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Abstract: Gürcütepe, 4 km away from Şanlıurfa city center, is located where the limestone plateau ends and the fertile Harran Plain begins. Between 1995 and 1999, surface surveys and small-scale excavations were carried out within the scope of the “Urfa Project”. Gürcütepe, four of which are mounds and the other four are flat settlements, is 1200 m long in the east-west direction. Of these, Gürcütepe I, II and III date back to at least the Late PPNB and are notable for their total size of 9 hectares. With this size, Gürcütepe is one of the mega villages of southwest Asia. Research in Gürcütepe restarted in 2021 within the scope of the “Şanlıurfa Neolithic Research Project”, also known as “Taş Tepeler”. During the excavations at Gürcütepe III, two layers have been clearly unearthed: Large room structure and Cell-planned buildings. In these layers, houses with stone foundations and pisé walls and associated open spaces with fire pits and also used as workshops were identified. Important data about daily life, especially in open areas, was obtained. Excavations carried out in Gürcütepe reveal the social structure, settlement pattern, subsistence economy, cultural elements and their regional and interregional connections of the period.

Keywords: Neolithic, Gürcütepe, Şanlıurfa Neolithic Research Project, PPNB, Taş Tepeler

SEARCHing for Answers: Identifying the Evidence we Need to Understand the Taş Tepeler Sites

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Abstract: Archaeology, as a discipline with roots in the humanities but a scientific basis, yields interpretations based on evidence and logic. One of the fundamentals of this scientific approach is that interpretations are subject to evidentiary challenges and can and regularly do change in the light of new evidence. One approach to this is SEARCH: State a claim, Examine Evidence, consider Alternatives, and Rate, by Criteria of adequacy, each Hypothesis. Over the past 15 years, we have seen considerable re-evaluation of understandings about Göbekli Tepe and similar sites in what we now call the Taş Tepeler. Yet no broad new consensus has emerged and it will take further evidence to understand the Göbekli phenomenon more fully. This paper offers no new evidence about any of these sites. Instead, it focuses on identifying the kinds of evidence that would help us distinguish among several competing theories for the nature of these sites. Among these are that the large circular buildings were “special” or communal structures surrounded by contemporary domestic structures, that they were themselves large houses that were established before or after the small domestic structures, and that these sites initially had only “special” buildings with the domestic structures added later.

Keywords: Taş Tepeler, Göbekli Tepe, Karahan Tepe, Epistemology

Setting the stage for archaeofaunal comparison in the Taş Tepeler project: how different are Göbekli Tepe and Karahantepe?

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R07

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Abstract: Excavations at Göbekli Tepe in the mid-1990s marked the beginning of a new era in Neolithic archaeological and archaeofaunal research in Southeast Anatolia. However, while in the first two decades hardly any comparative archaeofaunas for interpreting our findings were available, recent years witnessed excavations in comparable sites, allowing us now to place earlier findings in a wider context for the first time. With Karahantepe, an architecturally and iconographically very similar site is now available for study, with systematic analysis of animal remains being initiated in autumn 2022. The results presented here take up the species spectrum and significance of individual animal taxa in human subsistence and in the pictorial repertoire of Karahantepe versus Göbekli Tepe, and an attempt is made to interpret the differences observed. This first comparative analysis marks the beginning of a more systematic, future study of PPNA to Early PPNB faunas and the role of animals in material culture and religious symbolism at sites with T-shaped pillars, the hallmark of the Early Pre-Pottery Neolithic in Southeast Anatolia.

Keywords: Karahantepe, Göbekli Tepe, Iconography, Animal imagery

Archaeobotanical Research In The Taş Tepeler Project: Challenges And Prospects

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R07

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Abstract: The Eastern Taurus foothills preserve some of the key sites in the development of sedentism, agriculture, and plant and animal domestication. Sites such as Çayönü and Nevalı Çori not only preserve evidence for early cultivation and domestication in the Pre-Pottery Neolithic, they also represent methodologically pioneering projects where rigorous sampling was applied for the retrieval and study of archaeobotanical remains in the second half of the 20th century. This paper presents our joint strategy, efforts, and research aims in coordinating archaeobotanical research and sampling across the Taş Tepeler Project comprising several sites covering the timespan of the regional Pre-Pottery Neolithic (~ 10th to 7th millennia cal BC). Since the start of excavations at Karahantepe in 2019, we have been systematically sampling for large-scale flotation processing (>50 litres per excavated context). Similar methodologies have also been applied at Göbeklitepe, Sayburç and, more recently, at Çakmaktepe, Sefertepe, Gürcütepe, and Mendik, where systematic sampling and processing via machine-assisted water flotation have vastly increased the potential for obtaining compatible results across the Taş Tepeler sites. Our future aims include regular workshops to enable data sharing, as well as training opportunities for early career researchers and students, and the expansion of routine archaeobotanical analyses to incorporate a broader range of proxies such as phytolith, starch, and biomarkers.

Keywords: Archaeobotany, Pre-Pottery Neolithic, Taş Tepeler Project, Bioarchaeological sampling

Recent Advances in Plant Research at Göbekli Tepe: Evaluating Previous Findings and Introducing New Insights

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Abstract: Göbekli Tepe, situated in south-eastern Turkey, has long been renowned for its monumental structures adorned with T-shaped pillars, igniting speculation about ancient societies not only within the site but also across the wider region. While past research has predominantly focused on the architectural marvels and their probable connection to ceremonial practices and early agriculture, recent scientific endeavours have shifted towards understanding the site's everyday life and its ecological context. This also resulted in new perspectives on and approaches to plant use at the site, less focused on their symbolic meaning. This paper presents the latest findings from macro- and microbotanical investigations at Göbekli Tepe originating from domestic refuse deposits from the fill and floors of the special and rectangular buildings in the main excavation area, dating between PPNA and B, shedding light on both the daily activities of its inhabitants and the environmental conditions they encountered. A larger crop diversity than previously known has been identified and the limited evidence for the presence of domesticates will be discussed. By critically evaluating past and present analyses at Göbekli Tepe, this paper underscores the potential of plant material in reconstructing Neolithic lifeways and human-plant interactions. Furthermore, it addresses the methodological challenges of phytolith analysis and proposes a comprehensive strategy tailored to the questions associated to the nature of the settlement at Göbekli Tepe.

Keywords: SE-Turkey, Macrobotany, Microbotany, Plant domestication

R08 - The Evidence of Violence in the Neolithic Buildings of Southeastern Turkey and its Possible Relations with Other Regions

Session Organiser

Jesus Gil Fuensanta / Autonomous University of Madrid, Spain

Alfredo Mederos Martin / Autonomous University of Madrid, Spain

Güner Coşkunsu / Autonomous University of Madrid, Spain

Abstract

The Neolithic in various regions of the world (Western Asia, Central Europe) has been associated with one of the first periods of human history where the greatest abundance of archaeological records with evidence of interpersonal violence took place. During the Early Neolithic (so-called Pre-Pottery, PPN A and B) Period of Southeastern Turkey, c. 9500-7000 BC, a series of buildings associated with the idea of central or communal sanctuaries appeared.

The transition from Aceramic Neolithic (PPN) A to B in many regions of the Near East entails evident changes in the archaeological record on material culture; and there is evidence of the existence of the changes due partially to some conflict.

From the advanced phase of the Early Neolithic (PPNB) the presence of human remains coupled with the idea of interpersonal violence began to abound (eg. beheadings, sealing the ritual buildings of Neolithic Göbekli Tepe final phase with chopped human bones), a type of presence that already was listed in earlier phase (PPNA) locations at the Levant (such as Jerico in the Jordan Valley) or the use of stone mace-head in burials at Kortik Tepe (Eastern Turkey).

These desecrations of the human body seem not only characteristic of the pre-pottery phase of the Neolithic of the Levant or eastern-central Turkey, since in later phases of the Neolithic of Western Asia (as example, the Halaf culture) reliable evidence has been found not only of conflicts, but of consumption of human remains (Domuz Tepe, Eastern Turkey).

In addition, the existence of lithic materials typical of the eastern area (for example, arrowheads from the cultures of the Israel-Jordan area) associated with the area of the Göbeklitepe buildings is supplementary evidence regarding this “conflict” issue. Such discoveries, made gradually in the last decades of the research on the Neolithic of the region, put into question a new reinterpretation of some aspects and mentality of the final phase of Prehistory regarding the human violence.

Introduction to the “culture of violence” in the Neolithic of Western Asia: An anthropological vision regarding aggression in Prehistory

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R08

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Abstract: Since the time of those pioneering studies by Konrad Lorenz, the eminent biologist and Nobel Prize winner has contemplated the existence of latent aggression in human beings since the early prehistory. But in this research that we present here we do not place special emphasis on prehistoric man and specifically the Neolithic peoples of Asia as a particularly violent species. Here we offer examples from various periods of the Neolithic of Eurasia where we can verify other conditions when judging the behavior of the societies that lived in the Pre-Pottery Neolithic (PPN) of Western Asia. In conclusion, we do not think that the appearance of excessive aggression during the period in question is due to a genetic issue exclusive to the inhabitant of the PPN of the Southern Levant or Mesopotamia of the period, but rather to issues of defense of territory and property, as well as progressive changes in the political-religious thought of the period.

Keywords: PrePottery Neolithic. Aggression. Eurasia. Mesopotamia. Ownership of the territory

Defensive spaces and circulation: The obsidian network associated with the “self-protected” villages of the Anatolian system

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Abstract: The appearance of exchange elements such as Anatolian obsidian is not an exclusive phenomenon of the Early Neolithic of Western Asia, since we have it present in sites from the Natufian Epipaleolithic of the southern Levant. This continued access by groups of hunter-gatherers to the Obsidian Sources of Central and Western Anatolia must have been a key element in the path to the exchange networks of other territories. And the journey of this travel commodity between the areas of Anatolia and the Southern Levant must have constituted an explanation for the development of the conception of the central settlements of the Aceramic Neolithic in Anatolia. But during the PPN of Anatolia is when we see a growing impact of obsidian on the villages in the area. On the other hand, we observe a transformation of the villages in Anatolia between the PPNA and PPNB phases, a change that must be conditioned with some type of internal circulation and defense issues against other central villages.

Keywords: Obsidian. Aceramic Neolithic. Defense. Control of the territory. Anatolia.

Anthropology on the women of PPN Central Anatolia: Cases of Psychological and Physiological Violence

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Abstract: This archaeological and anthropological study explores the phenomenon of gender-based violence in the Neolithic, focusing on the role of women in early agricultural societies. By analyzing archaeological evidence from sites such as Çatalhöyük, Skara Brae, La Draga, Banpo, and Vinča, as well as examining iconography and funerary practices, we investigate how violence against women was exercised and linked to fertility control and cultural norms. These sites provide a diverse array of artifacts and osteological evidence that highlight the various ways in which women's lives were influenced by social structures and practices. At Çatalhöyük, for instance, detailed analyses of household spaces and burial practices reveal insights into the domestic roles of women and the potential for violence within familial contexts. Skara Brae offers a glimpse into the daily lives of Neolithic communities in Scotland, where household artifacts suggest gendered divisions of labor. In La Draga, evidence of agricultural tools and domestic implements provides a context for understanding the contributions and vulnerabilities of women in early farming communities. Banpo and Vinča further illustrate the regional variations in the experience of women, highlighting how cultural and environmental factors shaped the social dynamics of Neolithic societies. Through this comprehensive study, we aim to reveal the complexity of gender relations and the significant impact of gender-based violence on the social organization and development of Neolithic communities. This research enhances our understanding of the intricate power dynamics and everyday lives of women in the Neolithic era, offering a nuanced perspective on their roles and experiences.

Keywords: Neolithic, Central Anatolia, Gender-based violence, Women, Fertility control

Peaceful nomads in Central Asia and a Culture of violence in the Neolithic of Western Asia?: Comparisons and differences.

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R08

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Abstract: We tend to associate labels with the characteristics of certain cultural periods of Prehistory. Since the last decades of the 20th century we have been forming in our interpretations an aggressive vision of the Neolithic inhabitant in some regions of Western Asia. In comparison, other places in the world during a Neolithic phase seem to have had a different social formation, perhaps due to a greater nomadic character in their composition, as is the case of Central Asia, whose Neolithic period does not coincide in time with the chronology of the lands of Mesopotamia and the southern Levant. However, other Neolithic periods such as that of eastern and central Europe do show the existence of aggressive activities during a more recent Neolithic than that which occurred in Western Asia. We see that such acts of violence by human beings occur in different periods of Prehistory and territories of the world; Our idea is that perhaps it is not always due to a question of ownership of the territory or limited resources, but to a misconception of human leadership.

Keywords: PrePottery Neolithic. Nomads. Agression. Territorial resources. Leadership

A History of Violence: The “cultural” spread of the South Levant Pre-Pottery Neolithic into Western Asia.

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R08

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Abstract: The type of beliefs and rituals exhibited by PPNA sites of northern Mesopotamia differ from the ritual concepts exhibited by the southern Levant during the same period, and which seem to be shown to have their roots in the earlier Natufian. On the other hand, the genetic composition of the southern Levant is striking, since the relationship of the southern Levant with areas of Anatolia is demonstrated, but our attention is drawn to the presence of genetic human remains of the African type from the south of the Arabian Peninsula during the Natufian period, immediately preceding the PPNA. After the appearance of stone tools in contexts such as the end of the PPNA of Gobekli Tepe, and there seems to be a change in the ritual and social mentality of the Mesopotamian people, along with a PPNB with very different ritual structures from the previous ones in the area is evident. A phase more in line with the ritual and social world of the southern Levant. Several hypotheses associated with the violence present on Aceramic Neolithic buildings are presented here, but they reflect a supposed dispersion of the model of settlements and control of the territory of the world of the southern Levant over northern Mesopotamia and eastern Anatolia.

Keywords: Ritual buildings. Ceremonial center. Central villages. Violence. “Agrarian Mentality”.

Reflections on Epipaleolithic man and the probable connections on the violence in the Aceramic Neolithic of Western Asia

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Abstract: The post-Paleolithic era of Western Asia experiences many changes in the archaeological record of the different areas that make it up: it is a long period in which changes occur within the hunter-gatherer societies that make them up. Of special interest for this framework on the study of aggression is the period so-called Natufian and which appears in the Southern Levant, where some of the economic conditions of the later Aceramic Neolithic are prefigured. The Natufian, unlike the preceding periods, there is a very important presence of skulls that are not associated with other parts of the body. It is shown that the severed head, present in the first phases of the later Aceramic Neolithic of the area, was already common. The Natufian of the Levant surprises us with the general absence of trauma in the found remains, with notable exceptions, such as the fractured non-dolichocephalic skull of Nahal Oren. We relate another characteristic of the period to the phenomenon of the Natufian human remains: the large number of stone arrowheads. In this investigation we relate these facts in relation to similar characteristics of the PPNA of the Levant. And from our point of view we explain how several of the characteristics of the later PPN of the southern Levant are founded, which in its first phase (PPNA) already presents different characteristics from those of those Neolithic settlements in northern Mesopotamia.

Keywords: Epipaleolithic. Natufian. Agriculture. Exchange networks. Burial rituals.

Buildings as spaces of peace or aggression during the Neolithic of Northern Mesopotamia

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R08

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Abstract: There is much debate about the social composition of the groups that lived in the Aceramic Neolithic of Northern Mesopotamia. Regarding the Göbekli Tepe site, it has been associated with semi-nomadic groups in its construction, depending on some theories. You can compare this place with the nearby Karahan Tepe, and make a series of similarities and distinctions. It seems clearer that the nature evidenced by the Aceramic Neolithic A societies is very different and more peaceful regarding their fellow humans than later PPNB settlements, as Çayönü and other sites demonstrated, despite the fact that the mother root culture, due to its artistic forms, would seem the same. However, a more exhaustive analysis of the PPNB buildings in Göbekli Tepe shows us a series of social and constitutional processes that are very different from what was previously seen. We analyze here the characteristics of such status changes between the PPNA and the PPNB, and various hypotheses are explained about the most bellicose content of the middle and final period of the Aceramic Neolithic of the region.

Keywords: Neolithic Aceramic. Aggression. Buildings. Göbekli Tepe. Nevali Çori.

R10 - From Zagros to Alborz and Beyond: Formative and Adoptive Neolithic Lifeways on The Iranian Plateau

Session Organiser

Hojjat Darabi / Razi University, Kermanshah, Iran
Hassan Fazeli Nashli / University of Tehran, Iran

Abstract

Since the 1940-50s, the Neolithic period in Iran has been sporadically explored by a number of archaeologists. Following the pioneering work by R. Braidwood in the central Zagros in 1959-60, attention was given to question-oriented investigations, especially on the onset of domestication and sedentary life. Subsequent political instabilities put research in hiatus for about three decades. This severely limited our understanding of Iran's Neolithic in comparison to other regions of Western Asia. In the last two decades, however, not only have some previously excavated sites or collections been re-evaluated, but new archaeological activities have also been undertaken. As recently suggested by aDNA data, an important approach to better understand the emergence and spread of the Neolithic lifestyle on the Iranian plateau is the inter-regional connections between the western and central parts of Asia. Current evidence points to a distinct pattern of Neolithic eco-cultural zones that interacted intensively with their neighbors via networks through which ideas, raw materials or commodities circulated and were transported. However, little is known about the possible impact of climatic or demographic factors on the development of the Neolithic lifestyle throughout Iran. Moreover, it remains unclear to what extent the secondary centers/learning or adoptive zones were influenced by the primary/formative ones.

With the main goal of addressing the above issues, this session aims to bring together researchers to present the latest available data on the emergence and development of Neolithic lifeways in Iran, a region that encompasses a mosaic of diverse Neolithic cultures but is still only vaguely known. It is expected that the session can contribute to our better understanding of the extent to which Neolithic societies were in contact throughout the Iranian plateau and its neighbors, and how Neolithic lifeways are most likely to have evolved across this vast region linking the western parts of Asia with the central parts.

Doing it Their Way: The Zarzian and Natufian Compared

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R10

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Abstract: The Natufian in the Levant and the Zarzian in the Zagros are the two best known Final Pleistocene precursors to the pre-pottery or aceramic Neolithic in southwest Asia. Even though the Zarzian and Natufian were both initially defined by Dorothy Garrod around the same time, we have gained considerably more knowledge of the Natufian over the course of the last nine decades. The Zarzian on the other hand is known from fewer sites and studies, and thus far less well understood. Although this unevenness in research intensity makes comparison of the Natufian and Zarzian difficult, it is nevertheless intriguing to think about the similarities and differences between these two gatherer-hunter archaeological groups. It has been argued that several 'pre-adaptations' appeared during the Late Epipalaeolithic that were prerequisites for the Neolithic to emerge. If so, where these are present in both the Natufian and the Zarzian or not, and what does their presence or absence imply for our understanding of how the Neolithic developed across the region. A comparison of the Natufian and the Zarzian therefore provides an opportunity to think about questions concerning evolutionary pathways, co-evolution, and macro-scale patterns that can further inform our understanding of the Neolithization process.

Keywords: Epipalaeolithic, Zarzian, Natufian

The Zagros in the Epipaleolithic to Neolithic Transition: The Braidwood assemblages from Asiab and Gird Chai

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R10

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Abstract: In the mid-20th century, the Zagros was established as a key area of Early Neolithic experimentation, thanks in part to the work of Robert Braidwood and Bruce Howe. Some of their excavations, though, remain understudied and unpublished—including Asiab in the Middle Zagros and Gird Chai in the Upper Tigris (both roughly 9300 cal. BCE). These assemblages are held between the Chicago Field and ISAC Museums, enabling me to bring unpublished material to light and give established understandings renewed scrutiny. Conclusions drawn from Braidwood and Howe’s work took a commanding role in our understanding of the Early Neolithic—an understanding which later united the entire Eastern Fertile Crescent (EFC), including Asiab and Gird Chai, into a ‘M’lefaatian’ lithic industry. More recent work, though, has made progress toward establishing diversity within this ‘unity’. My analysis of the Asiab and Gird Chai assemblages supports an overarching similarity in material culture across the Zagros, and toward Upper Mesopotamia, in the Earliest Neolithic—possibly suggesting strong networks of communication, helping to explain the striking diffusion of the Neolithic package that followed. But past this overarching similarity, I further argue that the Zagros was much more of a mosaic than previously presented—and a medium between the Iranian Plateau and Fertile Crescent—requiring detailed and comparative study to glean such cultural diversity. This case study notably evokes the well-established problem of reconstructing culture from material culture—especially relevant for Asiab and Gird Chai, whose field notes have been lost.

Keywords: Zagros, Lithic, Early Neolithic, Transition

Tell Seker al-Aheimar, Northeast Syria, in the context of the East Wing of the Neolithic Fertile Crescent

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R10

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Abstract: The Neolithic Fertile Crescent of Southwest Asia is thought to comprise the West and East wings of the two major regional cultural provinces, the borders of which could be found in Upper Mesopotamia while fluxing over time. The Neolithic settlement of Tell Seker al-Aheimar, northeast Syria, is an important site for understanding the West-East relationship in this general framework. Currently, this is the only Neolithic site that has yielded sufficient archaeological records of the late PPNB period in this part of Syria. In addition, despite its location away from the Zagros region, it yielded archaeological records well comparable to those of the east Wing whose core region is within the Zagros. Noticeably, the late PPNB local production of lithic tool blanks at Tell Seker al-Aheimar was dominated by the pressure debitage of single-platform bullet-shaped cores, which corresponds to a cultural trait of the East Wing province that differs from contemporaneous technologies popular in the western part of the modern territory of Syria in the West Wing. This presentation details the findings at Tell Seker al-Aheimar to evaluate the historical background of the West-East contrast in the Neolithic records of the Fertile Crescent.

Keywords: Zagros; PPNB; bullet core technology; pressure debitage; Upper Mesopotamia

Burial customs and social identity in the eastern part of the Fertile Crescent during the late Pre-Pottery Neolithic: a comparison of Nemrik 9, Iraq and Ali Kosh, Iran

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R10

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Abstract: The social and economic processes that preceded the transition from pre-pottery to pottery Neolithic in the eastern part of the Fertile Crescent are still poorly recognized. To understand the trajectory of change, burial patterns and skeletons from two roughly contemporary sites are analyzed, namely Nemrik 9 in northern Iraq (N=96, including two clearly distinct temporal subsets) and Ali Kosh in south-western Iran (N=13). There is clear temporal and spatial variability of burial customs, different patterns of stress, and social identity indicators (such as intentional cranial modifications and dental avulsion), which suggests a diversity of local cultural adaptations to the environmental conditions, including the distinction between stationary agropastoralism that may be seen at Nemrik 9 and more mobile subsistence strategy noted at Ali Kosh. Available data suggests that the millennium preceding the introduction of pottery in the Near East was a time of developing diverse economic and social models that eventually led to the establishment of more complex, but also more uniform societies of Hassuna, Samarra, and Ubaid cultures.

Keywords: Neolithic, bioarchaeology, subsistence, social complexity, burial

The funerary treatment of Burial 39 from Ganj Dareh

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R10

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Abstract: Various reports on the human remains from the Aceramic Neolithic site of Ganj Dareh (Kermanshah, Iran) have reported over 100 individuals, over 40 of which were interred in formal burials. Yet, in spite of a few preliminary description, little is known about the treatment of the dead at the site even though these rituals appear to have been very important in the life of Early Neolithic people in the Zagros. The ongoing reanalysis of the archived field notes and archaeological collections from the site currently curated at Université de Montréal allows us to better define some dimensions of the funerary conventions of the occupants of Ganj Dareh. As a case study, we present a funerary analysis of Burial 39, a young child interred with an elaborate necklace as part of a multiple grave and recovered during Smith's last year of excavation at the site. Specifically, we reconstruct the position of the body (flexed on its right side, head oriented to the West), its depositional context (part of a triple burial covered by yellowish sediment at the bottom of Level D) and its burial goods, namely an elaborate necklace comprising four large and heavily-worn marine shells, two large rhomboidal stone beads and several dozen small circular stone beads, some of which bore traces of ochre. This analysis shows the potential of the Ganj Dareh collection at UdeM to answer interesting anthropological questions even 50 years after their excavations.

Keywords: Neolithic, Iran, Ganj Dareh, Burials, Archives

Tracing Lithic Resource Management: A Geochemical Chert Provenance Pilot Study at East Chia Sabz, Iran

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R10

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Abstract: The Neolithic era stands out for its evolving subsistence strategies and the simultaneous growth of settlements and related infrastructure, which fostered increased interactions both locally and beyond. During this time, as ecological knowledge accelerated, increasing socio-economic networks were also increased to better facilitate the exchange of knowledge, ideas, innovations, as well as raw materials and finished products. The degree of interconnectedness can be gauged by the spread of materials or goods, however, this notion is currently based mainly on macroscopic and only occasionally microscopic observations. Here, we present the results of the first-ever geochemical analysis of early Neolithic chipped stone artifacts from the Central Zagros region, specifically the site of East Chia Sabz, to determine their provenance. Our findings reveal insights into early Neolithic resource management strategies, which persisted over a considerable span of time, from the early/mid-9th millennium to the late 8th millennium BC. Consequently, we are now able to detail our knowledge regarding chert procurement practices on a previously unattainable level through this pilot study in this core area of Neolithization.

Keywords: Central Zagros, East Chia Sabz, Lithic raw materials, Geochemistry, Neolithization

Neolithic in the Mountains: new evidence of early sedentism in Kohgiluyeh, southwestern Iran (HighStepLands)

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R10

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Abstract: Over the past decades, archaeological research has deepened our knowledge of core areas of innovation and experimentation of Neolithic life-styles. Recent investigations have included the exploration of the so-called “Eastern Wing” of the Fertile Crescent (i.e., the area matching with the Iraqi-Iranian range of the Zagros Mountains). However, large portions of this mountainous range remain unexplored. Newly acquired archives from the highly mountainous region of Kohgiluyeh in southwestern Iran provide novel data to delve into the formation and adoption of Neolithic lifeways in the Zagros macro-region. The study area, which ranges from 500 to 3,500 meters above sea level, lies between the cultural zones of Susiana and Fars, with the Bakhtiari highlands and the Behbahan plain forming its northern and southern boundaries. Based on the outcomes of recently conducted intensive surveys and targeted excavation at the Early Neolithic site of Bibi Zoleikahee, this paper provides an initial assessment of the local trajectories of experimentation leading to the Neolithic lifeways already during the 8th millennium BCE. Furthermore, we contextualize our results in light of local environmental conditions, which attracted early sedentary communities and enabled repeated occupation over time. In Kohgiluyeh, Early Neolithic communities exploited a range of ecozones, including fertile and lush valleys, limestone caves, and rock shelters, which provided rich and varied natural resources. Due to its natural topography and geographical position, connecting the highlands to the plains, Kohgiluyeh was influenced by inter-regional connectivity and long-distance networks, thus playing a crucial role in the formation of Neolithic societies.

Keywords: Zagros, Kohgiluyeh, Mountains, Iran, Early Neolithic

The origins of pottery technology and its connections with house-building technology in the Central Zagros

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Abstract: The earliest finds of clay vessels fragments in Western Asia date back to the end of the 10th millennium BCE. They have already been present at the site Ganj Dareh in the Central Zagros no later than the end of 9th millennium BCE. After technological and spherulite analyzes on clay vessels and building fragments from Ganj Dareh it was revealed a strong similarity between the construction methods used to produce the earliest pottery and those used in the construction of buildings in the Zagros region. Our analysis also confirmed the presence of dung in both the pottery paste of clay vessels and clay elements used in construction activities. This provides further evidence for the early onset of animal herding in this region, as well as evidence for the effective use a wide range of products related to the exploitation of animals. Whether there is a connection between the emergence of pottery in the Central Zagros and the earlier pottery of the neighbouring region of the eastern foothills of the Taurus, remains an open question due to the lack of information both in the intermediate territory and in the central Zagros itself.

Keywords: pottery technology, clay building technology, animal herding, Central Zagros, Neolithic

Patterns of Deliberate Breakage in Zoomorphic Figurines from Ganj Dareh

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Abstract: This paper presents a preliminary report on a common pattern of deliberate breakage observed in the assemblage of zoomorphic figurines from the Aceramic Neolithic site of Ganj Dareh (10,200-9600 cal BP) in the central Zagros of Iran. The site has yielded one of the oldest and largest collections of clay miniature objects which are currently curated at Université de Montréal (UdeM). This breakage pattern involves the breaking of heads, resulting in a significant number of headless figurines. While this phenomenon has been previously reported at Neolithic sites in the Levant, Turkey, and the eastern part of the Iranian Plateau, it has only been noted in very small numbers of animal figurines or studied alongside anthropomorphic figurines, with the primary focus being on the latter. The zoomorphic figurine collection from Ganj Dareh, however, pushes back the origins of this pattern, predating similar finds from the PPNB and providing a larger dataset for analysis. Scholars have attributed various meanings to this pattern of deliberate breakage, ranging from ritual practices to economic functions. The Ganj Dareh assemblage provides valuable insights into these interpretations, illuminating the potential purposes behind why zoomorphic figurines were deliberately broken in the Neolithic Near East.

Keywords: Ganj Dareh, Zoomorphic figurines, Deliberate breakage, Clay objects

Symbolism on the Upper Mesopotamian and Zagros Prehistoric Ceramics

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Abstract: The discovered painted ceramics of the PN and Chalcolithic periods in Upper Mesopotamia and the Zagros shows the painted various human, animal, geometric, and plant patterns on the surface of their jars by the people of the agricultural villages of Zagros. This paper highlights these motifs and symbols, discusses the details and symbolism of the painted scenes, and presents their artistic and symbolic influences on the art and culture of the historical periods.

Keywords: Zagros, Upper Mesopotamia, Ceramic, Symbolism

Southern Iran During Pre Pottery Neolithic Period

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Abstract: The Fars region in southern Iran has long been recognized for its rich cultural diversity, attracting attention from archaeologists such as Sumner (1952), Vandenberg (1972), and Stein (1936). Recent archaeological excavation in Marvdasht have revolutionized the understanding of the Neolithic period, proposing the emergence of the Pottery Neolithic phase around 6300 BC. Excavations at Tepe Rahmat Abad and Qasr Ahmad have reshaped historical narratives, revealing a Pre Pottery Neolithic period dating back to 7300 BC. Dr. Morteza Khanipour's excavations at Toll-e Sangi have further supported this significant finding (2019). The Pre Pottery Neolithic in Fars is estimated to have begun in the 8th millennium BC, with pottery production starting around 6800 BC. Two distinct phases have been identified: the Rahmatabad phase (7450-6800 BC) and the Formative Mushki Phase (6800-6300 BC). These excavations have uncovered evidence of wheat, barley, goats, and sheep domestication during the Pre Pottery Neolithic period, shedding light on early agricultural practices and societal advancements in the region. Ongoing research endeavors seek to deepen our knowledge of this pivotal era in southern Iran's history, providing valuable insights into the cultural and agricultural evolution of ancient civilizations in the Fars region. The archaeological findings not only offer a glimpse into the development of human societies but also highlight the resilience and adaptability of ancient communities in shaping their environment and heritage over millennia in southern Iran.

Keywords: Pre Pottery Neolithic, Southern Iran, Fars region

Development of the Fars Cultural zone during the Neolithic Period, Iran

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Abstract: Abstract: The Fars cultural zone is located in southern Iran, has been the focus of archaeological excavations for over nine decades. Surveys and excavations conducted in this area have led to the identification of Neolithic sites. Although archaeological evidence of the Neolithization process has not yet been discovered from this region. The results of archaeological excavations indicate that this region was one of the pioneers of pottery production in Southwest Asia and remained dynamic throughout the Pottery Neolithic period. Based on pottery, this cultural zone can be divided into four sub-regions. In this article, an attempt is made to explore the social and economic structures of the pottery Neolithic period in this region, based on recent excavations by the author, and to assess the role of climatic changes in altering subsistence patterns. The results show that by the early 7th millennium BCE, pottery production became prevalent in this region, and from the second half of this millennium, pottery kilns and workshops for specialized production emerged. Painted structures suggest that these buildings likely had ritualistic functions in each site. Settlement pattern changes and subsistence strategy shifts in this region were also likely influenced by climatic changes. **Keywords:** Fars cultural Zone, Neolithic, specialization, climate, ritual space.

Keywords: Fars cultural Zone, Neolithic, specialization, climate, ritual space.

Look to the East: Southeastern Iran in the Pottery Neolithic Period

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Abstract: The Neolithic period in southeastern Iran is documented through old excavations at Tepe Yahya (levels VII&VI) and Gaz Tavile in the sughan valley and lowest layer of Tal-i Iblis (Iblis 0) in the Bardsir plain. Recent excavations at Tal-i Atashi in Darestan of Bam in south of the Lut Desert and Tepe Gavkoshi in the highlands of the Jiroft plain have yielded new information on this period. All data on the Neolithic period of SE Iran has been obtained from sites in Kerman province and no evidence of this period has been found in Sistan and Baluchistan and Hormozgan provinces. Apart from Tal-i Atashi which is considered as a PPN site according to its excavators, all other mentioned sites belong to pottery Neolithic. Based on new absolute datings, pottery Neolithic of the Kerman region goes back to very late 8th millennium BCE. There are still some questions on the Neolithic period of this part of Iran that the answers are not yet clear to us, for instance; where was the origin of pottery Neolithic of southeastern Iran? Has the Neolithic culture been adopted from other region or has the Neolithization actually taken place in this region? In this paper we will present new data on the Neolithic period of SE Iran obtained from recent excavations and regional surveys. Also, we will discuss the provenance of the the obsidian artifacts from the Neolithic sites of the region based on archaeometric analyses.

Keywords: Southeastern Iran, Aceramic Site, Pottery Neolithic, Obsidian, Gav Koshi

Holocene landscapes changing and his impacts of potential early farming grounds in the Beshahr area (NE-Iran)

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Abstract: Recent archaeological undertakings in the Beshahr area provided evidence of prominent sedimentation events in occupational sequences during the time period between 11.000 and 5000 BCE. Interestingly, observed “sedimentological interruptions” in human occupation layers in the Eastern Alborz slopes/SE-Caspian plain, took place in the timeframe of the beginning of Neolithic lifestyle in the SW-Asia. Investigations provided relevant data that indicate a rather quick diffusion into the SE Caspian Sea and Central Asia though by the introduction of typical neolithic technologies such as specific stone and bone industries as well as early ceramic production but reveal an uncomplete picture in terms of “Neolithic lifestyle” on the other hand. Sedentary societies with a farming and herding subsistence appear significantly later in the region, around 6000 BCE. The archaeological finds from Behshar most probably demonstrate a local cultural development, from the Mesolithic period onwards, with distinctive local characteristics and traits that are dissimilar to the Zagros Neolithic: Our hypothesis is that profound changes of the regional landscape and watering systems during the holocene made it impossible to adopt and improve the new (neolithic) achievements (farming and herding). Sea level fluctuations of the Caspian Sea influence erosion and accumulation processes of the rivers, ongoing sedimentation events overformed potential occupation grounds. Additionally, tectonic processes also cause changes in the water flow on the surface and in the cave system, resulting in altered erosion or sedimentation processes.

Keywords: Holocene, landscapes, NE-Iran, tectonic processes, tectonic impacts

Landscape reconstruction of North Central Plateau of Iran during Neolithic period by integration satellite images, digital elevation model and gis

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Abstract: How to expansion and migration of farmers and herders in the early Neolithic period from regions such as southeastern of Anatolia or central Zagros to northeast of Iran is still unclear. So far, some studies have been done on the origin of the Neolithic in the eastern regions of Iran, but no convincing answer has been found yet. This failure is due to reasons such as the lack of sufficient documentation about the beginning of domestication, or the absence of PNN Neolithic settlements in the corridors related to the above movement, as well as a long time gap (about 2.000 year) between the lowest layers of western Tappeh Sang-e Chakhmaq as the only PNN Neolithic site in Northeast of Iran and the oldest Neolithic sites in Zagros. Two possible corridors for this movement have been suggested, that one of them is in the north of Alborz mountains and the other (most probable one) is located on the southern slopes. Therefore, in this research and for the first time, an attempt was made to reconstruct the landscape of the northern central plateau of Iran, including large areas of the Qazvin, Tehran and Kashan plains(as the southern areas of Alborz mountain) in the Neolithic period by using satellite images, digital elevation model and GIS. Multi-spectral satellite images with wide coverage, high spatial resolution and non-invasive capabilities in soil texture analysis, vegetation/land use changes, sedimentation rate, hydrology, etc. showed interesting results regarding the influence of environmental factors on the formation of ancient landscape.

Keywords: Neolithic, Northeastern of Iran, Alborz mountains, Satellite images, DEM

Report of the recent excavations of Mesolithic and Neolithic Caves in the southeastern of the Caspian Sea

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Abstract: The southeastern Caspian Sea, which archaeologists call the coastal zone, like many other areas of the Fertile Crescent, experienced significant changes in the structure of human societies on the cusp of the Neolithic Revolution in the early Holocene. Although archaeologists have been unable to establish a link between the end of the Mesolithic and the beginning of the Neolithic in the region, based on the current information, we now know that hunter-gatherers arrived in the area ca. 15,000 years ago. This marked one of the most important cultural events in human societies on the cusp of sedentism. One of the caves that has been studied as evidence of the presence of humans during the Mesolithic period is Kamarband ("Belt") Cave. From 2017 numbers of Caves and open sites have been excavated under the supervisor of Hassan Fazeli Nashli, from the University of Tehra, Iran. This consist of the excavation of Tepe Komishani in 2017, Hotu and Kamarband Caves in 2021 and 2022 and Komishani Tepe in 2023. Altogether, the significant of this new research program is that the whole chronology of the Caspian Sea from the Mesolithic to the Iron Age was completely revised. It seems new hunter gatherer groups came to the region after 15000 years ago during the Bollin Bølling-Allerød with the rising of Sea Level and warming period. From the current studies there are some clear chronological gaps within the region which is related with local, regional and global events.

Keywords: Mesolithic, Neolithic, Kamarband, Hotu

Lithics: From Mesolithic to Neolithic in the southeast of the Caspian Sea

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Abstract: Chipped stone assemblages from the Mesolithic caves in the southeast of the Caspian Sea include the assemblages from 1964 excavations at Altappeh, 2021 excavation at Hotu Cave, 2023 excavation at Kamarband Cave, as well as three seasons of excavations at Komishan/Komishani cave/site in 2008, 2017, 2022. They amount to more than 100,000 lithics which are from layers dating to both Mesolithic, PPN and PN Neolithic. In this research the issue of the origin of changes in chipped stone typology and technology on the verge of the Neolithic period in southeast of the Caspian Sea has been discussed. In accordance to Western Central Asian lithic industries, the southeast of the Caspian Sea shows a major change in bladelet production techniques and methods as well as the occurrence of pressure removed sickle trapezoids in the Neolithic assemblages. However, the material does not indicate complete integrity in these changes in all four caves and Altappeh seems to be different in the pace and process of technological changes which could be due to earlier dating of the site.

Keywords: Lithic industry, Caspian Mesolithic, Caspian Neolithic, Altappeh, Mazandaran

New Insights After Seventy Years: From the Mesolithic to the Pottery Neolithic in the Northern Iran

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Abstract: After almost 70 years gap following Carlton Stevens Coon's excavations in Hotu and Belt Caves, it has been more than a decade since the Neolithic studies and the process of Neolithization and domestication in the southeastern Caspian Sea region have been resumed. New research and explorations have been carried out in the caves and sites in plain, and Hotu and Belt caves have been re-excavated. Also, pottery and stone tool assemblages from past excavations have been reviewed. Even though these programs have contributed significantly to developing Neolithization studies in this region, new questions have been raised. New excavations and field surveys in the eastern Mazandaran (southeastern Caspian Sea) have yielded new materials and evidence for the transition from the Mesolithic to the pottery Neolithic. Coon and a few other scholars proposed the Neolithization process in this region as an exogenous process, while some others believe that this event was an endogenous and local process. These hypotheses were proposed while we faced serious weaknesses in both field studies and analyses. Lack of reliable evidence of domestication, lack of Paleo-climatology data and matching with archaeological data and data with archaeological periods, geographical and chronological gaps, and weaknesses in processing and analyses of archaeological data, are some of the problems in Neolithization studies in the region. Therefore, a review of past and present Mesolithic and Neolithic studies in this region, and providing new material from recent archaeological fieldwork will help us to understand the Neolithization and Neolithic lifestyle in this region better.

Keywords: Neolithization, Caspian Sea, Mesolithic, Domestication, Pottery Neolithic

The Emergence of Complex Ritual Systems during the Mesolithic Period in the South-eastern Caspian Sea

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Abstract: Evidence of symbolic and ritual activity was one of the major behaviors of Modern Humans from the Upper Paleolithic onward. However, during the Mesolithic period, such symbolic behavior changed as regional identity with a collective memory. In 2020, excavation of Hotu Cave, a child burial, was discovered in the Mesolithic context. At a depth of -700 Cm from the surface and under the context of 110, a 6-8-month-old child was discovered below an oven. The bones were relatively well-preserved. Most parts of the bone were covered with ocher, but the important aspects of this burial are that nearly a long necklace which it seems belongs to an adult person was found. 54 beads were found around the chest and neck, along with probably five Canidae tooth pendants and a polished animal rib. The emergence of complex ritual systems during the Mesolithic period is fascinating, and such ritual activities were also repeated in other caves, such as Komishan and Kamarband. We assume the development of belief systems or cultural practices beyond mere survival needs became very important from 15000 years ago until 10000 years ago between the hunter/gatherers of the southern of the Caspian Sea people. These rituals could have served various purposes, such as marking important events, reinforcing group cohesion, or appeasing spiritual beliefs. However, understanding the specifics of these rituals often relies on archaeological evidence, which can be open to interpretation.

Keywords: Personal Ornament, Hotu Cave, Mesolithic, Burial Ritual, Southeastern the Caspian Sea

Early Holocene cereal consumption and climatic influences on the southern coast of the Caspian Sea

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Abstract: This study presents a comprehensive examination of the chronology, charred plants, palaeostarch, and palaeopalynology derived from archaeological excavations conducted at the Komishani site platform situated on the southern coast of the Caspian Sea in Iran. The data elucidate that pre-pottery Neolithic populations initiated the consumption of wheat, barley, and legume crops in the southern Caspian Basin between 10,700 and 10,200 years before present (yrBP). Notably, the discovery of sickle blade at Komishani suggests the utilization of scythes for grain harvesting by early agricultural communities, while the presence of Ground Stone tools and toasting pits indicates sophisticated flour grinding and bread processing techniques. Furthermore, examination of sporopolypyrinic data indicates a landscape rich in broad-leaved forest vegetation, with a notable abundance of coprobiotic fungi spores potentially signifying early animal domestication practices in the region. These findings highlight the concurrent development of cereal consumption and harvesting methodologies along the southern shores of the Caspian Sea. This archaeological evidence not only enhances our comprehension of ancient agricultural practices but also underscores the intricate interplay between human societies and their environment over millennia.

Keywords: Komishani Tepe, early management of plant, einkorn and emmer, cereal consumption, climate change

Animal Resource Exploitation during the Transitional Neolithic in the Southeastern Shore of the Caspian Sea: Preliminary Report on the Faunal Remains from Komishani Tepe, Mazandaran, Iran

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Abstract: The northeastern piedmont of the Alborz Mountains, facing the coastal plains of the Caspian Sea, was inhabited by hunter-gatherers of the late Pleistocene and agro-pastoral communities of the early Holocene. The favourable environmental conditions made this region one of the candidates for the scrutiny of the early process of Neolithisation in southwest Asia. Of the remarkable sites of the region is Tepe Komishani. The site is located in the eastern part of the Mazandaran province, near the previously-known cave sites of Hotu, Kamarband, Ali Tappeh, and Komishan, at an altitude of 45m asl. In 2023, during the second season of the archaeological project at the site, two trenches were excavated demonstrating an uninterrupted Mesolithic and Transitional Neolithic occupation dated to the 10-9th millennia BC. This time span is earlier than the dispersal of the Neolithic lifeway from western to northeastern Iran which highlights the potential of this region as one of the formative centers of Neolithization concurring with the mosaic assumption of Neolithization process. This paper focused on the archaeozoological studies of the Komishani Tepe faunal assemblage. It examines animal species diversity, the population size, and the kill-off pattern of Caprinae, and a comparison of the results with previously studied sites in the region. The preliminary results indicate the exploitation of a broad spectrum of animal resources, dominated by Caprinae, particularly goats. Other identified taxa include aurochs, boar, gazelle, various birds, and fish.

Keywords: Alborz Mountain, Komishani Tepe, Early Holocene, Animal domestication

The Caspian Neolithic Software: New Excavations at Two Pottery Neolithic Sites

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Abstract: AbstractDecades have passed since the first excavations were done at Hotu and Kamarband caves in northern Iran, eastern Mazandaran, by Carlton S. Coon. Despite a short multi-page report of only four sherds of pottery, no information or photos of the pottery from these two caves have been published in his works. In the following years, only general information and a few pictures and drawings by archaeologists such as Dyson, Greg, and Thornton were published, which, although helpful, were not sufficient. There has been no serious effort made to fully and correctly introduce the Caspian Neolithic Software (CNS), which is considered a major weakness in the studies of the Caspian Neolithic and the technologies that were used during that period. Touq Tappeh and Tappeh Valiki in the fertile plains of Neka are important sites of the Pottery Neolithic. More than 3000 sherds of pottery were found in these sites which gives us new insights into pottery technology in this region. The study of the pottery from these sites has indicated that we should change our understanding of the CNS. The pottery assemblages show a specific pattern, however, the diversity in making and painting shows a household production organization, especially in the painted motifs. The pottery sherds from excavations at Touq Tappeh and Tappeh Valiki are classified into three groups: local, regional, and inter-regional. The absolute dating places these sites in the mid-7th millennium BC, making them the oldest Pottery Neolithic sites in the southern Caspian Sea and adjacent regions.

Keywords: Pottery Neolithic; Caspian Neolithic Software; Eastern Mazandaran; Touq Tappeh; Tappeh Valiki.

An Investigation of the Emergence of Pottery Neolithic Period in the Southern Caspian Sea, Based on the New Excavations at Hotu Cave

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Abstract: Our knowledge about the beginning of Pottery Neolithic in the southeast of the Caspian Sea was previously limited a short report by Coon who first excavated Hotu and Kamarband Caves in 1949 and 1951 respectively. However, these two sites were recently re-excavated by Fazeli Nashli in 2021. This provided us with a revision of the emergence of pottery throughout the region. A number of previous excavations carried out in northeastern Iran and Turkmenistan showed pottery Neolithic sites. This allowed Dyson to propose three Pottery Horizons in northeastern Iran, started with the "Caspian Neolithic Software" dating back to 6600 BC. The second stage of the pottery Neolithic began with the "Djeitun-type". However, Gregg and Thornton later revised the Neolithic Pottery of the southern Caspian Sea and correctly suggested that there is no evidence of Djeitun-type within the pottery collection of Coon. They assumed the Pottery Neolithic of the Caspian Seas should have started ca. 6000 BC. During the course of the 2021 Hotu excavation around 70cm of pottery Neolithic layers were recorded and then radiocarbon dated to ca. 6400 BC, though additional underlying layers of the pottery Neolithic have not yet been dated. Therefore, we propose that the Caspian Sea Pottery Neolithic seems to have started ca. 6600 BC, supporting former Dyson's chronology. While the East Sang-e Chakhmaq, on the southern flanks of the Alborz Mountains, yielded the earliest pottery around 6350 BC, our current data suggest that the cave dwellers of the southern Caspian were local pioneers of pottery production in western Asia.

Keywords: Pottery Neolithic, Hotu Cave, Caspian Neolithic Software, Djeitun-type pottery, Sang-e Chakhmaq

Anatomy of the Kültepe I culture. Its significance for unravelling the formation processes of the Caucasian Neolithic

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Abstract: Kültepe I (Nakhchivan, Azerbaijan) is one of the largest, but also one of the earliest Neolithic settlements so far excavated in the South Caucasus: the first occupation layers of this site (Level 1) have been radiocarbon-dated to the 6200-6100 BCE timespan, which is at least two centuries earlier than that of the other early settlements so far known in the Caucasus: Hacı Elamxanlı, Kiçik Tepe and Aknashen (6000-5900 BCE). The only common point between these villages concerns their subsistence strategies: full-fledged agricultural and herding practices have been evidenced on them all from the very beginning of the occupation sequence; there is no sign of a domestication process. Otherwise, cultural heterogeneity seems to be the norm: Kültepe I stands out by the importance of its ceramic assemblage, whereas pottery is virtually non-existent at Hacı Elamxanlı, Kiçik Tepe and Aknashen. The rare potsherds from Aknashen (Hor.VII) point to the Mesopotamian sphere, while those from Kültepe I sometimes display Iranian overtones, showing parallels with both Hajji Firuz and Tappeh Leilan in the Urmiah basin. The heterogeneity of the first South Caucasian Neolithic is also reflected in the lithic assemblages and building practices; which clearly reflects that of its substratum, where both local and foreign components may be discerned. In spite of its regional importance, Kültepe I is culturally speaking rather isolated since no other comparable site has so far been excavated. This might be explained by the low demographic density of the Caucasian Neolithic, but also by the specificities of its developmental background.

Keywords: South Caucasus, Urmiah Basin, Nakhchivan, Neolithization processes

Neolithic Around Lake Van, Eastern Turkey

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Abstract: No precise findings from the Neolithic Age have been mentioned from the Lake Van region yet. However, the Delikli Cave on the western shore seems to be a Neolithic camp site. A dark-colored ash layer over 2 m thick was uncovered during a gravel removal. This layer contains a new type of pottery for the region and many obsidian artefacts. The layer lies under a thick sand and gravel heap. Another cave called Alihger, located 4.5 km inland from the same place, should also be considered together with it due to its prehistoric wall paintings. Düvenci North is another new Neolithic site near Lake Van. With these new findings, it must be concluded that the Neolithic Age has become more clear in the region, considering that the well-known petroglyphs and cave paintings from the mountains in Van and Hakkari were also associated with the first agricultural communities. Additionally, Lake Van is within a few days' walking distance to the sites dating to the Neolithic Age in the northern part of the area known as the "Fertile Crescent". Therefore, the lack of any mention of the Neolithic communities in the area around Lake Van should be attributed to the fact that this problem has not yet been addressed in the archaeological investigations that have been conducted. It should be noted that the region around Lake Van drew the attention of the Neolithic cultures in the area as a significant hunting ground and a source of raw materials.

Keywords: Delikli Cave, Alihger Cave, Düvenci North, Neolithic, Van Lake

Neolithic Iranian Azerbaijan and Lake Urmia: Regional Interactions and Influence; The position of North-Western Iran in the West Asian Neolithic Studies

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Abstract: Northwest Iran serves as a significant cultural intermediary zone, linking the Iranian Highland, Northern Mesopotamia, Southeastern Turkey, and the South Caucasus. Its strategic geographical location has made it a focal point for archaeological research, particularly as a potential conduit for the transfer of Northern Mesopotamian cultural advancements to the Iranian Highland. Our understanding of the origins and development of the Neolithic period in the Urmia Basin is based on a conventional model suggesting that a fully developed Neolithic "package" migrated from a core region in the Zagros to other parts of the Iranian Plateau during the early 6th millennium BC. Regarding the Neolithisation process, the origins of the Neolithic in northwest Iran are not fully understood, and the successive developments during the 6th millennium BC remain underexplored. A new research program aims to address these gaps. Recent survey activities have significantly increased the number of identified Neolithic sites, and several new locations are currently under excavation. Additionally, older investigations and material collections from relevant sites in the study area are being re-evaluated. This contribution will provide an overview of recent explorations, new findings, and perspectives. Our current understanding of Neolithic occupation patterns, interactions between different groups, their cultural practices, and economies is far more heterogeneous than previously assumed. Additionally, interregional connections and chronology will be presented based on our new data.

Keywords: Neolithic, New Research, Lake Urmia, Iranian Azerbaijan

New archaeobotanical evidence of early farming practices south of Lake Urmia (Iran)

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Abstract: Agricultural practices around Lake Urmia are believed to first come from the Zagros/North Mesopotamian area, around 6000 BCE. Nevertheless, this region connects the Caucasus with the southern Caspian coast and the Anatolian Peninsula, meaning that more diverse routes of arrival may be considered. The area offers marshy lands, which were often chosen by early farming communities to settle in, as well as more moderate winters in comparison with higher nearby mountains. The use of chaff/straw as tempering material in pottery and the presence of the so-called husking trays, as well as in-house storage areas, were clear indicators that the first Neolithic populations in the area were practicing agriculture. Two sites were excavated in 2020 and 2021 by the DAI with local collaboration partners: Tappe Leilan and Dalma Tappe. The former could be among the earliest Neolithic sites in the area (with dates starting ca. 6500 BCE), while the latter dates to the 5th millennium BCE. Sediment samples were taken and floated. Their study is on-going but preliminary results indicate a greater focus on free-threshing cereals (naked wheat and barley) in Tappe Leilan, while glume wheat are completely dominant in Dalma Tappe. In our presentation we will try to provide further clues on the meaning of these differences, whether they could be cultural or just chronological, since both sites seem to be occupied for a relatively long time-span (at least ca. 6500-4500 BCE) and the cereal spectra will be compared to those of nearby regions for a better overview.

Keywords: agriculture, free-threshing cereals, glume wheats, neolithization

Transit(s), transect(s) and transmission(s): explaining neolithic heterogeneity in NW-Iran

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R10

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Abstract: According recent investigations, the Lake Urmia Basin in NW Iran appears as a transit area of diverse Neolithic groups. Similar to the Iranian Plateau, a data gap between the latest epipaleolithic and the earliest neolithic sites in the region - that means between 12.000 – 6500 cal BC - appears as a significant breakage in the local occupation that cannot bridge a possible local cultural development. Instead, new sites with Neolithic technologies likewise occurred suddenly and in form of a fully developed package at the transition of the 7th-6th mill. BC. One common explanation for this picture is that early plant cultivation was not possible before particular climate and environmental changes. Another, that we are simply missing hidden data due to flimsy archaeological investigations and high sedimentation rates which superimpose possible earliest villages in the region. However, new investigations let us describe a patchwork of highly-adaptive socio-economical strategies and different cultural technologies that indicate a high degree of innovative inputs from “abroad”. Comparisons point to SE-Anatolia, the Upper Euphrates region and as far as Tell Halula towards West, and show certain linkages to the S-Caucasian Neolithic groups and with the Northern Iranian Plateau. This overall impression might be explained by several migration events of diverse neolithic groups into the region, with different geographical backgrounds and via different pathways. Also, these events took place in different time phases. Possible motors and triggers, connecting transits and transects and as well as furthergoing transmissions of these mobilities will be discussed in this contribution.

Keywords: neolithic technologies, heterogeneity, mobility, migrative events

R11 - The Neolithic of Southern Levant in its Wider Context

Session Organiser

Anna Belfer-Cohen / The Hebrew University of Jerusalem, Israel
Nigel Goring-Morris / The Hebrew University of Jerusalem, Israel

Abstract

Recent Neolithic research in the Southern Levant has provided less spectacular results than that of the more northerly regions. This said, the picture of local Neolithisation is much more complex and thought-provoking than previously assumed. Interestingly, the findings provide new insights into the processes that modified and shaped the transition from ephemeral, extractive life-ways into a permanent, productive mode of existence. Updated excavation and research methodologies enable charting the ways and means human groups tackled the challenges involved in that transformation as numerous intensive field projects, conducted in various regions of the Southern Levant considerably modify previous comprehension of Neolithic processes in the area. It appears that the initiation of such processes extend much deeper in time than was assumed a few decades ago. What was considered as strictly new, Neolithic, phenomena, can be now observed not only in the Late Epipalaeolithic Natufian but also in earlier Epipalaeolithic archaeological entities. There is on-going debate whether, and to what degree, human societies consciously promoted the developments that finally rendered the 'Neolithic worldview'. Moreover, it seems that it was truly a "bumpy ride to village life"; we observe significant variability in the intensity and tempo of evolving events, differences stemming from both the inner, social realm of the communities partaking in the Neolithic transformation, as well as the external, environmental 'envelope' that defined the ecological conditions enabling or restricting the processes involved.

Pre-Neolithic Hunter-Gatherers and the Production of Place

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R11

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Abstract: The central role of the built environment and the importance of architecture for structuring cultural patterns and behaviors are well known for Neolithic societies. Stone architecture stands as one of the features of this period, invoking the concepts of sedentism and permanence. Thus, the production of place, through the construction of architecture and burials in houses, is often described as one of the hallmarks of Neolithization. In contrast, hunter-gatherer's relationship to the built environment, particularly mobile hunter-gatherers, is often minimized. In this paper, we problematize the articulation of hunter-gatherers with mobility and the Neolithic with sedentism, exploring placemaking in Early-Middle Epipalaeolithic hunter-gatherer communities prior to domestication. Through the lens of Southwest Asia, the construction of hunter-gatherer architecture, burials, and immovable objects, as well as long occupation sequences, highlights the importance of place to these communities. By exploring relationship between Epipaleolithic mobile hunter-gatherers and the landscape, we gain new insights into the nuances of Neolithization, what it means to be sedentary, and how we produce places in the world.

Keywords: Epipalaeolithic, Architecture, Place, Jordan, Hunter-gatherers

Continuity and Changes in Marine Shell Exploitation from the Paleolithic to the Neolithic in Southern Jordan near the Red Sea

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R11

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Abstract: Numerous studies on shell ornaments and their wide distributions have contributed to the clarification of Neolithic cultural diversity and social networks in the Levant. At the same time, it is known that the ornamental use and transportation of shells had developed during the Paleolithic period. This presentation aims to characterize the Neolithic exploitation of marine shells through the comparison with the Paleolithic records. For this purpose, we present a diachronic overview of shell assemblages in the Wadi Hisma area, southern Jordan, which is about 50 km from the Red Sea. The long-term prehistoric investigations by the late Donald O. Henry have recovered thirteen shell assemblages from seven sites, which were associated with Upper Paleolithic and Epipaleolithic lithic assemblages, including the Ahmarian, Hamran, Qalkhan, Mushabian, and Natufian. In addition, a PPNB shell assemblage was obtained from his re-excavation at Ayn Abū Nukhayla. Since 2016, re-investigations of several Paleolithic sites by the presenters added a few marine shell collections from Upper Paleolithic and Epipaleolithic contexts at Tor Hamar, Wadi Aghar and Tor Fawaz. These shell records in the Hisma area will be compared with those of other sites in the Levant to discuss general diachronic trends since the Upper Paleolithic and to highlight characteristics of the Neolithic shell use in the southern Levant.

Keywords: Marine shell, Wadi Hisma, Paleolithic, Neolithic, Jordan

From the Natufian to the EPPNB in the Jordanian Badia: chronology, change and interaction across the Epipalaeolithic-Neolithic transition

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R11

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Abstract: Until relatively recently, the transition from the Late Epipalaeolithic to the early Neolithic in the eastern interior of the southern Levant was relatively unknown and hence not well understood. Being situated beyond the zone in which rainfed cultivation is possible, the region was thought to have played a limited role in the various processes that contributed to the emergence of the Neolithic. Over the course of the past decade fieldwork in the Qa' Shubayqa in northeast Jordan has begun to provide a more detailed picture of the chronology, changes and interactions during the transition from the Late Epipalaeolithic to the early Neolithic. The discovery and excavation of multiple Late Epipalaeolithic and early Neolithic settlements suggests that this area was not only more densely populated than previously thought, but that people inhabited this zone on a more permanent and stable basis. Far from being isolated the area is linked into far-reaching networks of social interaction that can be traced through the exchange of various objects. The evidence from the Qa' Shubayqa suggests a possible a zone of movement and interaction in the eastern interior Levant – through the Harrat ash-Sham – that already existed prior to the appearance of the EPPNB. Thus, there were multiple, possibly overlapping, zones of interaction and movement that contributed to the spread and sharing of ideas, knowledge, material and people during the Late Epipalaeolithic and early Neolithic.

Keywords: Badia, Jordan, Natufian, PPNA

When did southern Levantine Neolithic worldviews fully divorce the H-G ethos?

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R11

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Abstract: Title: When did southern Levantine Neolithic worldviews fully divorce the H-G ethos? Avi Gopher, Tel Aviv University We all look for the time and the conditions in which the worldviews of genuine hunter-gatherers (H-G) turned into 'innovative' Neolithic worldviews. Stated differently, since the transformative Neolithic Revolution, or Neolithization brought us to modernity, it is important to investigate the "when" and "how" (and may be the "why") of the divorce from the H-G ethos that enabled the change. The proposed session highlights the need for a deep time look at pre-Neolithic (Natufian and earlier Epipaleolithic) cultural entities for a better understanding of Neolithization processes and the move from extractive to productive economies. I would suggest that sometimes, going forward in time is no less instructive. I would thus like to shed some light and bring up some inferences from the time of Late (Pottery) Neolithic. I will argue that the ultimate perceptual divorce from the H-G ethos has taken place only in the Pottery Neolithic period long after the establishment of agricultural based productive economies. To notice this divorce and the "brave new world" (without, or may be with the escapism pills suggested by Aldous Huxley), I will point out a variety of innovative and 'non-innovative' elements indicating a change in human-world relationships which is the major arena of the revolution/change as a whole. These will include reflections on material culture elements (e.g., lithics, pottery, imagery items) and musings on the Pottery Neolithic socio-economic dynamics.

Keywords: Pottery Neolithic, hunter-gatherer ethos, material culture, socio-economic dynamics

Ordering the Neolithic world - communities of practice and localisation

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Abstract: After much discussion of a decentered Neolithic in Southwest Asia, with innovations arising throughout the region following varying rates and processes of change, there has as yet been relatively limited discussion of how this actually operated beyond the empirical record. At the same time, despite the recognition of a particulate Neolithic, it remains the case that researchers are still content to envisage a singular regional Neolithic that encompasses all the diversity within. This presentation will address two issues that require investigation: at one level the diverse Neolithic communities – what scales are important, how they maintained separate identities, and how hard or how soft the boundaries were between communities; at a second level, we need to improve our understanding of how knowledge and innovation were transferred to create and maintain the wider Neolithic koine. It is remarkable that the complex pattern of local diversity resulted in a ‘Neolithic worldview’ that was comprehensively different from what had gone before, but perhaps the changing worldview may have been the glue that held the many transitional parts together into what we today recognise as a regional Neolithic.

Keywords: Neolithic diversity, community, scale, knowledge transfer

Paths of Transition: Exploring Neolithic Hunter-Gatherers and Pastoralists of the hyper-arid desert. The southern Negev as a test case

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R11

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Abstract: Part of the Saharo-Arabian desert belt, and sitting at the nexus of two continents, the Negev desert has been an intense, arid to hyper-arid environment, at least since the end of the Pleistocene and the beginning of the Holocene. Despite its aridity, evidence of human exploitation of the region during the Neolithic is extensive as well as diverse: Sites vary between ephemeral, temporary camps and large seasonal, semi-permanent settlements, special activity sites, such as hunting camps and raw material procurement spots as well as ritual and symbolic activity locales. This complex record conveys an important aspect of the Neolithic world and of Neolithisation processes; these desert populations, often seen as 'relics', perpetuating the highly mobile, Palaeolithic lifeways, did not remain stagnant during the period. Emerging settlement and subsistence patterns are complex and dynamic and convey short and long-distance networks with the settled populations to the north and east. This talk will present recent discoveries from the southern Negev, discussing the important role of desert communities in the larger Neolithic narrative.

Keywords: Neolithic, desert, subsistence, Negev

The funeral sequence as a compass for time and place in a changing world: long-term trends in Natufian and Neolithic mortuary customs

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R11

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Abstract: From the end of the Epipaleolithic, the dead gradually took on a central role in southern Levant societies. The Natufians selected some of them to take part in the life of the hamlet, whose layout they structured and modified over time. The spaces are alternately those of the dead and those of the living, according to a rhythm of succession that varies over time. In the Neolithic period, this temporal boundary sometimes seemed to disappear in favor of true cohabitation. As burial sites shifted, funerary sequences expanded or contracted, reflecting the changing role of the dead. The presentation will feature a number of recent case studies that reflect the changing nature of the link between the living and ancestors over time. They demonstrate the importance of the latter in the long-term planning of villages, the domestication of space and the re-conceptualization of time as part of the Epipalaeolithic and Neolithic transformation.

Keywords: Natufian; Neolithic; Funerary sequence; Dead-Living relation

Processes of segregation - social developments during the middle and late Pre-Pottery Neolithic B as seen from burial customs

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Abstract: Exchange of commodities has often been interpreted as indicating intensive cultural relations. Undeniably, there is plain evidence for far-reaching exchange networks of raw materials, semi-finished and finished products during the early Neolithic in the Levant. The so-called "skull cult" appeared to corroborate this view of a strong PPNB koiné and of cultural assimilation. In this contribution, I suggest that exchange masked processes of segregation on inter- and intracommunal levels that can be observed in burial customs. A cluster analysis of well-published sites shows increasing differences during the late PPNB, confirmed by non-morphometric data and Strontium analyses pointing to confined local groups. The plastering of skulls was employed as a diacritical mean during the middle PPNB to differentiate some people from most of the dead. This transformation of a very ancient tradition aligned people from the central Levant and allowed them to represent some of their dead within their communities, creating strong collective memories and relations beyond death. However, what had started as a process of collective identification led to enhanced circumscription of local groups. It remains a future task to test whether these changes are visible in other areas, such as in raw material procurement, too.

Keywords: Neolithic, Levant, Collective Memories, Burial Customs, Social Differentiation

Projectile Points as Indicators of Socio-Economic Changes in the Southern Levantine Neolithic – the evidence from the PPNA-PPNB Kharaysin (Jordan)

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R11

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Abstract: The shift in form and size of projectile points between the Pre-Pottery Neolithic A (PPNA) and Pre-Pottery Neolithic B (PPNB) in Southwest Asia reflects gradual but profound changes in technology, economy, built environment, and social organisation that laid the foundations for the rise of complex societies. In the Southern Levant, evidence demonstrates links between tool production and use, and subsistence patterns, and furthermore the region's role in interregional connectivity and raw material exchange. Projectile point typology, based on form and stylistic features, has been a key chronological marker distinguishing PPNA from PPNB. Recent debates have centred on differentiating the use of points in hunting from their role in interpersonal violence during the onset of agriculture. This study presents a new use-wear analysis programme involving 150 points from Kharaysin (Zarqa, Jordan), covering the long occupational sequence from the early 9th to mid-8th millennium BC. By employing the low- and high-power microscopical approaches (up to 400x magnification), we examined the evolution in point morphology and function in order to outline new elements for assessing the advancements in technical behaviours. Our results reveal complex use patterns, highlighting the changes in recycling and reuse of points before and after their primary purpose in hunting. The ultimate goal is to contextualize the shifting role of points in a diachronic perspective concerning the socio-economic dynamics in the Southern Levant.

Keywords: projectile points, subsistence, use-wear analyses, Neolithic, Jordan

The Evolution of Neolithic Personal Ornaments in the Levant

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Abstract: Personal ornaments, or body decorations, convey messages between individuals and groups. Those include information on personal status, personal affiliation and group affiliation. They also serve as memory triggers and represent life experiences. Adornments are produced from a variety of raw materials in which mollusc shell is the oldest and most common, supplemented by bone and other materials of biological origin. In the Neolithic period, rocks and minerals are exploited to add a larger variety of colors, which in themselves have symbolic meanings. Tracing these elements in time and space across the Levant allows us to reconstruct technological advances during this period, as well as conceptual changes as expressed in many different morphologies that might represent specific meanings. They also enable a reconstruction of regional connections between communities as expressed in the repeated occurrence of unique items in specific sites.

Keywords: shells, beads, personal ornaments, Levant, symbolism

Reevaluating the southern Levantine PPNA: new insights in light of recent discoveries from Barkai, Israel

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Abstract: Archaeological research of the southern Levantine PPNA west of the Rift Valley, peaked dramatically during the 80s and 90s of the 20th century with the excavation and publication of the large and complex Jordan Valley sites. The following years were marked by discoveries of smaller sites in other locals and synthesis of the growing data bases. On the bases of these discoveries, several paradigms emerged: the cultural/chronological dichotomy (the earlier transitional 'Khiamian' and the later 'Sultanian' cultures), the spatial dichotomy (Jordan Valley settlement sites vs. task-specific sites in other regions), and the supremacy of the Northern Levant in the Neolithisation process. During the following decades, new sites were discovered and excavated, yet they did not challenge the previously suggested paradigms. The recently excavated site of Barkai (central Israel), with its rich and diverse assemblages and remarkable architectural features, provides an opportunity to review past conceptions. Placing the new data from the site of Barkai in a regional context, together with other recently explored assemblages, may provide an opportunity for a scientific reevaluation. The complexity of the findings from Barkai may also allow new discussions of the power balance between the different regions of the Levant during the period.

Keywords: PPNA, Barkai, Southern Levant

Close to home, close to community: Stable isotopic perspectives from Kfar HaHoresh

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Abstract: Kfar HaHoresh was an extraordinary focal point of Pre-Pottery Neolithic mortuary activity, a cultic-mortuary aggregation site where diverse burial practices involving primary and secondary burial of single and multiple individuals, skull caching and skull plastering were enacted. Unique architectural elements and installations at the site, including a lime-plastered podium and pits holding large quantities of Bos remains, suggest people regularly came together at Kfar HaHoresh to witness and participate in large-scale performance and feasting celebrations, some of which likely involved the burial of the recently dead and skeletal manipulations of the long-deceased. Material culture recovered from the site, including shell beads, stone adornments, and obsidian blades, reveal that the people using Kfar HaHoresh were connected to more distant settlements spread across the southern Levant and beyond. However, it remains unknown if the dead interred at the site were individuals from nearby communities who had remained locally emplaced throughout their lives, or if they had relocated from elsewhere. Alternatively, the dead may have been initially buried at more distant locales and their skeletal remains later transported to the site. We query the geospatial origins and mobility histories of individuals buried at Kfar HaHoresh through multi-isotopic analyses of human calcified tissues, and further contextualize generated isotopic data with those measured from other individuals interred at PPN settlement sites elsewhere. These isotopic data from Kfar HaHoresh generate new insights into the social connections between Neolithic communities and the role of sustained social cohesion in structuring PPN society.

Keywords: stable isotopes, mobility, connectivity, mortuary practice, social organization

Bidirectional blade technology and the Neolithization of the Levant: An updated assessment of its origin, dispersal, and significance

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Abstract: Bidirectional blade technology (BBT) is considered one of the most common and diagnostic formal component of Pre-Pottery Neolithic B (PPNB) material culture in the Levant. It constituted a marked change in local lithic traditions and a shift in projectile technology, rapidly evolving from previous microlitization to standardized production of large, straight and pointed blades from opposed-platform cores. The BBT originated at ca. 9000-8800 cal. BC in the middle Euphrates valley, rapidly expanding throughout varied socioeconomic contexts and ecosystems. By the end of the 9th millennium cal. BC (Middle PPNB) it had become the dominant method for blade production at almost all sites from Cappadocia to the Sinai. Accordingly, its study has been a key factor in understanding the origins of the Neolithic in the region and in establishing the chronological and geographical distribution of the PPNB cultural sphere or 'PPNB Koiné'. In this paper a current state of the art of the origins, diffusion, and variants of BBT during the PPNB in the western wing of the Fertile Crescent will be provided, focusing on its appearance in the Southern Levant and on the recent and challenging data (and hypotheses) from the arid regions of eastern Jordan. Such updated assessment on the origins of BBT and the nature (and mechanisms) of its diffusion (from knowledge transfer to demographic/demic 'colonization') through the Levant is crucial for a proper definition of what the Early PPNB is/means and, secondly, to coherently address the debate about the origins of Neolithic 'innovations' in the Near East.

Keywords: Neolithic, Near East, bidirectional blade technology, Pre-Pottery Neolithic B, chipped stone production

Tracking Inter-Regional Variation in Levantine Animal Domestication: A Critical Examination

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R11

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Abstract: In the past decades numerous papers have described the archaeozoological record of the Levant, tracking the pace of ungulate domestication throughout the region. This has led to the construction of a consensual framework comprising three main points: (i) the existence of a chronological divide between the Northern and Southern Levant—with the domestication process earlier in the northern Levant, starting in the 10th millennium BC and moving southwards over time; (ii) that caprines attained full domestic status first followed by cattle and pigs; (iii) that within the Northern and Southern Levant there was a great deal of inter-site variation in the domestication record. The proposed overview is a follow-up to a 2021 publication by Gourichon and Horwitz (*Food & History* 19/1-2) and aims to critically examine the same datasets on which this reconstruction is based. The talk will focus on assessing the different criteria used by the archaeozoologists in both Northern and Southern Levant to assess the domestic status of ungulates—species frequencies, age profiles, biometric and morphological data and palaeopathologies. By highlighting the weaknesses and strengths of the data-sets, it is hoped to offer a more robust and nuanced understanding of the Levantine domestication process.

Keywords: archaeozoology, fauna, domestication syndrome, natural and artificial selection

Cultural Subdivisions within the Middle Pre-Pottery Neolithic B in the Southern Levant: A Neural Network approach on the techno-typological analysis of the chipped stone industry.

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Abstract: The Pre-Pottery Neolithic B is conventionally recognised as a homogeneous cultural aspect during the Neolithic of the Levant, which develops in more phytogeographical ecozones (e.g., Mediterranean, steppe, desertic ecozone, etc.) and in several chrono-cultural phases that spread with throughout different times first in the northern Levant and then in the Southern Levant (Early, Middle, Late and Final PPNB). The Middle PPNB lithic industry is characterised by laminar production and highly standardised technology, such as naviform cores, unidirectional and bidirectional raw material reduction, and specific typological fossil-guides such as arrowheads (e.g., Jericho, Byblos, Amuq etc.). The present study is aimed to preliminarily detect further cultural subdivisions within Middle PPNB phase, focusing on the results from a technological and typological analysis carried out on several samples on Southern Levantine sites that belong both to the Mediterranean and Desertic ecozones, such as Nahal Yarmouth, Motza, Nahal Reuel, and Yftahel. This analysis is conducted through a neural network analysis such as the Self-Organizing Map (SOM) as a machine learning's clustering tool, as type of feedforward neural network used for unsupervised clustering that has a two-dimensional grid of neurons in the output layer, which is fully connected to the input one. This preliminary analysis shows the potentiality and effectiveness of such statistical tool, which is able to detect and highlight differences even within a homogenous culture such as the PPNB one.

Keywords: Middle PPNB, Lithic Industry, Neural Network, Southern Levant, Machine Learning

The Ppna-Ppnb Transition In The Southern Levant: Contributions From Tell Qarassa North (Sweida, Syria) And Kharaysin (Zarqa, Jordan)

Juan José Ibáñez¹, Amaia Arranz-Otaegui², Carolyné Douché³, Lionel Gourichon⁴, Eneko Iriarte⁵, Jesús Tapia⁶, Juan Muñiz⁷, Luis Teira⁸, Fiona Pichon¹, Khaled Abdo¹, Josu Aranbarri⁹, Andoni Mateos⁹, Bogdana Milič¹, Aroa García-Suárez¹, Alejandra Calderón Ordóñez¹⁰, Jonathan Santana¹⁰, Aaron Morquecho¹⁰, Marta Portillo¹, Andrea Zupancich¹¹

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Abstract: In the last twenty years, a series of archaeological sites with occupation levels dating from the second half of the 9th millennium cal BC, attributed to the Early Pre-Pottery Neolithic B, have been excavated in the Southern Levant. Our excavations of the Early PPNB levels in Tell Qarassa (8600 to 8200 cal BC) and Kharaysin (8400 to 8300 cal BC) have contributed to fill in the previous gap in archaeological data. However, what happened during the previous centuries, when the PPNB was emerging in the Middle Euphrates? Was the Early PPNB in the South originated in the North? Our discovery of a PPNA/PPNB transitional level, dated ca. 8800/8700 cal BC at Kharaysin, with evidence of orthogonal architecture, notched arrowheads and bidirectional knapping, offers new data to this scenario, showing the complexity of cultural evolution during the 9th millennium cal BC in Jordan.

Keywords: Neolithic, Kharaysin, Jordan Highlands, Agriculture, Livestock

The Neolithic founder crops - updated data and opinions

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R11

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Abstract: The last decades have brought new information and exciting ideas in the field of the beginnings of agriculture. New data from archaeological sites, archaeobotanical assemblages, population genetics of wild species, and ancient DNA studies have been added, leading to both the preservation and transformation of our previous understandings. Importantly, a new generation of researchers has emerged, actively questioning some of the basic concepts of earlier generations. This includes the founder crops of Neolithic agriculture, the existence of agriculture that preceded the domestication of plants – pre-domestication cultivation - and their time and location. In this lecture, I will attempt to redraw the course of plant domestication, inspired by the active engagement of these researchers and the new information and insights they bring.

Keywords: archaeobotany, aDNA, population genetics, founder crops, domestication

The development of pottery production in the Southern Levant: continuity and discontinuity of a step in the process of 'containerization'

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R11

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Abstract: The roots of the process that has led to the modern 'containerized world' are traditionally traced back to the Neolithic, but the proliferation of containers considered as the hallmark of that period had already been ignited by the establishment of sedentary life. A variety of container technologies were already available well before the spread of pottery, and sustained pottery production emerged within this complex scenario. Continuity with the past is more evident in some areas than others. In the Southern Levant, for instance, a traditional material such as plaster was used to manufacture and coat vessels, sustained pottery production began centuries later than in the adjacent regions, and the typical decoration of the first ceramics – Yarmukian and Jericho IX/Lodian – are said to resemble features of basketry and other organic containers. Certainly, the earliest southern Levantine pottery differed notably from the coeval Dark Faced Burnished Wares produced to the north. Their distinctive manufacturing techniques, shapes and decoration, seem to point to the existence of a particular identity, which had most probably emerged in earlier times and was expressed using different media. A continuation of such local identity can also be evidenced in the characteristics of the succeeding Wadi Rabah assemblages, despite their similarities to DFBW. Considering diachronic aspects, this paper explores the mechanisms that lie behind the development of sustained pottery production in the Southern Levant, highlighting continuity and discontinuity of a specific trajectory in the increase in the use of containers that structured settled life on an ever-growing scale.

Keywords: Southern Levant, pottery production, containerization, Yarmukian, Wadi Rabah

A House is not Always a Home: A Re-Evaluation of the Function of Late Neolithic (c. 6,900-5,000 cal. BCE) Architecture in Jordan's Black Desert

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R11

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Abstract: A House is not Always a Home: A Re-Evaluation of the Function of Late Neolithic (c. 6,900-5,000 cal. BCE) Architecture in Jordan's Black Desert
Abstract: Buildings excavated at Late Neolithic settlements in the Black Desert of Jordan have often been called "dwellings" or "houses," but those words can have prejudicial impacts for understanding why the building was constructed and for how the structure was used over its lifetime. Two Late Neolithic structures were completely excavated at the base of basalt-capped mesas in the Wadi al-Qattafi at the western edge of the basalt fields, and three more near the middle of the plateau east of the Wadi Wisad, on the eastern edge of the Black Desert. Recovered data suggest that the structures built in the 7th and early 6th millennia BCE may have had ritual performance as a major element in their purpose and design, and that they not have been residential at all until the last half of the 6th millennium. Domestic "dwellings" may have been built of organic materials that weren't preserved in the archaeological record.

Keywords: Ritual, Work Station, Multi-Family

Not a Place for Respectable People, but the Ends of the Earth Converge There: Transregional Networks and the Steppe During the Seventh and Sixth Millennia BC

Alexander Wasse¹, Yorke Rowan²

R11

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Abstract: Research has demonstrated that the late seventh to sixth millennia BC was a time of expansive 'globalisation' in many parts of the Levant and upper Mesopotamia. During that period, communities of varying sizes and degrees of mobility utilised temporary camps, semi-permanent 'stations' and larger agricultural villages to bring the hitherto under-utilised dry-steppe and sub-desert margins of the Fertile Crescent into economic production. Far from being an unproductive waste, the great arc of this 'desert line' was characterised by an extraordinary array of productive seasonal microhabitats that were well placed to support a diverse range of socioeconomic activities. By the mid sixth millennium - if not earlier - hunting, herding and exchange networks linked the steppic rangelands, or badia, with the Tigris-Euphrates river system, which in turn gave access to regions extending from northern Syria to Mesopotamia and the Arabian Gulf. This paper argues that, far from being marginal to what the late Olivier Nieuwenhuys described as the 'constellation of innovations' that characterised this period on the cultivable side of the 'desert line', the badia was in fact an important shaping nexus. Leveraging the mobility inherent in herding to connect the western and eastern wings of the Fertile Crescent, heavily invested Black Desert Neolithic aggregation sites such as Wadi al-Qattafi and Wisad Pools display a sophisticated technological and cultural hybridity that may be attributed to their role as 'crossroads on the steppe'.

Keywords: Jordan, Steppe, Herding, Hunting, Networks

The Eastern Steppes' Interaction Spheres of LPPNB Southern Levant

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Abstract: Until a decade ago, we considered the Transjordanian megasites as a temporally and spatially rather isolated phenomenon of the LPPNB (2nd half of the 8th millennium BCE) in the highlands east of the Rift Valley, whose hypertrophic development benefited from migrations from western areas and the rich ungulate habitats of the eastern steppes. The latest FPPNB findings from Motza and Ba`ja and the kite research in the former eastern steppes now show that the briefly booming Megasite Phenomenon was part of a complex system of demic diffusions between 7500 and 6700 BCE in the southern Levant, in which the eastern grasslands and climate oscillations played decisive roles. Our theses about the Transjordanian megasites (up to 2010/2015) were not wrong, but they lacked the nowadays possible embedding in the processes of their supra-regional interaction spheres. Accordingly, the development of regionally different etho-ontologies on the social and economic substrates of the small village MPPNB and the late hunter-gatherers in the eastern grasslands became a crucial explanation of population dynamics and demic diffusion, which also includes direct migrations. The steppe interaction spheres became the cause and momentum of subsistence-dependent cognitive diversities, with which new productive socio-economies such as long-distance mobile pastoralism and the kite hunting culture emerged and co-determined the development in the sedentary social environments in the Southern Levant's "core" zones: While the lifeways differentiated, the cognitive frameworks of these mobile and sedentary communities seem to have narrowed to the strict norms of habitus societies through approximation and dividualisation.

Keywords: Transjordanian Megasite Phenomenon, Eastern steppes, etho-ontologies, habitus societies

Northern Hijaz PPNB settlements and Late Neolithic pseudo-settlements: Arabian forefront of the southern Levantine Neolithic

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R11

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Abstract: It is well known that the Neolithic culture of the southern Levant infiltrated deep into its surrounding drylands. Our recent investigations in northwestern Arabia have also demonstrated that this new wave reached northern Hijaz beyond the Jordanian Badia as early as the Early Pre-Pottery Neolithic B. This is best exemplified by Masyoon, a small settlement site in the eastern foot of Mt. Lowz, where beehive-shaped structural complexes, a PPNA/PPNB transitional lithic assemblage marked by Helwan type projectile points and disc-shaped opposed platform type cores, and faunal remains centered on medium-size wild bovid mammals were attested together with several ¹⁴C dates falling within the first half of the 9th millennium cal. BCE. What followed it were a Middle to Late PPNB settlement of Wadi Sharma 1 and several Late Neolithic pseudo-settlements found at Safwan 1 and Wadi al-Ghubayy sites, both of which are also suggestive of strong ties with the contemporary north. All these new findings, coupled with research outcomes from other new and existing Neolithic sites such as Jabal Qattar 101 and Kilwa, strongly suggest that the Neolithization and the subsequent pastoral nomadization at the northwestern entrance of the Arabian Peninsula progressed in conjunction with those in the southern Levant, and in particular, the southern Jordanian Badia. Reviewing the series of excavations, this paper discusses the Arabian forefront of the southern Levantine Neolithic.

Keywords: Northern Hijaz, southern Levant, Neolithic, Masyoon, Wadi Sharma 1

R13 - From the “Civilization of minds” to obsidian mirrors: the study of the World Neolithic according to Petr Charvát and Güner Coşkunsu

Session Organiser

Jesus Gil Fuensanta / LASEI-ICFS / UAM (Madrid)

Alfredo Mederos Martin / UAM - ARCHAEOLOGY DEPT.

Otabek Uktamovich Muminov / Mirzo Ulugbek University (Tashkent) /Faculty Of History

Alisher Gaffarovich Muminov / Mirzo Ulugbek University (Tashkent) /Faculty Of History

Abstract

The premature disappearance of our colleagues, Prof. Petr Charvát (West Bohemia University, Czech Republic) and Dr. Güner Coşkunsu (Autonomous University of Madrid, Spain), has left some of their own research on various fields of the World Neolithic unfinished.

Throughout his long career, Prof. Charvát carried out in-depth research on the birth of the first states and urban agglomerations, as well as the beginning of bureaucracy through the use of seals and their impressions. The eminent Czech archaeologist and historian personally viewed the Neolithic as a “Civilization of minds” in contrast to the Chalcolithic or Bronze Age cultures, which he considered “Civilizations of the stomach.”

In her research on the Neolithic, Dr. Güner Coşkunsu was able to confirm her interest in archeology about childhood, the role of women in prehistory, and especially the Neolithic period, as well as in-depth research on stone tools, in which Her interest in an unprocessed material stood out, the magical volcanic crystal, which we call obsidian; within this lithic raw material, she highlighted an important attraction for the subject of “mirrors”.

So this session will cover these mentioned aspects, or various in relation to them within the Neolithic sphere: seals and imprints, bureaucracy, centralized organization in the central Neolithic towns, "the mind of Neolithic men", women and the question of matriarchal clans in the Neolithic, the archeology of childhood in the Neolithic, organization of stone industries, as well as obsidian industry and trade, and last but not least, the obsidian mirrors.

Impersonal Powers in Göbekli Tepe: Temples as Cosmic Houses.

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R13

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Abstract: The Pre-Pottery Neolithic A buildings with monumental character that have been discovered in eastern Anatolia (Göbekli Tepe, Karahan Tepe) have represented a “revolution” in popular thinking about the character of the Neolithic. In the hypotheses of this research presented here we address questions of evolution within the clans (nomadic or semi-nomadic, initially) that built and used such places. We do observe a difference between the use of those sites during the PPNA and PPNB phases, perhaps with a more defined cosmic character during the phase in which the buildings were circular or similar in plan (PPNA). The mentality reflected in places with buildings of similar structure in Çayönü and its contemporary Nevalı Çori (Urfa), make us consider at times the survival of some religious mentality typical of the PPNA into the later period of the Aceramic Neolithic of the region. The use of the rectangular floor plan in the PPNB is also due not only to an evolution in architectural solutions but also in human thought, in line with those ideas of our colleagues Petr Charvát and Güner Coşkun, always took into account.

Keywords: Göbekli Tepe. Karahan Tepe. Pre-Pottery Neolithic. Temples. Clans

Of Divination and Portals: Reflections on Two Obsidian Mirrors from Early Neolithic Çatalhöyük (Konya Plain, Turkey)

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R13

¹McMaster University

Abstract: This paper offers an interpretation of obsidian mirrors at Early Neolithic Çatalhöyük (Konya Plain, Turkey) considering their role and significance through a discussion of two examples from a mid 7th millennium BC burial, the first such examples to have been found in situ since the 1960's excavation. An integrated contextual, techno-technological, sourcing and object biography approach details how their coming-into-being served to entangle a number of people, places and events. It is argued that the mirrors were fashioned from symbolically potent projectile cores that were first prepared by skilled male knappers at the distant Nenezi Dağ obsidian source, after which they were modified back at Çatalhöyük by knowledgeable elder women to be employed in shaman/healer divination rituals (catoptromancy). The mirrors' power is also considered to part-stem from only occasionally being revealed, at which point they acted as portals to alternate realities of a totemic nature, a claim based on both cross-cultural analogies and other forms of evidence from the site.

Keywords: Çatalhöyük, Neolithic, Obsidian mirror, Divination, Object biography

Children for the Future: The Archaeology about the Infants from the Neolithic of Western Asia.

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R13

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Abstract: In the Neolithic, the transition to agriculture fundamentally redefined children's lives, shaping their roles and experiences within early farming communities. Archaeological methods, such as osteological analysis and artifact studies, reveal the diverse ways in which children contributed to both production and socialization. Through examining skeletal remains, we gain insights into the physical demands placed on children, evidenced by wear patterns that indicate their involvement in agricultural and domestic tasks. These tasks allowed children to acquire essential skills through observation and participation alongside adults. Findings of toys and games, such as miniature tools and figurines, suggest that play was not only a means of entertainment but also a critical component of social development, helping children to learn and internalize community norms and practices. Funerary rituals, including the placement of grave goods and the treatment of children's bodies, reflect their symbolic and practical position within community belief structures, offering insights into how societies valued and integrated their youngest members. Studies of sites like Çatalhöyük, Skara Brae, Ain Ghazal, Dolní Věstonice, Lepenski Vir, and La Draga demonstrate significant cultural variations and daily practices related to children. These diverse datasets highlight the integral role of children in early agricultural societies and underscore their impact on social and cultural development. By focusing on the archaeological evidence of children's activities and societal roles, this study contributes to a more comprehensive understanding of Neolithic life, emphasizing the importance of children in the formation and perpetuation of early agricultural communities.

Keywords: Neolithic, Western Asia, Infants, Social development, Funerary rituals

Digital Textile Pattern Designs Inspired by Anatolian Civilizations Museum Neolithic Period Artifacts

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R13

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Abstract: The concept of culture, which consists of various elements including tradition, customs, religion, language, history, archaeology, art, design, textile, fashion, etc. undertakes the task of being a communication tool in transferring a nation's cultural identity, accumulation and heritage, which reflects the traces, characteristics and values of its own life, from the past to the future. It is possible to see examples of the rich cultural heritage of Anatolia, which has hosted many civilizations, in various museums. The collection of the Anatolian Civilizations Museum in Ankara consists of Anatolian archaeological artifacts from the Paleolithic Age to the present day. This age, which consists of two periods Pre-Pottery and Pottery Neolithic between 10,000 and 5,500 BC, is represented in the museum by Çatalhöyük and Hacilar artifacts, as well as various examples including human and animal figures, ornaments, bone, flint and obsidian tools, as well as terracotta and stone vessels. The scanning method was used as the method in the study. While the research population consists of the general collection of the Anatolian Civilizations Museum, the sample consists of works from the Neolithic Age. Within the scope of the research, original, culturally based, creative, and innovative textile patterns as a result of blending the traditional with today's aesthetic understanding, inspired by the works of the Anatolian Civilizations Museum Neolithic Age, will be designed. The drawings of the patterns designed for the print fabric design in question will be prepared digitally.

Keywords: Culture, Design, Digital Pattern, Printed Design, Textile Design

The Halaf culture: A non-minimal approach

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R13

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Abstract: Our colleagues Petr Charvát and Güner Coşkunsu had a very interesting insight into the Halaf culture, one of the last of the Neolithic of Eastern Anatolia and Northern Mesopotamia. Petr Charvát dedicated a specific part of his research to highlighting the functions and uses of seals during the Halaf culture and a comparison with those of the Ubaid culture, which he himself saw as typical of another type of society, in which predominated the ideas that were different from that of the Late Neolithic. Güner Coşkunsu suggested to us in his studies on stone industries, such as obsidian, various ideas different from those that prevailed in the interpretations of the Halaf culture, clearly a period of “Neolithic mentality”. Halaf is a culture about which much has been researched and written about in recent decades thanks to archaeological research. The aim here is to offer a vision that is not minimal on the hypothesis on this culture. Within the interpretations that we present here about the Halaf culture, we take into account various internal cultural factors, as well as the environmental conditions (for example, the dispersion of Halaf after the 8.2 kya disaster) and universal spread to large territories of Western Asia, mostly into Anatolia.

Keywords: Late Neolithic. Halaf. Northern Mesopotamia. Anatolia. Non-minimal vision.

Juan Ibarreche Duque and the studies on Nomadic Populations of the Neolithic Age

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R13

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Abstract: The present study focuses on the analysis of the cultural and scientific interaction between Uzbekistan and Spain through the study of the life and professional activity of the archaeologist Juan Ibarreche Duque, a specialist in the prehistoric cultures of Central Asia, with important contributions from the Neolithic to the local Bronze Age. Duque built a bridge between both countries through his research in Uzbekistan over many years. But the main theme, to which he gave his whole soul, was the ancient cultures of farmers and nomads of oases and steppe regions of Central Asia of the era of incipient early metallurgy in the Prehistory. We offer here a comparative analysis of steppe cultures from the Aral Sea region to Siberia and the study and prehistoric monuments in Surkhandarya and Fergana Valley areas, in the contact zones of farmers and cattlemen. The thought of the eminent archaeologist reminds us of the conception that our colleagues Petr Charvát and Guner Coşkunsu had about Neolithic studies. Juan Duque's studies on lithic materials and social concepts parallel those concepts developed by his eminent later colleagues.

Keywords: Central Asia. Surkhandarya. Fergana Valley. Early metallurgy. Nomads.

Paleolithic Migrations into Central Asia and its reflection on Asian Paleogenetics of the Neolithic Age

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Abstract: The humans of early Prehistory traveled a lot and with them a series of ideas were transmitted. The Caucasus corridor was one of the best-known routes, but nevertheless there were others. Since the Mousterian (Middle Paleolithic) there are various facies that demonstrate some type of contact between Mesopotamia and Central Asia. The Neolithic period has proven interactions between social groups in Central Asia and adjacent areas. Here we offer results from several of the Central Asian republics of the region and their possible relationships with other areas such as Siberia. On the other hand, recent mtDNA analysis proves the appearance of populations living in the Neolithic of Central Asia who had their ancestors in the Ancient Near East. This study focuses on such contacts and takes into account various hypotheses about what may have been the causes of these dispersions and contacts at the dawn of the Neolithic of Central Asia. And it uses several of the suggestions proposed by our colleagues Petr Charvát and Güner Coşkun.

Keywords: Central Asia. Middle East. Paleogenetics. Caucasus. Neolithic.

The importance of seals in the Neolithic societies of Mesopotamia

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R13

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Abstract: Since the stamp seals appeared within the framework of the Neolithic societies of the 7th millennium BC in Mesopotamia, this cultural period was never the same: Administration appeared. Petr Charvat throughout his long career took special care with the study of seals, in different formats, since administrative practices at the dawn of the Mesopotamian civilization was one of his priorities. Here we present several of his most notable hypotheses and findings in the field of seals and early Mesopotamian administration. In a period of history when it is still not possible to decipher a word due to lack of knowledge of their languages, the seals act as a transmitter of the relationships between the Neolithic towns as well as a visualization of various messages that their bearers or the authorities of the given village wanted to transmit to their contemporaries, and thanks to Archaeology, to the current world. Seals can be more than a transmitter of administrative practices

Keywords: Stamp Seals. Administration. Sealing Practices. Oral Transmission. Mesopotamia.

“Neolithic Mirrors”: Peaceful and Secretive Objects of the Prehistory

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R13

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Abstract: One of the last projects in common with Güner Coşkunsu and in cooperation with other colleagues was a series dedicated to mirrors made of different materials, which were found in the Prehistory in various cultures around the world. The starting point was the mirrors found in archaeological contexts of the Neolithic period of Mesopotamia and Anatolia. Mirrors or mirror-like objects, “mirrors” made of stones, minerals, glass and metal were found in various archaeological contexts, generally in burials, offering and cache contexts. These remarkable and somehow enigmatic objects are best known from Neolithic and Chalcolithic sites of Çatal Höyük, Domuz Tepe, Güvercin Kayası and Tepecik in Turkey; several sites in Americas, as well as from ancient Egyptian and Indian excavations. According to the realms of archaeological and historical recoveries, the mirror appears throughout the human history from prehistoric times to today and most likely still waters were the first mirror-like functioning natural element until actual mirrors made of solid material like obsidian, and later liquid “mirrors”/reflectors made of mercury were manufactured. Therefore, this session aims to investigate Neolithic mirrors from all around the World both as a material object and other aspects beyond materiality; past peoples’ perception of mirrors and reflections on shiny objects; personal and societal need for gazing into mirrors from interdisciplinary and comparative perspectives. In addition to technological, typological, functional and experimental aspects, astronomical, symbolic, religious, magical, ritualistic, artistic, neuroscientific, and paleopsychological aspects also will be discussed.

Keywords: Anatolia. Obsidian. Mirrors. Çatal Höyük, Domuz Tepe

R33 - Göbekli Tepe: State-of-the-art

Session Organiser

Lee Clare / German Archaeological Institute, Istanbul Department

Abstract

Archaeological excavations have been underway at Göbekli Tepe since the mid-1990s. Since 2009, these works have been supported by a long-term funding grant from the German Research Association (DFG). Originally directed by Klaus Schmidt, responsibility for this research project, "The Prehistoric Societies of Upper Mesopotamia and their Subsistence", passed to Ricardo Eichmann (DAI-Orient) in 2014. Since 2019, the project has comprised three main parts: Archaeology, archaeozoology and physical geography, with Lee Clare (DAI Istanbul), Joris Peters (LMU Munich) and Brigitta Schütt (FU Berlin) acting as primary investigators. In 2020, following the retirement of R. Eichmann, L. Clare took over as DFG project leader, with the site directorship passing to Necmi Karul (Istanbul University) in the same year. The last few years have witnessed great changes at Göbekli Tepe, not only due to UNESCO inscription in 2018, which has culminated in a visible increase in visitors, but also in the light of ongoing fieldwork, which has led to new insights around the function of the prehistoric settlement. This session brings together numerous experts who have been active in the scientific research at the UNESCO World Heritage Site over the last five years. Contributions will focus on many of the different sub-disciplines of the project, including building and landscape archaeology, physical geography, archaeobotany, archaeozoology, human anthropology, lithic studies and art and symbolism.

The Göbekli Tepe project: history, organisation, and research strategies

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R33

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Abstract: Already from the initiation of fieldwork in the mid-1990s, Göbekli Tepe already demonstrated its uniqueness and its great archaeological and bioarchaeological research potential for the cultural history of the northern Fertile Crescent. Projects such as "The Prehistoric Settlement of the Urfa Region (Southeast Turkey)" and "Ungulate domestication and early animal husbandry in the Upper Euphrates basin" granted respectively to Klaus Schmidt (DAI Berlin) and Joris Peters (LMU Munich) paved the way for their joint long-term DFG project "The Prehistoric societies of Upper Mesopotamia and their subsistence" (from 2009). Since 2017, archaeological and bioarchaeological research in the catchment area of GT has been complemented by studies in physical geography under the leadership of Brigitta Schütt (FU Berlin). This paper serves as an introduction to this session, which will focus on the state-of-the-art of research at Göbekli Tepe.

Keywords: Göbeklitepe, research history, absolute dating, conservation

25 years of archaeozoological research at Göbekli Tepe, and future perspectives

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Abstract: This talk will summarise the archaeozoological work carried out at Göbekli Tepe over the last 25 years, detailing past results, ongoing analysis, and plans for future work. Archaeozoological research at Göbekli Tepe has developed from the initial goal of data collection to gain a general overview., which showed that gazelle was the most important game species numerically, although aurochs was also important in terms of the large quantity of meat it provided the community. The integration of novel methods including stable isotope analysis and archaeogenetics, as well as regional comparison allowed us to place Göbekli Tepe into the broader perspective of early Neolithic Anatolia. New approaches to understanding the stratigraphy and formation processes showed that the faunal remains excavated in the monumental buildings come almost exclusively from relocated middens from all occupation phases. More recently, we argue that a number of the animal images at Göbekli Tepe should be re-interpreted, including the 'lions' of the well-known 'Lion-pillar Building'. Based on anatomical clues, and the archaeozoological record, this structure perhaps should better be known as the 'Leopard-pillar Building'. Additionally, the numerous 'duck' representations should be re-interpreted as vultures. We also point out a number of anatomical peculiarities in the animal representations that may be attempts to anthropomorphise the animal images. Finally, we present preliminary analyses from material recorded from Drainage trench 2 (DR2) which was recorded in the 2022 and 2023 seasons. DR2 is one of very few contexts that are thought to be dating from the PPNA/EPPNB, without later intrusive material.

Keywords: Archaeozoology, Göbekli Tepe, Pre-Pottery Neolithic

Different strokes for different folks—diverse subsistence strategies at the transition to agriculture in the Upper Mesopotamia

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Abstract: In course of the past 25 years of archaeozoological work at Göbekli Tepe, we established a series of parameters enabling us to place the subsistence strategies of the Göbekli Tepe inhabitants in the context of other sites in Upper Mesopotamia. In this talk, we will present the results of this research by looking closely at a series of these parameters. These include the spectrum of targeted taxa relative to the respective environment, hunting strategies, and animals in the symbolic/ritual sphere. In this synopsis, we will combine the data and identify commonalities, peculiarities, and patterns. Seemingly self-evident, a common characteristic is that sedentary hunter-gatherers exploited the taxa present in the surrounding. However, there are exceptions to this rule: at some sites, certain resources were intentionally ignored. The considerable breadth of the game spectrum is another well-known feature of PPNA communities in Upper Mesopotamia, which again was not present at all sites. Moreover, our research demonstrated that some communities reacted to the potential overexploitation of their preferred game species by adjusting their hunting strategies. Finally, ritual paraphernalia such as raptor wings and talons or skulls of different species either displayed in special places or buildings or deposited in special features also seem to be a commonality at PPNA sites, which—on closer inspection—shows regional patterns. Again, some communities turn out to be exceptions to this rule.

Keywords: Archaeozoology, Subsistence strategies, Avifauna, Göbekli Tepe

Göbekli Tepe - Architecture

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Abstract: Göbekli Tepe's buildings are great examples of Early Neolithic stone architecture. Lacking established building traditions and guidelines, Neolithic buildings at Göbekli Tepe show a wide variety of structural solutions and approaches. The earliest roundhouse structures can be dated to the late PPNA (ca. 9360 +/- 39 calBC). These round houses were up to three meter in diameter and had one single space. None of the early dwelling structures are fully excavated yet, as they were found in general in the relative small deep soundings excavated to reach bedrock for the foundation of the protective shelters erected in 2017 and 2018. The excavations have provided substantial information about the early occupation on site. I will present some preliminary insights into the PPNA architecture identified so far, the building stratigraphy and will address the relation of domestic and special buildings in context of the overall settlement structure. This is especially true for the structures dating to the PPNB. They were as well much longer lived than postulated earlier. Latest insights into the PPNB architecture at Göbekli Tepe will be presented based on some well-chosen examples of both domestic and special buildings. The biographies of the buildings at Neolithic Göbekli Tepe are much more complex and the relationship between domestic structures and special buildings more entangled than anticipated. The preliminary results of the investigation into the building (as well as site) stratigraphy are aiming to present a biography of the site based on the individual narratives of the buildings.

Keywords: Architecture, Göbekli Tepe, Neolithic, site formation

Entrance to the built environment – Perception of space at Early Neolithic Göbekli Tepe

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R33

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Abstract: The Early Neolithic site of Göbekli Tepe in southeastern Turkey is known for its special buildings with the characteristic T-shaped pillars. Since the beginning of the systematic research of the phenomenon in 1995 the focus has been on the monumentality of the buildings and the richly decorated pillars. In the interpretation of the iconography, its structural context was included only to a limited extent. But even less attention has been paid to the importance of pathways, access and thus the overall perception of space. The hitherto undeveloped group of door-hole stones therefore offers an opportunity to deal with the dividing line between the built environment and the natural environment. Together with walls and possibly roofs, door-hole stones also form a dividing line between light and darkness. The architecture thus has a direct influence on the human body and forces specific movements of the visitor. The aim of my work is to understand the spatial experience and the deliberately designed transitions and to make them experienceable in suitable formats – by means of 3D-models and “multisensual” reconstructions.

Keywords: Göbeklitepe, architecture, 3D-models, reconstructions

Un-intentional modifications of the human bone fragments from Göbekli Tepe

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R33

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Abstract: The over 800 fragments of human bones recovered from the sediments excavated from the monumental Neolithic structures of Göbekli Tepe show signs of an eventful history, as indicated by their high fragmentation, traces of heat and weathering, animal bite marks, and coverings of calcareous deposits. The human remains have been examined and assessed macroscopically. Further investigations were carried out with the digital microscope (HIROX 2000). Some 15% of human bones show heat impact of varying degrees. Weathering is detectable in up to 20% of bone fragments, differing in degrees of severity. The fragmentation rate is over 90%, and calcareous deposits cover the surfaces of more than 60% of the bones. About 2% of the bones show signs of chewing and biting by animals. Some bones show two or more unintentional modifications at the same time. This paper will critically address the relevance and possible interpretations of taphonomic changes and compare these results to the osteological and taphonomic information from the skeletons discovered at surrounding Neolithic sites. Additionally, the unintentional modifications of bone fragments are compared with those of the skeletons found in two burials at Göbekli Tepe. The similarities, e.g. covering by calcareous deposits and fragmentation, and the differences in the taphonomic appearance of these human remains tell us more about the bones' histories. Finally, we summarise if the unintentional modifications reflect burial customs at Early Neolithic Göbekli Tepe.

Keywords: taphonomy, burial customs, human remains

Southeast Europe / Europe and Eastern Europe

R14 - Regional and Inter-Regional Palimpsests of Neolithization Processes: South-Eastern Europe

Session Organiser

Mihael Budja / University of Ljubljana, Slovenia

Dušan Borić / Sapienza University of Rome, Italy

Zuzana Hofmanová / Max Planck Institute for Evolutionary Anthropology, Germany

Maxime Brami / Johannes Gutenberg-Universität Mainz, Germany

Abstract

The session will focus on archaeological, archaeogenetic, biomolecular, demographic, climatic, and paleoeconomic regional palimpsests. In addition to the processes of transition to farming, artefact assemblages and chronological trajectories, symbolism and social practices, the concepts of the Neolithic package, demic diffusion, migration, gene-culture coevolution, Neolithic demographic transition, and the agricultural frontier will be discussed.

The First Temperate Neolithic farmers and their herds: new archaeozoological and radiocarbon evidence from North Macedonia

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R14

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Abstract: Over the last couple of decades, extensive archaeozoological and aDNA studies have securely placed the origin of animal domestication in the Near East. From this area, humans and domesticated animals (sheep, goat, cattle and pig) gradually spread to the Aegean, the Balkans, and ultimately to the rest of Europe. Thus, the farming groups dispersing into the interior of the Balkans in the late 7th millennium cal BC were the first to introduce Mediterranean livestock beyond its natural climatic range. Due to its particular location, between the Mediterranean Greece and the Central Balkans, and given its distinct forms of Early Neolithic material culture, North Macedonia represents one of the key areas relevant for the understanding of the spread of farming. Nevertheless, due to the uneven level of research and publication, this process is still far from understood. In particular, the studies of animal bones from the Early Neolithic sites in the region have been few and far between. In this paper, we present new radiocarbon dates on animal bones and new results of the analysis of faunal assemblages from several Early Neolithic sites (Vrbjanska Čuka, Govrlevo, Mogila-Školska Tumba, Tumba-Optičari) in North Macedonia, an area which had previously been insufficiently studied from an archaeozoological perspective. We consider the taxonomic composition, mortality profiles, taphonomic traces and contextual provenance of faunal remains, in order to infer about animal husbandry practices amongst the First Temperate Neolithic communities in the Sub-Mediterranean zone, and identify potential spatial and temporal variations.

Keywords: First Temperate Neolithic, North Macedonia, archaeozoology

Neolithization of Wetlands: the establishment of tells and pile-dwellings in the Balkans

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Abstract: The beginning of the Neolithic in Europe was mainly elaborated as a significant process that introduced momentous social, economic and symbolic changes. Nevertheless, the landscape and the selection of particular areas for inhabitation was rarely regarded as a crucial prerequisite of the first farmers for the incorporation of agriculture and sedentary mode of living. The wetlands were fundamental for establishing the farming settlements within a space that has an abundance of resources, such as clay for buildings and pottery, fertile soil, diversity of animals and fishes residing in and around marshes, a variety of organic materials for households etc. The Southeast Europe witness a number of wetland regions where large groups of farming societies initially established tells around wetlands and later the pile-dwelling close to rivers and lakes. Consequently, the tells and pile-dwellings are reflection of few stages of the Neolithization in the Balkans with tells being the manifestation of the second stage around 6000 BC soon afterwards followed by the pile-dwellings as the final process of setting the Neolithic environment. In these terms, the first stage of Neolithization in the Balkans differs in regard to wetland strategies and it is related to large settlements on mountain slopes founded in the second half of the 7th millennium BC. This is evidenced by several Neolithic sites in the Balkans and particularly in the regions of Pelagonia and Lake Ohrid which will be in focus of this presentation.

Keywords: Neolithization, Balkans, tells, pile-dwellings, wetlands

Lepenski Vir & Çatalhöyük. Revisiting an old analogy using genetics

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Abstract: Since its discovery in 1960, Lepenski Vir in the Danube's Iron Gates has puzzled archaeologists. Over the years, the settlement of trapezoidal houses and hybrid fish statues has been described as 'Protoneolithic', 'Mesolithic', and even 'Neolithic'. Ian Hodder's *The Domestication of Europe* (1990) compared Lepenski Vir to Çatalhöyük, despite the distance and the lack of agriculture at the former. In this seminar, I would like to revisit the comparison between the two sites, in the light of recent biomolecular evidence including ancient DNA. Indeed, the Palaeogenetics Group in Mainz found that a significant majority of the people buried at Lepenski Vir descended from Aegean-Anatolian early farmers, including adult males, females, and children. While the newcomer population clearly admixed with the hunter-gatherers who had lived in the Iron Gates since Mesolithic times, it is difficult to maintain the notion that Lepenski Vir was a Mesolithic village joined by a few Neolithic immigrants. Is the Lepenski Vir conundrum finally resolved? What implications does this case study have for our understanding of exceptional sites in Southwest Asia, such as Göbekli Tepe?

Keywords: Farmer–forager interactions, Neolithic, Ancient DNA, Stable isotopes, Southeast Europe

Brăilița and the transition to farming in south-eastern Romania

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Abstract: In Romania, the transition to farming has been generally acknowledged to have taken place sometime between 6100/6000 and 5600 BC. Neolithization gradually advanced from the Danube into Transylvania, to what is nowadays the border with Ukraine, and later, spread into present-day Moldova, moving downwards as far as the bend of the Carpathian Mountains. The area between the Danube and the Black Sea documents Neolithic presence only starting with the middle of the 5th millennium BC. Recently, new data has emerged while revisiting the new archaeological and anthropological assemblages from the multicultural site at Brăilița (Brăila County, Romania), studies triggered by the surprising results of recent 14C and genomic data. It is thus indicated that the first hunter-gatherer contacts with southern Neolithic communities (Boian culture) took place towards the end of the 5th millennium BC (Boian culture) and also offers support to the so far postulated hypothesis of Mesolithic presence along the Danube banks, elsewhere than the Iron Gates region.

Keywords: Romania, transition to farming, radiocarbon, Brăilița, Boian

The Early Neolithic period at Sinagovtsi and its implications for the study of the contacts along the Middle and the Lower Danube

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Abstract: A recent construction project at Sinagovtsi on the Vidbol river, a southern tributary to the Danube near Vidin, has revealed the presence of a Neolithic site containing a single large pit (18 square metres in floor surface), and a row of three skeletons, including an adult male, a female, and a child, all situated approximately three metres below the present surface. The two adults were interred within the confines of the pit, while the child was interred outside. Each individual was buried in a distinct manner: one in a supine position, the others in a crouched position respectively on their right and left sides. The skeletons were covered by animal bones, flint and obsidian tools and flakes, as well as broken pottery shards, exhibiting characteristics consistent with the developed Starčevo style. The close synchronicity of the fill of the pit and the graves is confirmed through direct radiocarbon dates from the human and the animal bones. Given the limited number of Early Neolithic sites excavated in north-western Bulgaria, Sinagovtsi presents a wealth of information that is worthy of evaluation through multi-proxy analysis. This will correlate burial practices with aDNA data, dietary information from faunal analysis with stable isotopes data from the human and the animal bones, as well as the mineralogical and geochemical provenance of the flint and the obsidian. A brief review of the recent advances in the Early Neolithic studies in north-western Bulgaria and the neighbouring regions will attempt to outline the significance of these findings to date.

Keywords: bioarchaeology, lithic provenance, Danubian networks, burial rites, Early Neolithic

Balkan Neolithization through the Lens of Flint Supply and Distribution

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Abstract: This paper focuses on a particular raw material – Balkan flint with frequent, widespread and, ‘even’, special use among Early Neolithic communities of the Balkans in the early 6th millennium cal BC and was the focus of one of several extensive lithic exchange networks operating in Southeast Europe during that period. Knowledge of the supply and distribution of Balkan flint among EN populations is important for our understanding of the Neolithization process in its trajectory and regionality. After 10 years of systematic field surveys and laboratory analyses, our research group has accumulated a substantial corpus of analytical data from geological outcrops (64 samples) and archaeological sites (166 artefacts). Our analysis of Balkan flint samples from EN sites across Bulgaria suggests some communities acquired supplies from more than one source (but all located in Upper Cretaceous limestone formations of northern (mainly north-central) Bulgaria), while GIS modeling has highlighted possible distribution routes. The concentration of Balkan flint resources in northern Bulgaria gave the region a crucial role in the spread of the Neolithic lifestyle. aDNA research has shown there were varying levels of hunter-gatherer ancestry among EN populations in the Lower Danube region, which implies the earlier presence of Mesolithic populations there. However, the origin of the BF network is still obscure, not least because only in the Iron Gates area, where the Mesolithic–Neolithic interactions are reflected in the archaeological record.

Keywords: Neolithization, Balkan flint, flint outcrops, raw material network, multiproxy analysis

Variability in the Neolithic lithic technology of the western Balkans

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Abstract: The period between 6200 and 4500 cal BC is a time of big socio-economic and technological changes in the western Balkans (modern countries Serbia, Montenegro, Bosnia and Herzegovina, and Croatia). The spread of the Neolithic lifestyle and farming practices triggered a series of changes in stone tool production as well. This paper explores the role of lithic technology during the spread and local development of farming across the western Balkans, assessing variability in raw material economy and tool production. Data was collected from eight Early and thirteen Late Neolithic unpublished museum lithic collections from Serbia, Montenegro, and Bosnia and Herzegovina. The assemblages were analysed using both qualitative and quantitative approaches. A comprehensive comparative analysis was performed on both newly obtained and published data. This enabled to study variation in lithic technology on intra- and inter-site levels. Studying geographical patterns of lithic distribution and different access to the sources it was possible to reveal important regional and inter-regional connections between the communities as well as their mobility patterns. The results indicate that the dynamic changes during the neolithisation of the western Balkans are best reflected in raw material management. While technology and typology were relatively coherent across the studied area, the use of raw materials revealed existence of regional variabilities during both Early and Late Neolithic.

Keywords: lithic technology, raw materials, variability, Neolithic, western Balkans

Say "Cheese"? Rim-perforated pans and basins of the Aegean Neolithic

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Abstract: Shallow vessels with perforations around the rim are found on both sides of the Aegean in the Late Neolithic. In Greece, they are conventionally termed “cheese-pots,” and it was suggested that a cloth was suspended from the holes to use the vessel to separate the curds from the whey; there is no current evidence for this use. Overall, the perforations are crudely made from the exterior to the interior of the vessel, but more or less evenly spaced. It has been suggested the sticks used to perforate the vessel walls were left in the vessel during firing, and some holes are not fully pierced. There are also morphological varieties within the two main types of shallower pans and deeper basins, such as the presence of absence of interior slightly upturned lugs, vertical tab handles at the rim. The interiors are finished, but the exteriors and particularly the bases tend to rough and unfinished. Chronologically, the vessels are dated in the Aegean from 6th to the second half of the 4th millennium BC depending on region, but this long duration can be debated due to the lack of radiocarbon dates associated with these vessels. This paper will overview Aegean “cheese-pots,” recent evidence, and propose ideas for future study.

Keywords: pottery, secondary products, vessel typology, dairying, vessel use

Lifeways and rituals. Clay representations of ambiguous creatures at the northern margins of the Balkans, early 6th millennium cal BC

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Abstract: Following the human-animal relations and their newly gained meaning with domesticates in the Early Neolithic, the large number of ambiguous and intentionally unclear representations raise considerations beyond zooarchaeological and environmental issues and connections with early dairy consumption and storage of fermented food. The images also shed light on changes in human cognition. The analysis of a newly identified depiction, an early Neolithic female - horned cattle - figurine type, allows a broader interpretation of human-animal images and a contextual reconstruction of the changes in household rituals involved in making and using these figurines. This talk will demonstrate some aspects of the fundamental cultural change during the European Early Neolithic that took place in the northern marginal zones of the Balkans in the first half of the 6th millennium cal BC. This zone, the southern part of the Carpathian basin, has a marginal ecological position: leaving the warm riverine lowlands and entering into a hilly, forested landscape brought on a crisis, a challenge. Simultaneously, it was the trigger leading to changes in new and creative mental patterns and, as a consequence, innovative ritual activities. I shall present a combination of research results coming from diverse fields: changes in animal husbandry, landscape perception, and their infiltration into household rituals.

Keywords: first farmers, early 6th millenium cal BC, Balkan-Central Europe frontier, human-animal relations

Environmental factors and the use of resources of the oldest LBK in the Ammer Valley near Tübingen

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Abstract: The area around Tübingen is one of the few regions in Central Europe to show traces of settlement from both the Late Mesolithic and the Early Neolithic. An integral part of the archaeological investigations of these sites are systematic environmental archaeological studies, which deal with archaeobotanical, anthracological and archaeozoological assemblages at on-site and off-site level. On this basis, it is possible to investigate which environmental factors were chosen by the Early Neolithic settlers and what their resource utilisation looked like. Furthermore, some (foreign) elements point to continuing relationships with the LBK's areas of origin in South-Eastern Europe and provide evidence of adapted traditions that live on over long distances even in the new environment.

Keywords: Settlement Archaeology, Wetland Archaeology, Archaeozoology, Palynology, Archaeobotany

The northern extent of early farming communities in Central Europe in the light of research in Ostrowite (northern Poland).

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Abstract: The long-term archaeological project in Ostrowite (Pomerania, northern Poland) revealed the remains of multicultural settlement complex dated from the Stone Age to the Middle Ages. Discovery of Neolithic features from Ostrowite provided important hints for discussion on the northern extent of Linear Pottery Culture in Central Europe. The LPC features from Ostrowite were interpreted as multi-phase pits. The artefacts were dated to the classical phase of LPC, correlated with well recognised LPC sites from central Poland (Kuyavia Lakeland and Chełmno Land), functioning before 5000 BC. Ostrowite settlement, as well as some other sites, recently discovered in the lower Vistula and Oder basins, belong to the most northerly located LPC settlements of the earliest phase of farming societies in Central Europe. An extensive programme of paleoenvironmental studies has been initiated to better understand the environmental background of this northernmost migration. Plant macro-remains analysis provided evidence of einkorn and emmer wheat, barley, as well as pea cultivation. Palaeoecological records revealed a variety of forest resources, associated with mosaic of habitats, including patches of fertile black soils. Human impact on forest phytocoenoses as well as the use of lake's resources were identified. Hydrological changes in the studied area reflecting climatic events were detected.

Keywords: Central Europe, Poland, Linear Pottery Culture, LBK, paleoenvironmental study

Starčevo blueprint – Vinča developers

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Abstract: Recent research in Serbia's Šumadija region reveals intriguing regional patterns, amplified by supra-regional and comparative analysis. Through regional study we analyzed a palimpsest of both site patterns and differential data collections. The accumulation of diverse regional data, already highlighting community building and population changes, is strengthened when viewed through the lens of new archaeogenetic, paleo-demographic, and climate science data. This paper presents research on complex society emergence in Central Serbia's Šumadija region, within the Gruža, Lepenica, and Jasenica river valleys. The Starčevo site network in these valleys suggests an open, semi-mobile, small to medium scale farming community model, with a strong egalitarian ethos, especially evident at sites like Todorčevo and Kneževac. In stark contrast, the early Vinča period shows rapid centralization around only some Starčevo sites, with limited number of possible processes leading to such population centralization. Especial issue is presented through the case of „small scale“ Vinča sites, that were usually perceived in the light of off-shoot theories, and the process of population fission due to the carrying capacity pressures. Research conducted in our region suggest that this image is far from being that simple, and that much more nuanced picture is presented when palimpsest of data are analysed in a regional, and multidisciplinary and comparative perspective.

Keywords: Palimpsest, Starčevo, Vinča, Šumadija, Emergence

It Takes a Village: Craft Specialization at a Late Neolithic (5400–4600 BC) Site in Western Kosova

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Abstract: This paper will present the findings of four fieldwork seasons at a newly discovered Late Neolithic site in Western Kosova called Lluga. The preliminary evidence, collected since 2019, suggests that Lluga was a three-hectare village with numerous rectangular wattle and daub houses surrounded by a ditch. Also, the data indicate that it was a peripheral village of the Late Vinča culture group—with evidence of various craft production, a mixed economy, rituals, and deliberate house burning. Results of surface artifacts density, geophysics survey, test excavations, and detailed analysis of the collected materials strongly suggest that Lluga was a specialized village for manufacturing stone blades—an essential tool in the agricultural economy of grains during the Late Neolithic. In addition, the presence of Vinča figurines found at the site suggests Lluga participated in the Vinča culture, either by exchanging items with the central Balkans or as a member of an extended cultural interaction network. The talk will discuss how we can generate a framework that uses various field techniques, artifacts, the spatial analysis of crafting, and households and how these create and shape social and economic roles in prehistoric societies.

Keywords: Late Neolithic, Vinča Culture Group, Craft Production, Kosova, Socioeconomic Status

R15 - The Neolithic of the Aegean and Beyond: Supra-Regional Networks and Local Communities

Session Organiser

Agathe Reingruber / Free University of Berlin, Germany

Zafer Derin / Ege University, Türkiye

Eylem Özdoğan / Istanbul University, Türkiye

Abstract

The Circum-Aegean world is at the same time part of the Mediterranean and separated from it by large islands. This interactive space that formed around the Aegean Sea offered many advantages to seafaring peoples since Mesolithic times or even before: a well-connected and authentic place where not only people and materials, but, above all, ideas circulated rapidly.

Since the Mesolithic, and especially with the Neolithic way of life, interactions between its eastern and western parts resulted in a material and immaterial culture distinguishable from the surrounding areas. Nevertheless, the Circum-Aegean is far from being a uniform space, since there are numerous differences traceable between the various regions, such as the islands, the Anatolian coast and the Greek mainland. Through new research carried out in recent years in especially in the eastern Aegean area (in Anatolia) but also in the west (in Macedonia and Thessaly), another aspect has become even clearer: the possibility of defining inside the broader regions local styles in pottery production and material culture. In this session, we aim to discuss both the beginnings of the Neolithic way of life against the background of the Mesolithic, as well as the subsequent transformations culminating in the early/mid sixth millennium BC. Special attention shall be given to the internal dynamics within the Aegean and the exchange with the surrounding areas: on the Anatolian side with the Marmara region up to the Bosphorus in the north and with the Lake District down to the Mediterranean coast in the south; on the European side via river systems with the north and northwest.

The session welcomes contributions on material culture, chronology and terminology, various aspects of regional cultures and interregional networks. As it is not possible to adequately study the Circum-Aegean Neolithic without interdisciplinary approaches, we explicitly welcome presentations on environmental aspects, archaeometry and bioarchaeology. In this way, we aim to highlight the originality of Aegean Neolithic societies in their various aspects.

Exotics: kick-starting the earliest hunter-gatherer - farmer networks in Anatolia, the Aegean and the Balkans

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R15

Abstract: Recent genomic research using aDNA extracted from Mesolithic and Neolithic burials has overturned the traditional debate over agro-pastoral origins in Old Europe. These results strongly support a migrationist model, involving the movement of Anatolian farmers into Old Europe followed by mating with local hunter-gatherers, while falsifying the indigenist model, in which acculturation of local hunter-gatherers is explained by the movement of ideas, things, plants or animals but not people. This narrows possible scenarios to the integrationist approach, in which farming lifeways in Europe emerged from networks connecting incoming Anatolian farmers and local hunter-gatherers. In an archaeological response to these results, we present the emergence of farming in Anatolia, the Aegean the Balkans as a series of hunter-gatherer - farmer networks relying on material attractors (especially lithics) to sustain discontinuous expansion to the North and West. The key proposition is that the spread of farming was powered by the creation of new hunter-gatherer – farmer networks stimulated by novel material attractors, usually distinctively bright and colourful materials but incorporating pre-existing hunter-gatherer networks in which small worlds were connected by weak exchange ties. A comparison of the hunter-gatherer Big Other and the farmer Big Other shows many areas of ontological convergence, as is also found in the skill sets of the two traditions. We show how ontological principles were grounded in quotidian practices in both hunter-gatherer and farming communities. These shared commonalities reinforce the idea that the ‘innovations’ of the incoming farmer migrations found a more ready acceptance than we had hitherto believed.

Keywords: hunter-gatherers, first farmers, exchange networks, material attractors, The Big Other

Short-term Hilltop and Cave Settlements during the Neolithic Period: The Case of Keçiçayırı and Gedikkaya Sites

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Abstract: The Neolithic lifestyle of farming communities based on agriculture and animal husbandry, which started in the first quarter of the 7th millennium BC and continued uninterrupted and progressively for a long time, seems to have started a few centuries earlier in the Lakes Region and the Eastern Aegean Basin than in Northwestern Anatolia. Until roughly 6600 BC, there is almost no evidence of settlements with village status in Northwest Anatolia. From this period onwards, the first settlements with different settlement models were established in Northwestern Anatolia. Keçiçayırı, a hilltop settlement in the Phrygian Highlands, and Gedikkaya Cave, a cave in the Middle Sakarya Valley, are among these settlements. Keçiçayırı is represented by vague architectural traces consisting of stone-built round architecture and floors carved into the bedrock, which do not indicate a fully settled life, and pottery finds related to the Konya plain; that thus indicate the Neolithic Period communities, which we are accustomed to see in the plains and coastlines, can also use mountainous but more sheltered places as settlements. Gedikkaya Cave, on the other hand, is characterized by some unusual burial practices such as cannibalism in the Early Neolithic Period and pottery finds associated with Southwestern Anatolia (Eastern Aegean and Lakes Region) in the Late Neolithic Period. Keçiçayırı hilltop settlement and Gedikkaya cave settlement, both of which are located in mountainous regions, seem to represent new structuring processes at the beginning of the Neolithic in which outsiders and local communities came together.

Keywords: Gedikkaya Cave, Keçiçayırı Hilltop Settlement, Inland Western Anatolia, Neolithic

Bahçelievler Neolithic Chipped Stone Assemblage: Local Tradition and Interregional Contacts

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Abstract: Recent excavations at Bahçelievler in Bilecik, northwest Anatolia revealed a Neolithic site that the earliest settlement was established during the late 8th/early 7th millennium BC and continuously occupied until ca. 6000 BC. As a result of the studies conducted on 1670 lithic artefacts it was understood that two raw materials were used in tool production. While flint was obtained from local sources near the settlement, obsidian was imported from different sources such as Nenezi, Göllüdağ, Acıgöl, Hasan Dağ, Yağlar and Melian. This indicates that Bahçelievler was in contact with different regions. Flint knapping was done in the settlement, especially in the courtyards. The bullet-shaped cores using the pressure technique are seen from the lowest layers of the settlement reveals that this tradition started in Bahçelievler at an early as 7100/70000 BC. It has been understood that the tool assemblage is generally within the northwest Anatolian Neolithic lithic tradition, with sickle blades, end scrapers, drills and transverse arrowheads. On the other hand, as in coastal western Anatolia mostly blade production is seen. As a result of examining the lithic artefacts from the Bahçelievler, it is noted that there is no difference between the Early and Late Neolithic layers in terms of raw material selection, techniques usage, blank and tool types. This proves that the lithic tool tradition has continued without much change since the earliest periods of settlement.

Keywords: Neolithic, Northwestern Anatolia, Bahçelievler, Flint, Obsidian

Lithic Technologies and the Raw Material Supply as an Adaptive Strategy in the Settlement Patterns of Marmara Sea Region During 7-6 mill BC

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Abstract: The study of lithic technologies and raw material supply is significant for understanding the adaptive strategies in the settlement patterns of the Marmara Sea area and its neighboring regions during the early Neolithic period. This multidisciplinary approach completes the comprehensive picture of how these early societies lived, interacted, and evolved. The analysis of lithic technologies and raw materials in the area under study reveals a complex interplay between environmental adaptation, social organization, and technological innovation. By examining the strategic choices in raw material procurement and tool production, we can gain insights into the broader adaptive strategies that shaped the settlement patterns in this period. The integration of local resources with long-distance trade networks underscores the dynamic and interconnected nature of these early communities.

Keywords: Lithic technologies, Raw material procurement, Marmara Sea

Istanbul Lagoons Neolithic Finds

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Abstract: The Istanbul Prehistoric Surveys (ITA Project) carried out in the Buyukcekmece, Kucukcekmece Lagoons connected to the Sea of Marmara in the west of Istanbul yielded finds such as flint blades, decorated stone plates, crushed and rubbed stone tools, sharpening stones, spear points, sling stones, ceramic sherds and bone tools, mostly cutters. Since the Büyükçekmece Lagoon started to be used as a reservoir at the end of the 1980s, its reservoir doubled and the lagoon waters covered the old coastline. During the surveys especially after the lake water receded during the dry seasons, it was observed that most of the tool groups encountered could be dated to the Neolithic period. Therefore, unlike the previous surveys conducted in the 20th century, the ITA project had the chance to reach materials belonging to periods other than the Palaeolithic Period in Büyükçekmece. Among the finds recovered, especially the incised decorated stone slabs show the characteristics of the PPN Period, which is well known from Southeastern Anatolia. The finds from Küçükçekmece also indicate the presence of agricultural communities from the early Neolithic period. The cutting and rubbing stone tools made of metamorphic and sedimentary rocks prove that agricultural communities who knew agriculture well and could cultivate the soil had been present in the region for a very long time. The material culture remains of the Neolithic period found in the lagoons of Istanbul on the Marmara coast are expected to contribute to the various views on the transition of the first agricultural communities to Europe.

Keywords: Istanbul Lagoons, Büyükçekmece, Küçükçekmece, Stone Tools

Looking the Aegean from Inner Southwest Anatolia: Ekşi Höyük and its relations and interactions

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Abstract: Archaeological excavations at Ekşi Höyük have recently confirmed that the first farmers settled in Inner Southwest Anatolia in the early centuries of the 7th millennium BC. These excavations have not only refined the Neolithic chronology of Inner Southwest Anatolia, but also provided a new perspective on changes in the social organisation of region's Neolithic communities over time. Similarly, It has also provided an intensive flow of information on the identification of the material culture items of the region's Neolithic communities and their changes over time. We have now reached a point where we can evaluate the interregional relations of Inner Southwest Anatolia during the Neolithic. Our results show that the Neolithic communities of Inner Southwest Anatolia had intensive relations with the Lake District, but that this network of relations extended over a wide area, including the Aegean world. Simultaneous changes in pottery traditions, similarities between figurines and technological parallels between stone tools, plant and animal species that constitute the main pillars of subsistence, and many other components confirm the existence of a network of relations between Inner Southwest Anatolia and the Aegean world and indicate that these relations continued throughout the Neolithic period, albeit weakened from time to time. The aim of this paper is to evaluate the chronology of the Neolithic way of life and the cultural interactions between Inner Southwest Anatolia and the Aegean through Ekşi Höyük.

Keywords: Neolithic, Ekşi Höyük, Southwest Anatolia

A Late Neolithic Cave Settlement in Southwest Anatolia: Suluin

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Abstract: Katran Mountain (like Mt. Carmel in Israel), located in the Western Taurus Mountains range, is one of the richest areas in Turkey in terms of cave settlements. There are many caves and rock shelters on Katran Mountain. These caves were densely inhabited during the Lower, Middle, Upper and Epi-paleolithic periods. The vast Döşemealtı Tufa Plain (630 square kilometers), which is one of the important geographical features of the region lies in front of Katran Mountain. There are no any mound settlements from the Neolithic, Chalcolithic and Early Bronze Age in this plain. Suluin is the most important cave in the region, showing that the Neolithic life-style continues in caves. In this paper, the archaeological excavations carried out in Suluin Cave and the results obtained from these excavations will be shared.

Keywords: Katran Mountain; Suluin; Excavation; Cave Settlement; Late Neolithic.

The Origin of Paint Decorated Pottery from the Neolithic Period in the Burdur-Antalya Region

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Abstract: Although it is not known where paint decorated pottery first appeared, the painted pottery culture with different decoration traditions in Western, Central and Southeastern Anatolia from the 6th Millennium BC onwards is remarkable. Paint decorated pottery is an important material group used during the Neolithic Period in the excavations carried out at Hacilar, Kuruçay, Höyücek and Bademağacı settlements in the Burdur-Antalya Region. It is observed that this tradition was continuous in the region starting from the early Neolithic Period until the end of the Early Chalcolithic Period. At the same time, this pottery group allows us to understand the interaction and cultural connections between the near and far neighboring regions. The most important parallels with the Burdur-Antalya region are seen in the Aegean Islands. Both the decoration types and the form types are very similar to the paint decorated pottery of the Burdur-Antalya Region. This shows that the Aegean Islands have an important place in the communication and interaction between the southwestern and western regions of Anatolia and Continental Greece in the pottery tradition in question.

Keywords: Painted pottery, Burdur-Antalya Region, cultural connection

Unveiling Community Identities: Tracing Clay Object Makers via Ancient Fingerprints

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Abstract: Clay, as a fundamental resource, played a vital role in the daily lives of Neolithic communities in western Anatolia. While extensive research has focused on clay objects, scholarly research on Anatolian Prehistory has often overlooked the social dynamics inherent in clay object production, such as the organization of labor division and the identities of the artisans. This study focuses on these social identities within western Anatolia during the seventh and early sixth millennia BCE, utilizing ancient fingerprints embossed on clay objects to estimate the age and sex of the producers. By analyzing these imprints, this research seeks to determine whether distinct groups of adults or children were involved in crafting specific types of clay artifacts. The results from this analysis demonstrate the existence of labor division based on age and sex in this region during the Neolithic period. The insights gained from this investigation hold the potential to enrich our comprehension of how gender and age were perceived within Neolithic communities in western Anatolia.

Keywords: labor division, paleodermatoglyphics, sex estimation, age estimation, clay finds

Yeşilova Höyük and the Neolithic “Coastal Aegean Culture”

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Abstract: Within the 'Prehistoric Settlement Area of Izmir' Yeşilova Höyük is the oldest settlement established in the centre of the today's city. Due to the favorable setting near the Aegean coast, many cultures thrived here in the course of the millennia, from the beginning of the Neolithic Age until the Roman Period. The settlement at Yeşilova Höyük formed at the beginning of the Neolithic and reached its peak towards the end of the Neolithic Age. The richest data were obtained from the settlement levels representing the last period of the Neolithic between 6000–5700 BC, with remains of built spaces separated from each other. The architecture and the settlement plan together with the archaeological finds are characteristic also for other coastal sites. These form a unique culture that we can call "Coastal Aegean Culture", different from Inner Western Anatolia. It can be assumed that the architectural tradition consisting of hipped stone roofs and pisé masonry supported by wooden posts built separately from each other developed due to the Aegean climate. The similarities with the settlements of the Aegean islands indicate a close cultural relationship.

Keywords: Aegean, Neolithic, Yeşilova Höyük

Lion King and the others: Preliminary results of faunal analysis of Yeşilova Höyük, İzmir.

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R15

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Abstract: The prehistoric settlements in İzmir have unearthed evidence indicating that human habitation in the vicinity of the modern city dates back 8,500 years BP. Excavations conducted at Yeşilova Höyük yielded stratigraphically distinct cultural layers, spanning from the Neolithic Period (6500 BCE) through to the Roman Period. The burgeoning interest in Anatolian zooarchaeological research has been paralleled by a heightened focus on Neolithic period studies, with numerous investigations conducted over the past two decades yielding valuable insights into human-animal interactions during this epoch. However, scholarly discourse surrounding zooarchaeological studies in the Aegean region remains comparatively sparse relative to Southeastern Anatolia and Central Anatolia, a trend potentially attributable to variations in Neolithic site density. As one of the most extensively researched sites within the region, the zooarchaeological investigations conducted at Yeşilova Höyük represent a pivotal endeavor contributing significantly to our understanding of the Aegean Neolithic period. Preliminary studies have indicated that the Neolithic fauna of Yeşilova Höyük, while exhibiting some differences, is compatible with Anatolian Neolithic faunas. A diverse mammalian fauna has been identified, with fewer materials analyzed from the avian class. Species identifications of both domesticated and wild animals have been conducted, including the identification of an individual belonging to the wild animal group *Panthera leo*. This record appears to be quite significant for Anatolian zooarchaeology. In this study, the minimum number of individuals of the analyzed zooarchaeological materials has been calculated, providing an overview of the general fauna distribution.

Keywords: Zooarchaeology, *Panthera leo*, Neolithic

An overview of the Neolithisation of Western Anatolia: What does the Ege Gbre settlement tell us about the Neolithisation of the coastal Aegean?

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R15

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Abstract: The first Neolithic settlements in the coastal Aegean region of western Anatolia are dated to the middle of the 7th millennium BC. The earliest settlements were constructed directly on the virgin soil and contain numerous artefacts that indicate a well-developed village life. These mounds were continuously inhabited for over 1000 years. Such mounds, which are typically found inland, are distinguished by their thick archaeological deposits and long-term habitation. However, there are also flat settlements along the coast, such as Ege Gbre, where the archaeological deposits do not exceed one meter. Moreover, the settlement of Ege Gbre was built directly on virgin soil just before the transition to the 6th millennium BC. The settlement of Ege Gbre differs from other settlements in the coastal Aegean part of Western Anatolia not only in terms of the date of its foundation, but also in terms of some pottery types and architecture. Consequently, it can be said that the Neolithic communities in the Coastal Aegean have both differences and similarities. One possible explanation for these differences is that the Neolithisation process of the Coastal Aegean was not uniform. Alternatively, the contributions of the local communities to the Neolithisation process may have resulted in these differences. This paper evaluates the implications of the data from the Ege Gbre settlement for the Neolithisation of the Coastal Aegean part of Western Anatolia.

Keywords: Western Anatolia, Aegean, Neolithic, Neolithisation, Ege Gbre Settlement

Spread of Round Shaped Objects identified as Sling Missiles in the Aegean during the Neolithic Period

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Abstract: The sling is one of the oldest weapons developed by humans in prehistoric times besides the spear, bow and arrow. The evidence for this weapon, which most probably originated in the Levant in the Pre-Pottery Neolithic period, consists of round-shaped objects. These objects are made of different raw materials such as stone or clay, various shapes, sizes and weights. Sling missiles, which also appeared in southeastern Anatolia around 10000 BC, started to be seen in Neolithic settlements in western Anatolia from 6600-6500 BC. Within a short period of time, sling missiles spread rapidly in Neolithic settlements in the Lake District, Inner Western Anatolia, Coastal Aegean, Northwestern Anatolia and Eastern Thrace. It began to appear in Greece (Thessaly, Macedonia) and Bulgaria (Thrace) in the late 7th - early 6th millennium BC and spread throughout Southeastern Europe (Balkans) and the Aegean during the 6th millennium BC. Sling missiles and thus slings have been the sole projectile weapon used by Neolithic communities in almost all regions mentioned throughout the Neolithic period, with few exceptions. In this paper, the spread (routes) of sling missiles from Western Anatolia through Thrace, the Aegean and the Balkans during the late 7th and 6th millennia BC will be discussed in a chronological framework. The similarities and differences of these objects will be evaluated in terms of raw materials, shapes, sizes, weights and contexts.

Keywords: Sling, Sling Missiles, Western Anatolia, Aegean

Red Ochre and Seafaring? Some implications for connectivity in the southern Aegean during the Neolithic

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Abstract: Red ochre represents the earthy version of hematite, an iron sesquioxide that is deposited between secondary rocks in the form of sand grains. Although the oldest archaeological evidence dates to the lower and middle Paleolithic, it is only from the upper Paleolithic that it becomes possible to define specific areas of use pertaining both to the symbolic-ritual sphere, as well as to the utilitarian-functional one. This contribution considers red ochre from Aegean contexts spanning the end of the 9th and the beginning of the 5th millennia BC. On the basis of the contextual associations observed at sites such as Maroulas (Kythnos) and Phaistos (Crete), it is proposed (a) that these deposits, duly treated, allowed for the production of ointments and creams which, thanks to their protective properties from the sun's rays, helped to sustain maritime movement; (b) that the foundation of sites on the southern Aegean islands was driven by the search for hematite deposits - both in earthy and rocky form; and (c) that red crusted pottery serves to define a network and culture of ochre usage, indexing inter-regional connectivity in the Aegean along an - as yet poorly documented - north-south axis.

Keywords: maritime network; hematite and quartzite; sunscreen

Unravelling Cultural and Genetic Interactions during the Aegean Neolithization

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Abstract: The emergence of Neolithic villages in Western Anatolia, particularly between 7000-6000 BCE, has caused debates regarding the driving forces behind this transition. While earlier hypotheses suggested demic diffusion from the Fertile Crescent, recent studies suggest more complex population dynamics. We address this question by combining material culture analyses with paleogenomic data to trace the Neolithic origins in the region. A single genome from the pre-7000 BCE period revealed a local population in Western Anatolia genetically linked to Epipaleolithic Central Anatolia, indicating continuity and adoption of farming by local hunter-gatherers. In the period 7000-6000 BCE, we found that some Neolithic populations still reflect a local genetic profile, while others show genetic affinity to Central Anatolia. This suggests significant population movement that accompanied cultural exchanges among regions, but also admixture between local populations and migrants from Central Anatolia, which we infer to have occurred at varying degrees in different settlements of Western Anatolia, with the highest rate observed in NW Anatolia. These admixed populations also appear to have migrated to the Western Aegean represented by N Greece here. However, when we compared material culture data with genetic data, we found no correlation between them. This suggests that cultural transmission might have occurred faster than genetic. Our analysis indicates that the Neolithization of the Aegean was a complex process involving genetic and cultural exchanges from Central Anatolia, along with admixture with local populations. These insights deepen our understanding of the intricate socio-cultural and genetic factors that influenced the development of Neolithic societies in the region.

Keywords: Neolithic transition, Western Anatolia, Ancient DNA, the Aegean

Island Neolithic of the Aegean Sea

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Abstract: In recent decades, Neolithic and other early prehistoric sites on islands in the Aegean Sea have either been excavated for the first time or subject to renewed investigations. Concurrently, on both sides of the Aegean, in Greece and Türkiye, there is also new data from coastal settlements. This talk aims to review the results of the older and more recent data of the island Neolithic sites in order to present a diachronic perspective of when, where, and why Neolithic lifeways were introduced on the Aegean islands. This paper will offer an opportunity to also review the evidence for early seafaring and maritime trade-based interaction (e.g., obsidian). It suggests how island of Crete, as the southern boundary of the Aegean Sea, could be integrated into current considerations of the several Aegean Neolithic Island “cultures” during prehistory, when the geography was not defined by modern nation states or names (e.g., the Cyclades, the Sporades, the Dodecanese), even if the islands and coastal regions themselves have changed over the centuries due to sea level rise.

Keywords: ceramics, diachronic change, island Neolithic, sea faring, trade routes

Integrated approaches to emerging later Neolithic Islandscapes in the Cyclades

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Abstract: Between 2012 and 2018, the Keros Project undertook pedestrian survey of the islands of Keros and Kato Kouphonisi and the coast of southeast Naxos, as well as targeted excavation on Keros and in the Early Bronze Age maritime sanctuary at Dhaskalio and Kavos at the western end of Keros. This work has identified previously unrecognised later Neolithic activity in this part of the Cycladic archipelago. Secure evidence of Late to Final Neolithic activity has previously been recognised across only a handful of Cycladic Island contexts, most notably from LN Saliagos and FN Kephala on Kea, and as a result of more recent work at Strofilas on Andros and Ftelia on Mykonos. The micro-regional approach adopted by the Keros Project offers a complementary islandscape perspective to the evidence from these isolated site contexts, allowing us to recognise a previously hidden later Neolithic network, with significant implications for the connectedness of Neolithic settlements in the Cyclades, and perhaps a larger role for these Neolithic communities in the genesis of the ritual landscape of Dhaskalio. This paper explores the character and distribution of this Cycladic Neolithic activity and raises key questions about the definition of occupation in the archipelago in the fourth millennium BCE and at the traditionally fuzzy threshold of the Early Bronze Age.

Keywords: Final Neolithic, Cyclades, Connectivity, Micro region, Network

Regional diversity in the adoption of pottery in the Aegean during the late seventh millennium BC. A new view from Knossos, Crete.

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Abstract: The transformation of clay into fired ceramic containers is generally heralded as a major advance in the long sweep of human existence. While a variety of theories have been proposed to explain why pottery was initially made, there is consensus that initial pottery was advantageous or beneficial (somehow) and, moreover, that it was perceived as such by those encountering it for the first time, thus encouraging its rapid adoption. In the case of the Aegean - a region hard-wired for maritime connectivity – our faith in the attractiveness of initial pottery to prospective adopters finds fulfilment in its near simultaneous appearance on its eastern (e.g. W. Anatolia) and western (e.g. Thessaly, Macedonia) shores in the mid-seventh millennium BC. While the form taken by initial pottery varies regionally, it is widely believed that a common culture of pottery making/using developed across the Aegean at this time. This paper questions these beliefs in the light of evidence from the southern Aegean, with particular emphasis on the site of Knossos in Crete. Here, detailed reappraisal of the legacy excavations of John Evans (1957-60; 1969-70) has revealed a new picture of initial pottery use, notably different to previous discussions of the site. The results undermine the idea that initial pottery was intrinsically attractive to potential adopters and underline the existence of important cultural differences within and beyond the Aegean during the seventh millennium BC. The paper considers what this means for inter-regional connectivity at this time and when/how/why this may have begun to change?

Keywords: Aegean, Early Neolithic, Crete, Initial Pottery, Containers

Neolithic obsidian Melian network in Greece: patterns of circulation and technical traits

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Abstract: Obsidian studies have increased during the last decades. Recent advances in source identification, as well as new lithic data from Greece have enriched our knowledge of the Melian obsidian exchange network during the Neolithic. So far, we were thinking of the Melian network as spreading across the western parts of the Aegean (Greek mainland and the islands). However, new data from the Anatolian Aegean coast underline the need to re-define the spread and the technological traits of this pan-Aegean network. In this article we will mainly present conclusions of a comparative analysis of lithic data (i.e., numerical representation, stage of importation, blade technology) from a series of excavated sites of Greece (Thessaly, central Greece, Peloponnese, Euboea, Cyclades, Crete and northern Greece). It is shown that in the Greek mainland the Melian network was composed by several regional and/or micro-regional different components: mainly sites that had frequent access to obsidian and/or sites retaining less or minimal access. If 'down-the line' ever existed, it would not have run in a mechanical way. It should rather be envisaged as a series of discontinuous, interrupted networks, fluctuating in time, adjusted to physical topography, and fragile human relations. In addition, ethnoarchaeological data from Thessaly-as far as production and circulation of threshing sledges is concerned- help in understanding past exchange modes and concepts like 'distance'. Comparisons with data from the Anatolian coast are finally suggested for the near future.

Keywords: obsidian, Melos, exchange patterns, technical traits, Greece

Building Castles on Sand: Current Models on the Impact of Insular Aegean Hunter-Gatherer Populations on Neolithisation Processes

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Abstract: Work over the past 15 years in the insular Aegean and western Anatolian littoral has provided a wealth of Mesolithic sites, requiring us to rework models concerning the cultural history of Mediterranean islands. With demic diffusion now widely accepted as to how to Neolithic lifeways were introduced into the Aegean, these Mesolithic populations are now being rightly forefronted in discussions of Neolithisation processes. Given that these hunter-gatherers were occupying those intermediary islands via which migrating farming populations would have tramped as they voyaged westward out of Anatolia, can we talk of an indigenous input to these processes? Might common use of Melian obsidian by insular Aegean hunter-gatherers and western Anatolian farmers provide us with a context where knowledge of safe sea routes and landscapes were apprehended by the latter group prior to their migration? Do we conceive of interaction, inter-marriage, and creolised communities, or do we envisage a complete demographic replacement, and a depopulation in most Aegean islands during the Early Neolithic due to their lacking the environments favoured by cattle raising villagers? While these possible relations have been much discussed, these models are based on flimsy evidence, with gaps in our knowledge concerning the chronology, demographics, and seasonality of these Mesolithic sites. This paper critically reflects upon the data, taking a minimalistic perspective, arguing that our energies need to be spent in excavating and dating these sites, with survey data of insufficient quality to provide the evidential bases for many of the current debates.

Keywords: Neolithisation, Aegean, Insular Mesolithic, Data Lacunae

The relations between Aegean, Anatolia, Balkans between the 7th and the 5th millennium through the analysis of the chipped stone industry of Uğurlu (Gökçeada/Imbros Island)

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R15

¹Ministère de la culture

Abstract: The apparition and the development of the first farming communities in Western Anatolia, Aegean and the Balkans are not yet well characterized. There is no consensus on the processes involved, especially about the role of Mesolithic communities and the ways followed by the first Neolithic settlers arriving in the region. The frontiers between each group and the development of distinct cultural entities during the Neolithic and the Chalcolithic are, as well, very discussed topic. The mound of Uğurlu is situated on Gökçeada Island on the Northeast of Aegean and is occupied from the beginning of the 7th millennium to the 5th millennium. Consequently, it is a key-site to understand the neolithization and the evolution of the farming societies in this region. Chipped stone industries can give important evidences for a better understanding of these processes. The know-how and knowledge involved in their manufacture are related to cultural traditions. The toolkit corresponds to specific tasks related to the way of life of these communities. The raw materials and artefacts can circulate over hundred kilometres in different ways, indicating different forms of contacts and relations. In this presentation, the analysis of the chipped stone industry from Uğurlu and the comparison with the industry from other sites bring new data for a better understanding of the cultural relations in this area.

Keywords: Aegean, Anatolia, Balkans, chipped stones

Early Neolithic in the Northern Aegean and Eastern Thrace: Cultural Contexts and Regional Connections

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Abstract: Hoca Çeşme is one of the earliest known settlements in the North Aegean region. The settlement provides an exemplary reflection of the cultural environment of the Aegean basin. In addition, the modest size of the settlement, the presence of a fortification system, the conservative dietary pattern, and the observation that pottery and other artifacts reflect a well-established cultural context, except for architecture, indicate that the community of Hoca Çeşme represents an external influx into the region. The occupation of Hoca Çeşme, which began in the 6400s-300s, underwent a rapid process of adaptation to the area, as evidenced by changes in dietary habits and material culture. This indicates an intensification of local characteristics, especially in the context of interaction with Thrace. From the early 6th millennium BC, there is evidence of a marked increase in interaction with the interior regions of the Balkans, as opposed to the Aegean. Despite its geographical position within the same region, the first settlement at Aşağı Pınar, located in the central area of eastern Thrace, began during this period. The early phases of Aşağı Pınar coincide with a period when Balkan influence was evident in Hoca Çeşme; however, the similarities between these sites are not pronounced. At Aşağı Pınar, there is a Central Anatolian similarity, especially in the pottery assemblages, the full significance of which is not yet understood. However, these similarities are combined with those of the Balkans. By the second quarter of the 6th millennium B.C., it is evident that the site exhibited an increasing number of characteristics consistent with those observed in the Balkans. This presentation will examine the initial phases of both settlements and contextualize them within their cultural milieu.

Keywords: Hoca Çeşme, Aşağı Pınar, Neolithic, Regional Interactions

An Archaeobotanical Perspective to the Neolithization of North Aegean through Hoca Çeşme Neolithic Site

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Abstract: Hoca Çeşme is located between the Eastern Thrace, North of Aegean, and Northwest Anatolia and represents the Late Neolithic layers (Phases IV-III, Middle-Late and Late Neolithic, 6500/6600–5900 BC) of the North Aegean side and Eastern Thrace. The earliest phases of Hoca Çeşme consist of round, wattle, and daub structures with semi-subterranean floors, and the site reflects similar material culture within coastal Aegean, Northwest Anatolia, and Southeast European prehistory. We are reminded of the round-plan buildings from sites such as Pendik, Fikirtepe, Aktopraklık, and Bahçelievler in Northwest Anatolia. At Hoca Çeşme, the identified species are two-row barley (*Hordeum vulgare* ssp. *distichon*), naked wheat (*T. aestivum/durum*), einkorn (*T. monococcum* ssp. *monococcum*), emmer (*T. dicoccum* ssp. *dicoccum*), lentil (*Lens culinaris*), and pea (*Pisum sativum*) as economic plants. The wild plant taxa are poor, depending on the investigated samples. The settlements in Thrace bear similarities with Anatolian and Southeastern European settlements regarding archaeological remains. For this reason, especially when examining the archaeobotanical data of this region, it is necessary to conduct research regardless of geographical borders in order to compare both crop selection and morphological characteristics of both sides. Makri in the South of Greece and Hoca Çeşme in the North of the Aegean are very close and reflect identical subsistence strategies. Hence, it is crucial to understand the relations between Southeastern Europe, Turkish Thrace, and the North of the Aegean during the Neolithization process through archaeobotanical studies.

Keywords: Neolithization, North Aegean, Archaeobotany, Cultural Interactions, Subsistence Economy

Before surplus production: foragers and food producers in inland and island caves of the Southern Balkan-Aegean area

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Abstract: For the compilation of this announcement, archaeological material from cave camps was used. The material has been under study for the last 5-6 years and is mostly unpublished. Those caves are located at a low altitude, they are spacious by the standards of the south of the Greek peninsula and the Aegean, and their stratigraphy very often includes traces of the presence of hunters, foragers and semi-permanent herders. The remains of the fauna are examined, therefore the ecological data and the basis of the meat diet as well as the arrangement of the cave space during the Neolithic period. The caves are: Theopetra on the Lithaios River in Thessaly, Sarakenos (with complete stratigraphy from the Middle Palaeolithic to the Late Bronze Age) on Lake Kopais in Boeotia, Oinoi IV and Kouvaras in different localities in Eastern Attica (not very far from the coastline) and Negrou on the island of Astypalaia, in the Dodecanese.

Keywords: Balkans-Aegean, Caves, Zooarchaeology, Mesolithic, Neolithic

Flat sites of the late 7th and early 6th millennium BC in Thessaly, Central Greece (and beyond)

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R15

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Abstract: Thessaly is internationally famous for its tell-sites that are under research for more than a century. Only recently did the attention turn towards flat sites. Their discovery is, if not fortuitous, mainly the outcome of intensive prospections. Our international team carried out such systematic and intensive surface surveys between 2016 and 2021 under the auspices of the Ephorate of Antiquities in Larissa, and with the funding of the German Research Foundation (DFG). Within the research area south of Mt Olympos, i.e. in the Basins of Sykourio and Elateia, we encountered several flat sites from different phases of the Neolithic and Chalcolithic periods. Of interest here are two sites, one of the later Early Neolithic and the other of the earlier Middle Neolithic (in Aegean terminology). These two flat sites were also geophysically prospected, the magnetograms revealing dispersed above-ground structures. In one case the habitation area was surrounded by linear structures that we interpret as ditches. In this presentation we will focus on the results from combined archaeological and geophysical investigation within a well dated chronological frame of ca. 500 years between 6300 and 5800 calBC (both by relative and by newly obtained absolute dates). The main question will be to what extent such sites can contribute to the discussion of the Neolithisation process in the Circum-Aegean sphere.

Keywords: “Early and Middle Neolithic”, “flat sites”, “geophysical investigations”, “systematic surveys”, “Thessaly”

Dating the Early Neolithic of Pelagonia: closing a chronological gap in Balkan prehistory

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R15

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Abstract: New research on Neolithic sites in North Macedonia and Greece has provided novel insights into the prehistoric chronology of Europe. This presentation will consider the recent radiocarbon dates from Pelagonia, the elongated basin which stretches across the borders of the two countries. The chronological models of several Early Neolithic sites indicate the establishment and abandonment pattern of the first farming settlements in the flatlands and highlands of this basin. The radiocarbon dates will be discussed in relation to the revised Neolithic chronology of nearby regions in Central and Western Macedonia in Greece and consequently updated perspectives on the spread of Neolithic way of life in the Balkans will be proposed.

Keywords: Early Neolithic, Pelagonia, Macedonia, absolute chronology, Neolithisation process

Kovačevo and the oldest Neolithic villages in the Balkans

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Abstract: Excavations covering more than 2,000 m² at Kovačevo, in south-western Bulgaria, have revealed the evolution over a millennium of one of the oldest Neolithic villages in the Balkans. The earliest phases (from 6200 BC onwards) developed over a limited area, while at the end of the Early Neolithic period the site covered almost six hectares. The dwellings are rectangular, made of wood and wattle and daub. The earliest dwellings were large and built on the ground. In more recent phases, they are smaller and built over pits used as crawl spaces, which are used as rubbish pits once the house has been abandoned. A few rare children's graves have been found under or beside the houses, a custom well known in Anatolia, but rare in the Balkans. The location of the adult cemetery is unknown. The abandonment of the village at the time of its greatest expansion, followed by a more limited occupation in the Middle Neolithic, may suggest logistical difficulties. In fact, when agricultural colonization resumed westwards with the Bandkeramik, the villages remained still small until they reached the Atlantic coast.

Keywords: Kovacevo, Bulgaria, settlement

Late Neolithic pit sanctuaries at Maritsa River Bend in Northern Thrace

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R15

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Abstract: The ritual pit complexes that appear on the Eastern Balkans in the middle of the 6th millennium BC are an expression of the complex social dynamics that rapidly developed the social structure and relations from the previous period. Built on fertile land near a river, over time these complexes became sacred centers of proto-political alliances. Two such large complexes from the late Neolithic have been explored along the middle reaches of the Maritsa River in Northern Thrace, near Svilengrad - Lyubimec-DB 2 and Kapitan Andreevo. The deposits in the pits, structured or simple, contain ceramic vessels, fired pieces of construction plaster, fragments of chipped stones, animal bones, and plant remains. Small objects have also been identified which were part of the daily life in settlements from this time - ceramic anthropomorphic figures, cult tables, beads, pendants, bracelets, ceramic spindle whorls, polishing stones, discs, stone, bone, and flint tools. Most are fragmented and some show signs of long-term use. Many of the deposited items were likely symbols of prestige. A distinctive feature of the ritual pits of Kapitan Andreevo are fragmented anthropomorphic vessels of a, to date, unknown type. They were likely made for ritual purposes and intended for multiple uses. They have a biconical body and a highly stylized head. The upper halves of the bodies and head are engraved with rich "ornamentation". More than 700 large and small sherds of such vessels have been identified, found in a total of 76 pits.

Keywords: Neolithic sanctuaries, ritual pit, anthropomorphic vessels

R16 - Anatolia and the Balkans During the Neolithization Process: Connections, Similarities and Differences

Session Organiser

Barbara Horejs / Austrian Academy of Sciences, Austria

Sofija Stefanović / University of Belgrade, Serbia

Tanya Dzhanfezova / St Cyril and St Methodius University of Veliko Tarnovo, Bulgaria

Abstract

The extremely important role of Anatolia in the process of the Neolithisation is highlighted by recent discoveries and current research, as well as the important role of the Balkans in the spread of Neolithic achievements further across Europe. The mutual connections of these two regions, which were key to the process of the Neolithization and reshaped their worlds at that time, have been poorly researched until now. With this session, we want to open the possibility for young and senior scholars who have dealt with (western) Anatolia, the Aegean and/or the Balkans, to present their new data and theories about characterization, differences and similarities during the formation and establishing of the Neolithic. We believe that looking at new data and models on a site-based, regional and supra-regional level offers new insights into the diversity and complexity of the Neolithisation. All social, cultural, anthropological and economic aspects as well as their broader ecological contextualization are welcome to discuss for example the built environment, diet, funeral customs, production, technologies and innovations to contribute to a better understanding if or how these regions were connected in the early to middle Holocene. This session aims to bring together experts and young researchers of (western) Anatolia, the Aegean and the Balkans to discuss this key zone and its transformation during the Neolithisation within the 'world Neolithic context'.

Setting the absolute chronology of Neolithic Çukuriçi Höyük, western Anatolia

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R16

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Abstract: Establishing robust radiocarbon-based timelines for sites in western Anatolia is crucial for resolving questions about the Neolithisation process and the establishment of early farming communities in this region, as well as subsequent developments in subsistence strategies, technologies and networks during the rest of the Neolithic period. Excavations at Çukuriçi Höyük in 2007–2014 showed this site to be one of few known ‘pioneer’ settlements in the central part of the western Anatolian coast, and its long occupation sequence makes this a key site for understanding the Neolithic in this region. This paper presents the finalised radiocarbon dataset for Neolithic Çukuriçi Höyük, with >70 results covering two early Neolithic and four late Neolithic occupation levels (phases XIII–VIII). Results show that the site was established in the early part of the 7th millennium BCE and occupied until its abandonment near 6000 BCE (followed by re-occupation only in the Late Chalcolithic). We will discuss the results of Bayesian modelling, which constrains the dataset according to the detailed site stratigraphy and provides refined estimates for the life of each settlement horizon.

Keywords: Çukuriçi Höyük, Western Anatolia, Chronology, Radiocarbon dating, Neolithisation

An Old Village in The Historical Peninsula: Neolithic Settlement of Yenikapı Istanbul/Turkey

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Abstract: Archaeological excavations were conducted between 2004 and 2014 under the supervision of the Istanbul Archaeological Museums in the Yenikapı district of the Historic Peninsula on the European side of Istanbul, within the construction area of the Metro and Marmaray transfer stations. The archaeological excavations covering an area of approximately 58,000 m² started 3 metres above sea level and continued to depths of 10/10.50 metres. The Pottery Neolithic Settlement unearthed 6 metres below sea level is one of the most remarkable discoveries of the excavation project. The architectural remains and pottery are similar to Fikirtepe Culture. In addition, Yenikapı yielded new data for the archaeology of Istanbul and Anatolia. The earliest and only cremation practice dating to the Neolithic Period in Anatolia was found here. The site is also the only place where the evolution of the Sea of Marmara from lake to sea and the effects of this phenomenon on prehistoric settlement can be observed. In addition, some well-preserved organic remains have provided unique data on the various uses of wood as a raw material during the Neolithic period. In addition, we are able to assess this ancient society based on an extremely rare find: over 2000 well-preserved footprints discovered in the clay fill of an old stream bed at the site. In conclusion, Yenikapı, located at the crossroads of Anatolian and Balkan cultures, stands out as one of the key sites for studying the neolithisation process in both regions.

Keywords: Footprint, Neolithic, İstanbul, Yenikapı, Cremation

The Early Neolithic of the Middle Maritsa Valley

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R16

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Abstract: This presentation will summarize the results of extensive archaeological research in the Middle Maritsa Valley over the last two decades that shed light on various aspects of the Early Neolithic material culture and social practices. It will focus on the large-scale excavation projects at the settlement sites of Nova Nadezhda and Yabalkovo in the eastern part of the valley but will also use evidence from smaller-scale or earlier excavations and surveys to argue that the turn of the seventh millennium BC in the area witnessed the appearance of complex social networks in the course of the adaptations to the challenges of the new riverine environment and the exploitation of local resources. Moreover, the new series of radiocarbon dates help to set a higher resolution Early Neolithic timeframe which offers further insights into the use of the Middle Maritsa Valley as a dynamic thoroughfare of interaction and exchange throughout the Neolithic expansion in Upper Thrace and beyond.

Keywords: Early Neolithic, Neolithisation, Thrace, Maritsa river, Balkans

The Early Neolithic in South-west Bulgaria; causes and consequences

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Abstract: The region of South-Western Bulgaria, with the two great rivers - Struma and Mesta - has been intensively studied in terms of the appearance and spread of the Early Neolithic way of life, which in the region has a chronological framework of 6200-5500 BC. More than 30 settlements from this period are known, ten of which have been studied over a large area, and seven through small surveys. Early Neolithic settlements represent great diversity in terms of location, chronological frameworks of existence, and most importantly - material culture. A large number of them have AMS C14 dates, which enables a precise reconstruction of the Neolithic process along the Struma and Mesta rivers. These data challenge the theory of rapid and linear development of the Early Neolithic from south to north, and they prove that the process was very complex, multidirectional and extended over time. There are several Early Neolithic hearths in South-West Bulgaria which have been dated based on AMS C14 results at: Kovachevo, Drenkovo, Galabnik, and Eleshnitsa. These settlements appeared almost simultaneously, but they do not show similarities with each other - on the contrary, they show quite significant differences in material culture. Where did the first farmers come from? What motives led them to choose the places to settle? How did prehistoric communities in Anatolia influence the shaping of the early Neolithic along the Struma and Mesta rivers? How these processes affected the development of Neolithic cultures in South-Western Bulgaria is the subject of the current presentation.

Keywords: South-west Bulgaria, Early Neolithic, neolithisation

Trajectories of Neolithization in the Danube Gorges: confronted identities, incorporated alterities or hybridized entities?

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Abstract: During the last decades a significant attention has been drawn to the Neolithization of the Danube Gorges and, most specifically, to the site of Lepenski Vir (Central Balkans). Following advances in Biomolecular Archaeology, the scientific narratives have alternately put some emphasis on local foragers adaptations, early farmers migrations-innovations, or foragers-farmers interactions. Here, we directly consider the biographies of the individuals buried in the region - descended from European Mesolithic or Anatolian-Aegean Neolithic communities - to examine how they dealt with the new milieux they encountered and how they negotiated their own identities at the dawn of the Neolithic. Multiple bio-anthropological markers (e.g. dates, age-sex, isotopes, aDNA) are examined within the Lepenski Vir archaeological context and compared with similar data from neighbouring sites. The cross-comparison of these proxies document a counter-intuitive pattern of migrants' adaptations to local environmental conditions, challenging Neolithization models brought in neighbouring regions. Examined within the mortuary context, these information evidence some complex associations between life-histories (origin, diet, age), built environments (houses), and symbolic practices (sculptures, body position-ornaments). With regard to Anatolian and Balkans' Mesolithic-Neolithic contexts, we question how these associations could relate in different ways to the deceased identities: reflecting either the perpetuation of different cultural traditions or the construction of social personhood. They may also provide some unique insights into social organisations which could have valued the incorporation of the 'Others'. Distinct from other dynamics of Neolithization, the earliest Mesolithic-Neolithic contacts in the Gorges hence seem to have triggered a mosaic pattern of bio-cultural hybridization.

Keywords: Danube Gorges, Mesolithic - Neolithic interactions, Life-Histories, Identity, Social construction

Exploring land use dynamics and human impact in the Southern Balkans during the Neolithic ca. 6600–3300 cal BC/8550–5250 cal BP

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Abstract: Ca. 8600 years ago first farming societies reached the Aegean. Agriculture and animal husbandry very quickly spread around the different adjoining regions and further north into Europe. The timeframe of this spread, previously thought to have lasted for about 400–500 years, can be narrowed down to 200 years or less based on new data. Already prior to the 8.2 ka BP event the region witnessed dryer and colder conditions. Newly compiled and analysed data shows a marked increase of human presence in the region right after the introduction of farming and a quick expansion into a variety of geographical zones coinciding with this phase. Human presence remained high for the subsequent millennia, although not equally stable in all sub-regions. From ca. 4000 cal BC/5950 calBP onwards archaeological evidence becomes increasingly scarce while the forests in the region witness maximum expansion until the beginning of the Bronze Age (ca. 3300 cal BC/5250 cal BP). The interdisciplinary study draws from a newly compiled data set of radiocarbon dates and archaeological sites focusing on the Neolithic of Albania, North Macedonia and Northern Greece and new palaeoecological results from sediment cores in local lakes. Settlement patterns, site counts, and summed radiocarbon probability densities (SPD), but also methodically independent vegetation reconstructions are used to assess the presence of human societies in the landscape under study. Comparison of archaeological and palynological data will give fresh insights into old questions and provide a better understanding of the dynamics of the Neolithic in a crucial geographical region.

Keywords: Neolithization, 8.2 ka BP event, Palaeoecology, Quantitative Archaeology, Southern Balkans

Submerged settlements of the South: early farmers between the Adriatic and the Aegean

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Abstract: Since 2019, as part of the ERC Synergy Grant project 'EXPLO' (Exploring the dynamics and causes of prehistoric land use change in the cradle of European farming), numerous waterlogged and submerged settlements in the southern lake region of the Balkans, in what is now the border area of Albania, North Macedonia and Greece, have been investigated. Alongside the two largest lakes, Lake Ohrid and Lake Prespa, around a dozen lakes form a lake landscape surrounded by mountainous zones. Comparable lakeside settlements have been known in the Alpine region for more than 150 years. The sites are characterised by good preservation of organic finds, including numerous timbers that allow the sites to be dated with high precision using dendrochronology. Initial data on the chronology of various sites is now available. Settlement on the lakes certainly began by c. 5800/5700 BCE, possibly dating back to around 6200/6000 BCE. These are therefore the oldest lakeside settlements in Europe. The lecture gives an overview of the work carried out so far, presents the settlements as well as archaeobiological and palaeoecological results elucidating the use of resources, the environmental context and the role of climate change obtained within the framework of the project at the Universities of Bern, Switzerland, Oxford, UK and Thessaloniki, Greece.

Keywords: Neolithic, Balkan, submerged settlements, Environmental archaeology, dendrochronology

The importance of Anatolia and the Balkans for the domestication of cattle in Europe; modern and ancient genomic perspectives

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R16

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Abstract: Modern taurine cattle (*Bos taurus*) are descended from the extinct wild aurochs (*Bos primigenius*) and were domesticated in the Fertile Crescent c. 10.5 kyBP. Their contribution to the development of human societies during the Neolithisation process in Europe was enormous, as cattle are able to provide humans with high-quality food, and other benefits are also considerable. Our main aim is to present the current state of research on the domestication of cattle in Europe from the perspective of genomics, focusing on the importance of Anatolia and the Balkans during the Neolithisation process. First, we provide a chronological overview of current genomic evidence and theories on cattle domestication with regard to autosomal, mitogenomic and Y-chromosome inheritance. Secondly we focus on possible interbreeding between domesticated cattle and western aurochs and develop research hypotheses and questions that still need to be clarified. Thirdly we present our current research on cattle ancient DNA in the project “Gabridge” (Bridging the Disciplinary Gap: Integrating Animal Genetics and Archaeology in Croatia). Finally, we discuss the prerequisites needed for successful collaborations between geneticists and archaeologists.

Keywords: cattle, genetics, domestication, Neolithisation, Balkans

Unwinding the Late Mesolithic-Early Neolithic transition in Albania

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Abstract: Albania is situated in a key geographic position when considering the spread of the Early Neolithic. A number of archaeological sites that have been reexamined in recent years have shed new light on the dynamics of the important transformations that took place at this time. This paper presents a systematic account of the evidence accumulated over the last 30 years of research in order to paint an up-to-date and holistic picture of the topic. Although the present scientific literature on Albania is dominated by conclusions that derive from old excavations, recent fieldwork indicates sometimes radical changes in the interpretation of the archaeological record. While the data from the Late Mesolithic can be considered fragmentary due to a lack of focused research, the Early Neolithic of southeast Albania appears synchronic – i.e. a “snapshot” – when compared with the earliest Neolithic in continental Europe. On the contrary, in the northwestern part of the country, the Early Neolithic seems to have a later onset, coinciding with the larger Neolithization of the Adriatic coastal fringe. Despite the radical changes introduced during the Early Neolithic, a certain continuation in the use of distant lithic raw materials suggests close contacts between the Mesolithic and Early Neolithic communities based on macroscopic observations of chipped stone tools in southern Albania.

Keywords: Albania, Late Mesolithic, Early Neolithic, Transition, Chronology

Through the Lithic Lens: The Socio-Economic Dimensions of Chipped Stone Tools at Neolithic Svinjarička Čuka, South Serbia

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Abstract: New data from the Neolithic site of Svinjarička Čuka in South Serbia highlight its key position in understanding the processes involved in the spread of the Neolithic lifeway from Anatolia to Central Europe. Neolithization commenced around 6200–6000 BC in the Balkans, resulting in regionally diverse developments associated with eponymous sites such as Starčevo, Karanovo and Amzabegovo. Research endeavors of the last decades have elucidated the main patterns of Neolithization, yet we are only starting to understand the complex social, cultural, and economic processes driving these changes. Svinjarička Čuka, situated along one of the key communication routes following the Axios-Vardar-Morava Rivers connecting the Aegean to Central Europe, holds specific importance in this regard due to its rich archaeological dataset and high chronological resolution. This is particularly perceptible through the lens of the chipped stone assemblage recovered from this site. Using the lithic dataset, the current study examines factors such as the deliberate selection of raw materials and the occasional resistance to innovations. These decisions are influenced by various factors, such as local traditions, as well as the degree of openness to interconnectivity on local, regional, and supra-regional scales. Through comprehensive raw material and technological analyses of the chipped stone assemblage from Svinjarička Čuka – recovered from six distinct occupation phases, spanning from the early to the advanced stages of the Starčevo cultural phenomenon – we gain a unique opportunity to reconstruct the development of early Neolithic resource management and socio-economic behavior reflecting key mechanisms involved in the Neolithization of the wider region.

Keywords: Neolithization, Balkans, Svinjarička Čuka, Chipped stone tools, Resource management

Stone raw material economy and distribution networks in the western Balkans Neolithic

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Abstract: The spread of early farming across Europe is associated with changes and innovations in social and economic organisation, as evidenced by large-scale exchange networks linking early farming communities. Moving into new landscapes, people encountered both new environments and different access to resources. The procurement and supply strategies of the raw materials used in stone tool production had to change, resulting in the creation of extensive networks for the procurement of raw materials from large distances, a recurring feature of early European farming societies across Europe. This paper investigates the social organisation, connections, and interactions of the early farming communities in the western Balkans (modern countries Serbia, Montenegro, Bosnia and Herzegovina, and Croatia; c.6200-4500 cal BC), by studying stone raw material distribution networks. It examines the mechanisms and modes that affected the creation and development of these networks, assessing variation in raw material economy in conjunction with lithic technology. Data was acquired by studying Early and Late Neolithic unpublished lithic collections. Comprehensive statistical comparisons were performed on both new and published data from the entire western Balkans. The results indicated significant regional and inter-regional connections between the communities as well as their mobility patterns during both Early and Late Neolithic. Special attention is given to the distribution and long-distance exchange of materials of non-local origin, particularly Balkan flint and obsidian, in order to understand the nature of the contacts between the early farming populations and the role of these connections in the spread of farming across the western Balkans.

Keywords: distribution networks, connections, lithic raw materials, Neolithic, western Balkans

Diversity and Regionalisation in the Early Neolithic of Central-Western Balkans: Lithic Economy and Cultural Interactions

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Abstract: The beginning of the Neolithic in the Central and Western Balkans, primarily driven by migrations of small farming groups from Anatolia, is marked by the development of distinct cultural groups, with Starčevo being developed in the continental part of the Balkans, and Impressed Ware along the Adriatic coast. Until recently, the Neolithisation process was mainly studied through pottery styles and statistical modelling of radiocarbon dates. However, over the past decade, increased interest in lithic studies has opened new areas of research that address the problem of the transition to farming through petroarchaeological, typo-technological, functional, and experimental approaches. Lithic analyses conducted thus far reveal certain similarities in production that can be linked to the emergence of the Neolithic blade technology, considered part of the "Neolithic package" brought by immigrant farmers. Nevertheless, distinct traditions are observed both locally and regionally, particularly concerning the techno-economic strategies of lithic procurement and production. This contribution discusses specific case studies from present-day Croatia and Serbia, aiming to explore regional variability among different farming groups and investigate lithic raw material procurement strategies and flaked stone production in the larger context of Neolithisation. We are particularly interested in characterizing different 'ways of doing', considering the potential presence of various groups of immigrant farmers and the influences of local hunter-gatherers. Additionally, we examine questions of raw material distribution networks (eg. Gargano and 'Balkan flint'), which we believe were crucial for maintaining social ties between regional communities.

Keywords: Neolithisation, Central-Western Balkans, Interactions, Lithic Raw Material Economy, Lithic Technology

A New 'Balkan Fashion' Developing Through the Neolithization Process. The Ceramic Annulets of Amzabegovo and Svinjarička Čuka

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R16

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Abstract: Ring-shaped ceramic objects, considered to have been used as bracelets, appeared in the Central Balkans at the break from 7th to 6th millennium BC. They are not too numerous, but continuously present at Neolithic sites north of the Aegean after 6000 BC. So far, unlike their counterparts made in shell or stone in Anatolia and the Aegean, they have not been presented in a dedicated overview. The ceramic bracelets from two important sites on the Vardar-Morava Neolithization route - Amzabegovo and Svinjarička Čuka, are presented here in a wider regional context. At this initial overview, we provide some interesting perceptions about their spatial-temporal distribution, their place in the ceramic production, their diversity and evolution, as well as their possible function and relation to social aspects.

Keywords: Amzabegovo, Svinjarička Čuka, Neolithization, ceramic, annulets

Flexible Habits: The Faces of Novelty in the Early Neolithic Eastern Balkan Pottery Uptake

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Abstract: This paper aims to investigate the adaptation mechanisms of the Neolithic communities by exploring the earliest ceramic technology at several major settlements located in the region of present-day Bulgaria. The detailed examination of multiple aspects of pottery making – a novel craft associated with the new style of sedentary life – is considered in the broader context of the complex transformative processes of Neolithization. These refer to newcomer groups arriving from closer or distant territories and adapting to distinctive Balkan habitats, to local groups embracing new ways of living and doing, and the whole spectrum between these endpoints. The success stories of transferred know-hows and the evidence of experimentation are all related to the processes of adaptation to new realms and contrasting environments. Reaching beyond the traditional studies on the Early Neolithic ceramic styles, the focus here is mainly on the pottery attested at the earliest Neolithic sites in Bulgaria - examined by a range of macro- and microscopic analyses.

Keywords: pottery, Early Neolithic, Neolithization, technology, adaptation

New insights into the buildings of the oldest Neolithic in the Carpathian Basin

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Abstract: For the longest time in the history of research, various types of Neolithic settlement pits were repeatedly interpreted as the remains of residential buildings. New research at the Movila lui Deciov site in Banat, Romania, has revealed massive houses with post walls that mark the absolute beginning of sedentariness in the region. This discovery provides an opportunity to critically rethink the plans of Early Neolithic house constructions published in the past.

Keywords: Neolithic House Architecture, Carpathian Basin, Excavation Methods, Balkans, Ressources

Ring-shaped Settlements in Neolithic Greece and Turkey: Social Significance and Diverse Habitation

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Abstract: This paper investigates the social significance of a special habitation pattern, the circular or concentric settlement, using data from Neolithic Greece and Turkey. Although circular, or what is more generally termed, 'ring-shaped' settlements occur around the world and have attracted the attention of ethnographers since the 19th century, their presence in the very first farming communities has rarely been noted. And while circular architecture is well known in the prehistoric world, the emphasis has always been on the monumental, megalithic and ceremonial, whereas habitation sites have not gained as much attention. The paper explores what social factors and relationships might have generated a circular habitation pattern, particularly in mainland Greece and Western Anatolia, and how these communities may have been organised. Why did they choose this form of spatial organisation, when other communities did not? Were they special in some way? Can we use this pattern to trace diverse forms of being or supra-regional similarities and mutual connections?

Keywords: concentric settlements, social organisation, Greece, Turkey, kinship

Infant Burials Associated with Houses in Central Balkans and western Anatolia during Neolithic: Similarities, Differences, and Exceptions

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R16

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Abstract: Intramural burials have been identified as one of the shared practices of Neolithization in Anatolia and the Balkans. Demonstrating an association of burials with houses, however, often poses analytical challenges. Therefore, a careful and unified analysis of burials, stratigraphical contexts, and house structures is crucial. This contribution explores infant burials associated with houses and/or residential structures during the Early Neolithic (6,600-6,000 BC) in central Balkans and western Anatolia. It follows an analysis alongside three axes: age, space, and comparison. In terms of age, it focuses on exclusively infant burials. Regarding space, it focuses on the association with houses, their shape, and spatial organization. Finally, the examined burial contexts will be embedded in a regional and cross-cultural comparison. Based on a regional comparison, similarities, differences, and exceptions between and within the central Balkans and western Anatolia during the earliest phases of neolithization will be highlighted. Finally, based on a cross-cultural insight that young children until a certain age may not be fully human, the contribution addresses similarities and differences of association between the living and the dead during the early Neolithic in the region.

Keywords: Early Neolithic, central Balkans, western Anatolia, intramural infant burials, delayed personhood

R17 - Early Monumentality and Social Differentiation: Transformation in Europe

Session Organiser

Johannes Müller / Christian-Albrecht University of Kiel, Germany

Wiebke Kirleis / Christian-Albrecht University of Kiel, Germany

Abstract

Monuments, especially megaliths shape huge regions of European landscape, even today, when the majority have been destroyed. The reconstructed number of monumental buildings in the whole area is estimated to several tens of thousands. In many European regions the increase in monuments is contemporary with first enclosures, increased human economic impact on the environment, extended external relations, and of a distinct increase in elaboration and diversity of material culture. In many regions a first boom in megalithic monumentality is followed by a second boom in individual burial mounds during the beginning of the third millennium BCE.

Social and ideological developments connected to these formal changes are visible in the cultural landscape. In order to link observations to models of social change, to an understanding of ideological developments and to combine those topics to the physical background, the climate, environment and landscape developments, different case studies are already available with systematic data sampling, the integration of all data sources available and syntheses that account for different spatial scales and have a proper temporal resolution: important social, environmental and cultural transformations within the European Neolithic become visible.

The session aims at linking individual case studies on these socio-environmental transformations with general contributions on early monumental architecture, social and environmental changes and the creation of the earliest cultural landscapes of Europe.

Introduction: Monuments, landscapes, environments

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Abstract: Neolithic monuments in Europe fulfil different functions in different regions and reflect different social, economic and ritual practices. They are always integrated into the ecological background. This results in dynamic cultural landscapes. We want to conceptualise the potential of socio-ecological changes and the often associated changes in monumentality and the environment.

Keywords: monumentality, landscape, environment, socio-ecological change

The Tradition and Development of Monumental Funerary Structures: Insights from Eneolithic and Early Bronze Age Communities in Southeastern Poland and Eastern Slovakia

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R17

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Abstract: Socio-economic changes during the Middle Neolithic period within the European context, influenced by the Neolithic transition, precipitated the emergence of monumental burial forms. In southeastern Poland, communities of the Funnel Beaker culture constructed trapezoidal megalithic structures using either stone (megaliths) or wooden materials (megaxylons). Typically, these graves served as the final resting place for multiple individuals. During the Eneolithic era, circular barrows were erected by the Corded Ware and Yamna cultures in southeastern Poland and eastern Slovakia. The discernible structures in these regions, likely revered as sacred ancestral burials, were subsequently utilized by later communities with no genetic ties to the original builders. Notably, funeral complexes at sites such as Malżyce and Ostrów in southeastern Poland reveal megalithic graves of the Funnel Beaker culture, around which Corded Ware culture communities interred niche graves. Similarly, a diverse chronology of burial complexes was uncovered in eastern Slovakia. For instance, at the Michal'any site, two closely situated burial mounds, encircled by later graves, were investigated. One of these mounds, constructed by the Yamna culture community, contained a central grave with ochre-covered skeleton. Subsequent burials surrounding the central grave were attributed to the Kostiany culture from the Early Bronze Age. Presented examples demonstrate tradition of utilizing monumental burial sites by communities spanning diverse chronological periods, bound by the shared idea of interment in a prominent place. This research was funded by the National Science Centre Poland, grant number NCN 2020/37/B/HS3/03816.

Keywords: Late Neolithic, Funnel Beaker culture, Corded Ware culture, Yamna culture, Funerary Customs

Archaeobotanical data from the monumental cemetery of the Funnel Beaker culture at Gaj, Kuyavia

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Abstract: The site is located near Izbica Kujawska and Wietrzychowice, on the western shore of Modzerowskie Lake, in the Kuyavian Lake District. The sediment and daub samples were collected from organic-mineral layers below the Kuyavian long barrow and from features such as utility pits and burial pits. The organic – mineral layer was recorded inside the long barrow, and was composed of organic (probably peat and gyttja) mixed with sand, clay, and artefacts. On the basis of 26 radiocarbon dates, it can be assumed that Funnel Beaker culture communities existed at the site for a very long time, almost throughout the 4th millennium. BC. At the site several charred plant macroremains were found, most of them belonging to glume wheats, namely einkorn, emmer and Timopheev's wheat. Wheat chaff remains were relatively numerous while crop grains were scarce and badly preserved. At the site also single seeds of flax and poppy were found as well as weedy taxa. The comparison of plant assemblage from the area of megalithic long barrow and 'normal' settlements will be presented.

Keywords: Megalithic Tomb, settlement, carpology, taphonomy, TRB

From Landscape to Social Meaning – Megaliths and Societies in Northern Central Europe

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Abstract: Who and what triggered Neolithic monumentality, and why? Through extensive research efforts, the paleo-environmental and archaeological archives of the Northern Central European and Southern Scandinavian Funnel Beaker societies have been proven to be extraordinary. Therefore, the reconstruction of their social processes linked with the introduction of agriculture and the construction of first monuments displays a well-researched example for investigating the triggers and meanings of Neolithic structures and processes. This paper aims to describe and interpret the development of monumentality in Northern Central Europe and Southern Scandinavia using a methodological approach based on concepts like economy, climate, ecology, demography and social organisation. To do this, it will employ a multi-proxy approach based on the environmental record and extensive fieldwork on domestic sites and monuments.

Keywords: neolithization, monumentality, funnel beaker phenomenon

Wartberg: The Multifaceted Formation of an Archaeological Group

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R17

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Abstract: The Wartberg Group is one of the small archaeological units of the German Late Neolithic (4th – 3rd mill. BCE). Its location at the border zone of the lower mountain range with its loess-dominated southern and eastern regions, the northern lowlands and the Rhine river system enables access to geomorphologically diverse landscapes and communication networks of contemporary archaeological units. During the 4th millennium BCE significant transformations in daily human activities are discernible. The monumental gallery graves are well known and mark the transition towards a "Megalithic World". In the gallery grave of Niedertiefenbach an admixture event of a western and a local component in the aDNA of the individuals within the 37th to the 36th millennium BCE could be detected. It marks one external influence in the formation of Wartberg. However, the changes within the morphologically highly structured region are much more complex and can now be described for individual regions in terms of economic, social and ecological conditions at a good temporal resolution. Two new pollen profiles allow a detailed description of the striking regional changes in vegetation and landscape utilization. They correlate with changes in animal husbandry, which can be derived from new isotope data. The new, cross-group, typological analysis of the pottery forms the chronological backbone for the description of an economic transformation, which is also recognizable in the vessels shape. In the knowledge of these diverse changes in daily human activities, the monumental tombs appear as the focal point and anchor of a highly dynamic society.

Keywords: Late Neolithic, Monumentality, Group Formation, Economy, Environmental Changes

Unearthing Neolithic Narratives: Flint Artefact Biographies and Depositional Practices at a selection of North European Causewayed Enclosures

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Abstract: This presentation investigates depositional practices at Neolithic causewayed enclosures by examining use-wear and surface modification analysis on flint artefacts. By reconstructing the life histories of these artefacts, the study sheds light on the range of activities associated with these archaeological sites. Integrating use-wear analysis with detailed assessments of tool surface modifications allows for a comprehensive interpretation of the artefact's journey from creation and use to their ultimate deposition. This method offers insights into the functional use of flint artefacts and the depositional behaviours in Neolithic communities. The research is exemplified by an analysis of flint artefact assemblages from selected causewayed enclosures in southern Britain and Scandinavia, examining the biographies of flint tools to discern their functions and roles within Neolithic ceremonial practices and social interactions. Utilising a robust methodological approach that combines microscopic wear pattern analysis with archaeological context, the study interprets time and timings of deposition as narratives of activities by people in the Neolithic. This contribution advances our understanding of Neolithic causewayed enclosures, demonstrating how the detailed biographies of flint artefacts enhance our knowledge of the dynamic and complex behaviours characteristic of Neolithic societies.

Keywords: Flint artefact analysis, Use-wear analysis, North European Neolithic, Artefact biographies, Depositional practices

Rondels as Neolithic monuments and their visibility in the local landscape in Central Europe

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Abstract: The Neolithic circular enclosure ditch systems (also called rondels) mostly date to the period between 4900 and 4500 BC and are found in the Carpathian Basin and southern Central Europe. Their formal variations, their location in the landscape, their relative position and to surrounding settlements of the same period show a great range of variation, but regional characteristics can be identified. The rondels display regional groups with specific characteristics in Bohemia, Southern Moravia, Lower Austria, Central-Eastern Germany, Southwest-Slovakia and Southern Transdanubia. The spatial arrangement within rondels and the social connection between rondels, settlements and burial places reflect remarkable difference, from single rondels with empty interiors to double multiple ditch rondels with houses in the centre. The use of circular ditches has inspired a wide range of interpretations, from practical functions, cattle dens, fortifications, meeting places, astronomic observatories, gathering places, sports arenas to ritual activities, which are not mutually exclusive. Presumably, these monumental structures could have had several functions, while actively influencing the memory of the community in multiple ways. The proposed social background of Neolithic rondel construction activities ranges from the idea that of individual aggrandizers, or chiefs organising and commanding those construction works to the idea of them being the work of egalitarian mutual aid groups.

Keywords: Enclosure ditch system, communicative memory, Central Europe, rondel, socio-environmental transformations

Le Plasker in Plouharnel: standing stones and hearts in a newly sector of the large megalithic complex of Carnac (France, 5th millenium cal BC)

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Abstract: Southern Brittany and Carnac along with its alignments are considered the heart of the megalithic innovation and debated as the starting point of a megalithic movement in Europe. However, our understanding of the earliest phases of megalithic development in this area remains limited. A previous unidentified section of the expansive megalithic complex of Carnac was excavated in Plouharnel. This long-term frequented site comprise a pre-megalithic monumental tomb, fast accompanied by alignments of hearts and the foundations of standing stones. A new approach based on geological and geomorphological analysis highlights the management of mineral resources and an important change through the intentional manipulation of the landscape. A large radiocarbon sequence gained of approximately 50 samples contributes to filling the knowledge gap. A Bayesian statistical framework provides for the first time, the detailed picture and a highly precise chronology for these earliest megalithic phases in the Carnac region, between 4700 and 4250 cal BC, at a moment of architectural innovation and societal change.

Keywords: Standing stones, Hearts, Carnac Brittany, megalithic complex

Exploring Gender Inequalities in the Neolithic Using Ancient Human Genomes from Southern France

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Abstract: Sex and gender are two distinct things. While the biological sex of individuals in the past can be reliably determined through molecular methods, how people self-identified and were treated gender-wise is more difficult to establish. Combinations of evidence from archaeology, anthropobiology and genetics can provide helpful hints. In Later Neolithic cultures of Europe, such as Corded Ware and Bell Beaker-related groups, the orientation of the deceased in graves is generally assumed to reflect their gender in life. While uncommon, misalignments between biological sex and gender, as evidenced by burial orientation, can provide fascinating insights into ancient societies and the status of individuals. My PhD project, conducted within the framework of the ERC Starting Grant project anthropYXX (PI Dr Andaine Seguin-Orlando), explores alternative approaches to gender inequality in prehistory. In this seminar, I will discuss how the status and biological standard of living of women and men can be characterized through ancient DNA, using case studies from Neolithic France (c. 3800-2600 BC). This includes collective inhumations in megalithic monuments, which are well-documented archaeologically and now being genetically reinvestigated.

Keywords: bioarchaeology, gender inequality, burial practices, palaeogenomics, prehistory

Neolithic Collective Graves in the Alps: Social and Symbolic Landscapes in the 5th and 4th Millennium BCE

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Abstract: The Neolithic period in the Western Alpine region saw the emergence of Chamblandes type stone cist graves, marking significant social and ritual shifts. Organized in necropolises, they were strategically placed along movement networks and in prominent landscape positions, serving as communal memory sites integral to social identity formation. New radiocarbon dating from the Italian Aosta Valley places these stone cist graves as early as 4800 BCE, making them the oldest known Neolithic graves in the Alps. Megalithic elements, particularly stone stelae, emerged alongside Chamblandes type graves, indicating societal transformations and the creation of ritual landscapes. Monumental collective grave structures, such as the well-preserved Oberbipp dolmen in the Swiss Plateau from the late 4th millennium BCE, showcase complex burial practices and intricate social dynamics. These collective grave sites, embedded with significant symbolic and visual elements, acted as landmarks within the cultural landscape, influencing social behavior and interaction. Visibility analyses reveal the strategic placement of these funerary monuments to maximize visual dominance, underscoring the importance of visibility in understanding their construction and significance. Interdisciplinary studies, incorporating archaeology, anthropology, and virtual reality simulations, provide deeper insights into the local Neolithic communities and their relationship with the landscape. This presentation synthesizes recent findings on Neolithic collective graves in the Alps, highlighting their role in ritual practices and landscape marking during the 5th and 4th millennium BCE.

Keywords: Western Alps, Collective Graves, Ritual Landscapes, Megalithics, Visibility Analysis

Cycles and Circles in Stone. Societal Rationalities in the Megalithic Monuments of Northwestern Iberia

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Abstract: Megalithic monuments are some of (if not the) earliest architectural expressions in prehistoric Europe, and the first monumental (and funerary) architecture marking the landscape. This presentation delves into the broader implications of this early "domestication of space," extending the metaphor to include the domestication of thought. Furthermore, focusing specifically on the megalithism of northwestern Iberia, we will take a closer look at how the established megalithic chronological phases correlate with shifting societal cycles, marking moments of transformation and reflecting the contest between inequality and resistance in society. It is discussed how the detailed and structural study of both monumental and vernacular architecture can provide insight into society and its thought. It is aimed to uncover some of the cognitive scales at which these structures operate, revealing how the material expressions embody and articulate specific rationalities. The built environment not only expresses prevailing thought patterns and societal norms, but is also capable of actively influencing and transforming these. This presentation aims to contribute some thoughts on this dynamic interplay, and how to study it. This paper is part of the XSCAPE project on Material Minds, and ERC Synergy Grant that explores the interactions between predictive brains, cultural artefacts, and embodied visual search.

Keywords: megalithism, northwestern Iberia, cycles of transformation, societal rationalities

A (pre)view of an unknown Neolithic landscape: the lower Vouga basin, in the Atlantic western Iberia

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Abstract: Complex interacting social and ecosystemic factors, including the intrinsic economic potential of each region influenced the penetration of the socio-economic innovations introduced by the “Neolithic way of life” in western Iberia. The lower Vouga basin's geographic and environmental features, such as wide alluvial plains of excellent agricultural potential and surrounding reliefs and plateaus, rich in natural resources, provided exceptional conditions for the settlement of agro-pastoralist communities. However, due to recent intense human impact on the landscape and insufficient archaeological research, the region paradoxically shows scarce evidence of Neolithic occupation, excepted some disperse megalithic monuments, in contrast with the megalithic landscapes located just beyond the Meso-Cenozoic lusitanien basin / Hercinic mountains geographic border. Geomagnetic and archaeological field surveys followed by the excavation of three tumuli in the scope of a Preventive Archaeology project revealed a megalithic necropolis on the margins of the Casarão plateau, overlooking the Alfusqueira river, on the southwestern limit of the Vouga basin, producing consequent series of ceramic, lithic, and ideotechnical artefacts in stratigraphic, micro-spatial, and architectural context. The geographic position, topographic prominence, and late persistence of this necropolis opens new paths for the study of the Lower Vouga basin's Neolithic. Moreover, the study of the geographic origin of lithic raw materials and the technologic and ideotechnic/sociotechnic comparative study of architectures, lithic tools, and ceramic fragments with neighbouring regions enriches our perspective on the Lower Vouga basin in the context of the long process of socio-political and techno-economic modifications of the northwestern Atlantic Iberia communities during Late Prehistory.

Keywords: Neolithic, Megaliths, Cultural Landscape, Vouga, Iberian Peninsula

Opening the Earth: Monumentalizing Ditch Enclosures from the Early Neolithic in the Eastern Balkans.

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Abstract: Ditch enclosures are a widespread feature in European prehistory that first appeared in Southeast Europe with the neolithization of the region or shortly after that. Their number in the Balkans increased sharply in the past decade thanks to the application of modern methods such as remote sensing analysis, geophysical surveys and so on. As a result, it is now evident that the settlements from the earliest phases of the Neolithic were enclosed by ditches for the most part – single or multiple ditches, or even by more than one set of ditches. Ditches, due to their transitional and borderline position, concentrate various activities purposely conducted on the periphery of settlements, neither entirely within nor outside them. Functionally, ditches are "embedded" in the settlement life since they typically serve as a systematic deposition area for construction debris, utilitarian and special objects, and are also utilized as burial sites. This presentation will focus on the ditch-digging practices that were revealed at several Early Neolithic sites in Bulgarian Thrace. They seem to have been in use for a long time, and the communities took special care to maintain them. An argument can be made that the episodes of ditch digging, re-filling, re-cutting, and digging new, larger ditches, were an intentional and well-organized communal effort to create and maintain social identity over a long period of time. All this shows the significance of the enclosures in the collective memory of the Early Neolithic societies.

Keywords: ditch enclosures, Eastern Balkans, Early Neolithic, deposition, social memory

Monumentality and Memory in Death at Ksagounaki (Alepotrypa Cave), Greece

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Abstract: Alepotrypa Cave, on the Mani Peninsula of southern Greece, was utilized throughout the Neolithic period as a place for mortuary, ritual, and domestic activities. A great variety of mortuary and ritual practices is evident, and the repetition of some of these practices over a long time suggests deep memory and engagement with the ancestors. Only in the Final Neolithic period were areas outside of Alepotrypa Cave itself utilized extensively in addition to the cave. One such area was the Ksagounaki headland, immediately outside the mouth of the cave. Geophysical prospection and excavation revealed two very different pictures here. In one trench a stone-walled structure yielded much domestic pottery and a thermal feature. In the other trench was found a portion of a highly structured mortuary complex with architecture, some of which could be considered monumental in scale. Large boulders were set up in parallel lines against the contours, with a perpendicular passageway leading to walls enclosing various mortuary remains. At least three pairs of adults and some infants were buried here in various ritual manners. Direct connection of the Ksagounaki mortuary activities with those in the cave is indicated by the presence at Ksagounaki of materials from some of the ritual areas deep within the cave that had been used earlier. In this paper we explore these connections between the mortuary rituals at Ksagounaki and those in the Alepotrypa Cave, contrasting the effects of the built environment of Ksagounaki with the “natural” environment of the cave on those rituals.

Keywords: Final Neolithic, Mortuary ritual, Alepotrypa Cave, Greek Neolithic

Trypillia Mega-Structures – Monuments of an egalitarian Ideology

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Abstract: Communal facilities of various kinds (e.g. rondels, assembly houses, monumental tombs, squares) played a key role in the social and political processes of prehistoric societies. Among them a special place take assembly houses. Under specific conditions, such buildings gained a monumental character, which apparently served to emphasise the importance of the political and social institutions associated with them. In this respect, they can be understood as articulations of specific ideological and social configurations. In order to understand such 'configurations' and their transformations, comprehensive reconstructions of not only the architectural but also the social, material, environmental and economic context are essential. Mega-structures in Copper Age Trypillia mega-settlements (4300–3600 BCE) in present-day Ukraine and Moldova are an outstanding example of such communally significant public buildings. Linked to the colonisation of the forest-steppe zone north-west of the Black Sea, an unique degree of population aggregation in novel ring-shaped settlements and the establishment of specific mega-site economies, a system of assembly houses became more and more prominent within these settlements and got a monumental character. Different lines of evidence suggest that this increasing visibility of public integrative facilities and the overall design of Trypillia mega-settlements was based on a social organisation aimed at maintaining social equality. Increasing dysfunctionality of this system was ultimately a decisive factor in the disintegration of these unique settlements.

Keywords: Trypillia, Chalcolithic, Megasites, Ukraine

How to feed mega-populations? An isotopic study on the chalcolithic food production and consumption of Trypillia societies (Ukraine, Moldova)

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Abstract: It is difficult to deduce the significance of different food sources from archaeological finds, as bones are frequently recovered, whereas charred plant remains are rare. Isotope studies offer new insights that are fundamentally independent of find quantities or ethnographic analogies. As part of the CRC 1266 "TransformationsDimensionen" (Kiel University), dietary models were calculated for Trypillia societies using extensive isotope data sets from animals, plants and humans. The three settlements investigated, Stolniceni (33 ha), Kosenivka (80 ha) and Maidanetske (200 ha), mark the high phase of Trypillian societies (ca. 4150-3650 BC). Maidanetske alone probably had well over 10,000 inhabitants. According to the food web models, about 90% of the human diet consisted of cereals and peas in roughly equal proportions, and only about 10% of meat. Cattle and sheep/goats were important as suppliers of dung for the intensive cultivation of the peas on "dung soils".

Keywords: Trypillia Isotopes Cereals Legumes Dung

More than meets the eye: How eye-tracking techniques highlight how monuments shape our perception of the world

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Abstract: The present article delivers a discussion about the potential benefits that eye-tracking techniques provide to the study of monument perception. Since the first phenomenological approaches in our discipline, there has been a wide appreciation of the epistemological importance of understanding how people perceived their constructed landscapes, rather than creating disembodied representations of it. This has been agenda that has been particularly stressed about monuments developed during the Neolithic period, such as in Göbekli Tepe or Stonehenge. Methods for studying human perception in archaeology were soon developed, such as viewshed analysis with geographic information systems and the measurement of site acoustics, which provided a way of formulating interpretations about people's past experience with built and unbuilt landscapes. Furthermore, most of these studies have also been concerned with how human populations may have intentionally created places or built in specific areas to create a certain effect on people's perception. Nonetheless, techniques for the study of human perception and, more broadly, cognition have evolved, and can provide new avenues for enquiring about the cognitive effects of Neolithic monumental architecture. Such is the case with eye-tracking techniques in the analysis of human perception. In this paper, we argue that through these techniques we can provide a new level of enquiry about the cognitive effects of material culture, showing us how materials shape human behaviours in unintended ways, which is in part the scope of our ERC project XSCAPE: Material Minds.

Keywords: perception, cognition, eye-tracking, material culture, monuments

The Emergence of waste monumentality in Europe: A discussion

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Abstract: The acknowledgment of the Neolithic period as a moment in which human activity started having a greater imprint on the landscape has been gaining traction. This transition from a more mobile thing-light towards an inescapable thing-heavy world brought many unforeseen challenges, namely having to contend with waste accumulating from settlement life. Under these conditions, alternative ways of coping with waste emerged. This is the case of what we might term 'waste monumentality' in southeast Europe. In the southern Balkans, for instance, there are long sequences attesting this phenomenon, where waste had a dominant role in paving relic structures for newer ones and arguably becoming monuments. Following, thus, this line of thinking, this paper aims to bring forth the discussion about the origins of waste monumentality in Neolithic Europe, and its implications for understanding the social transformations underpinning this period. With the use of several contemporary and archaeological case studies, it is argued that, under this framework, some of the first human-made monumental structures in the continent were in fact unintended and were one of the emerging ways in which waste transformed the Neolithic.

Keywords: Waste, Neolithic, ceramics, Tell settlements, Middens

Mediterranean

R20 - Submerged Neolithic Sites Around the Mediterranean and Europe

Session Organiser

Hakan Öniz / Akdeniz University, Türkiye

Ehud Galili / University of Haifa, Israel

Dr. Liora Kolska Horwitz / Hebrew University of Jerusalem, Israel

Abstract

Myths about great floods are known from ancient cultures (e.g., Noah's Ark, the Babylonian Epic of Gilgamesh, and Plato's Atlantis). In the nineteenth century, scientists realized that the equilibrium of water on earth involves cycles of ice ages (glacial periods) with associated fluctuations in sea level ranging from a drop of -120m during a glacial period and a high sea level of up to +10m during an interglacial period. Thus, there is potential in finding inundated settlements on the sea bottom. Until recently scholars had limited access to submerged prehistoric remains, but recent decades have seen a turning point in research possibilities. Both natural and human-induced erosion processes have facilitated the exposure of sites, enabling their discovery. Developments in technology have made it possible to develop a methodology for detecting, documenting and studying these submerged prehistoric sites.

Hundreds of sites are known in the Black Sea, the Sea of Marmara, the North Sea, the Baltic Sea, and in the Mediterranean Sea—where long term research has been undertaken. For example, on the submerged prehistoric sites of Işıldaktepealti (Dardanelle-Çanakkale) in Turkey and Atlit-Yam in Israel, while many others await discovery and study.

The discipline of submerged prehistory has become an essential part of underwater archaeology. It can fill gaps in knowledge and add another dimension to the research of prehistory. This session aims at presenting and discussing the chronological and cultural settings of prehistoric sites, especially dating to the Neolithic period, discovered on the sea bottom, clarifying the relationship between coastal cultures and the sea and the contribution of marine resources to their subsistence, as well as their resilience and adaptation to the changing coastal environment.

A View at Sunken Prehistoric Settlements off the Turkish Coast

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R20

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Abstract: Turkey has a frontier of 8500 km to the Black Sea, the Mediterranean Sea, and the inland sea called Marmara, which has been of great importance since the prehistoric times of humanity. A small number of known, and probably many more unknown sunken settlements are waiting to be studied with all details in these coasts. The shape of the shoreline and coastline borders have changed and are still changing in Turkey like all the other ocean coasts because of sea level changes, tectonic movements, tsunamis, river deposits, and possible volcanic destructions. At the end of the late Glacial, 14000-10000 BP the sea level of the oceans was rising almost continuously probably about 100 meters after the beginning of the Holocene. There is enough evidence from scientific research and excavations on sea level rising and submerged prehistory at the coasts of the Black Sea, Mediterranean, and Marmara Sea. Yenikapı of Istanbul is a well-known example of the Neolithic submerged sites and Limantepe of İzmir is another well-known example of to submerged Late Chalcolithic site. Submerged Neolithic settlements like Istanbul-Kurbağalidere-Fenerbahçe, Avsa Island-Manastır, Çanakkale-Işıldaktepealtı, and other possible sites will be the subject of the presentation. Many submerged prehistoric settlements under the dams of the Tigris and Euphrates are also included in this list of subjects.

Keywords: submerged sites, underwater archaeology

Potential prehistoric island communities in Cilicia to the north of the Eastern Mediterranean

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Abstract: Cilicia is in the north of the eastern Mediterranean, at the center of the Levant, Anatolia, and Cyprus cultural regions. Cilicia is geographically divided into two parts: highland and lowland. It is known that at the end of the Pleistocene and the beginning of the Neolithic Period, overseas voyages to Cyprus began. The few paleogeographic coastline studies conducted in lowland Cilicia have revealed that the Neolithic lowland boundary was just south of the mounds located in the historic city centers of Tarsus and Adana. Especially south of the Adana city center, there are 3 Miocene Period calcareous rocks located high above the plain level, which are in the plain today. There are mounds and caves in the areas where these cliffs merge with the present plain. Surveys conducted in these settlements revealed the presence of the Neolithic Period. Geomorphology and bathymetry data also confirm the presence of islands along the Misis - Kyrenia fault line. This study will focus on a social-economic model that island communities may have lived in prehistoric times, based on prehistoric data. In particular, the role that Cilicia and these island settlements may have played in the supply of obsidian raw materials will be discussed. At the beginning of the Neolithic period, these island communities may have played an important role in the movement to Cyprus. It will also be emphasized that natural factors may have played a role in the transportation of wild animal groups to Cyprus.

Keywords: Sea Voyaging, Neolithic Transition, Island Communities, Cilicia, Eastern Mediterranean

The Submerged Late Neolithic Pile-dwelling at Zambratija Bay, Croatia

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Abstract: The site in Zambratija Bay was initially recognised in 2008 as hundreds of wooden piles protruding out of the seabed, and a peat platform, both of which lay 3m below MSL on the ridges of a submerged sinkhole. Prehistoric pottery, stone artefacts, zoological and botanical remains were found scattered around the area, making it evident that the site represents a unique opportunity for investigating the part of Mediterranean Prehistory “lost” due to the Holocene marine transgression and landscape evolution. Between 2008 and 2023, a few small- and large-scale investigations were performed on site, including a bathymetric survey as well as extensive underwater archaeological excavations. The presence of wooden piles dated to around 4000BC by a combination of radiocarbon dating and dendrochronology, together with Prehistoric pottery typologically attributed to the Late Neolithic, indicates a connection to the well-known Prehistoric pile-dwellings around the Alpine lakes. The significance of the site is evidently twofold: 1) as a potential maritime outpost of traditionally lacustrine prehistoric pile-dwellings; and 2) as a reliable archaeological sea-level change proxy. As part of the author’s PhD and postdoctoral research projects, geological coring and underwater archaeological excavations were chosen to contribute to the understanding of the Zambratija Bay chronology, palaeoenvironment, and cultural connections with the Late Neolithic Mediterranean. This paper demonstrates how these methods contributed to the understanding of the adaptive pathways of the Prehistoric population in preserving sustainability in the time of rapid environmental changes, endorsing archaeology into being an equal contributor in modern climate change debates.

Keywords: Submerged Prehistory, Adriatic, Late Neolithic, Zambratija Bay

Lake Maliq revisited: Fresh Perspectives on neolithic submerged Settlements at former Lake Maliq, Albania.

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Abstract: Within the ERC-EXPLO project several settlement horizons at Lakes Ohrid, Prespa and Kastoria could be absolutely dated with dendro and radiocarbon dating. The exceptional preservation conditions of these water-locked lakeside settlements show us a picture similar to that of the UNESCO World Heritage lakeside settlements around the Alps. The Korca Plateau is located on a smaller, higher plateau in Albania, where Lake Maliq was once located. In this paper we present the first dating of settlement phases of submerged settlements located on the Korca Plateau former lake Maliq. Excavations and Surveys showed that the preservation of the wetland soil at the sites Dunavec, Maliq and Sovjan is exceptionally good. Piles from prehistoric building structures were documented at all three sites. The sites occupy a special place in Albanian archaeology, but no exact absolute dates could be determined. We have now been able to fulfil this desideratum with the EXPLO project and have been able to generate the first absolute dates for these sites using dendro and radiocarbon dating. In this study, we focus mainly on the Dunavec, Maliq and Sovjan sites and place them in the context of the sites dated so far in the project.

Keywords: Neolithic, submerged, balkans, albania, Dendro dating

Discovering the wooden pillars of the Neolithic settlement: the waterlogged site Lin 3, Albania

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Abstract: The EXPLO project, which was launched in 2019, is dedicated to the detailed study of lakeside settlements in the southern Balkans, particularly on Lake Ohrid. In 2020, the research area was expanded to include the Lin 3 site near Pogradec in Albania. Our research at Lin 3 has uncovered at least two distinct settlement phases that provide insights into the early phases of Neolithic life in Europe, viewed through the lens of wetland archaeology. The first phase, discovered through wetland excavations on land, is dated to between 6000 and 5800 BC, making Lin 3 the oldest documented Neolithic pile dwelling settlement in Europe. Recent evidence points to an even earlier occupation, so that this site can be linked to the beginning of Neolithisation in the region. Our absolute chronological evaluations confirm these several phases, which have so far been proposed on a typological basis. Further exploration of a subsequent phase, carried out mainly using underwater archaeological methods, revealed a robust fortification system dated to the late 6th millennium by a three-tiered palisade complex. Further information on the chronology of the site is expected to be announced at this presentation. This fortification, comparable in size to the well-documented Neolithic defences of Sesklo and Dimini in Thessaly, will significantly change our understanding of Neolithic defensive architecture and social structures. This lecture will present the latest findings from Lin 3.

Keywords: Neolithic Pile Dwellings, Wetland and Underwater Excavations, Early European Neolithic Settlements, Palisade fortification

Exploring submerged settlements off the Mediterranean coast of Israel

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R20

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Abstract: Inundated archaeological sites dating from the Middle Palaeolithic to the Middle Chalcolithic periods have been exposed off the Mediterranean coast of Israel. Most sites represent in-situ settlements dating from the 10th to the 7th millennia BP, including the permanent Pre-Pottery Neolithic C settlement site of Atlit-Yam, the Late Pottery Neolithic/Early Chalcolithic permanent settlements sites of Tel Hreiz and Neve-Yam, and the temporary specialised activity sites of Kfar Samir, Kfar Galim, Hahotrim and Habonim. This paper presents a general summary of the salient site finds. In Neve Yam, Tel Hreiz and Kfar Galim sites stone-lined graves or cists were recovered, revealing an early deliberate separation between domestic and graveyard areas. The human remains provide evidence for the earliest known case of tuberculosis and probably also for malarial infection. The Atlit-Yam settlement had a mixed subsistence economy based on crop cultivation, domestic animal husbandry, hunting and a significant emphasis on marine fishing. This combination of resources contributed to the establishment of year-round sedentary, Mediterranean fishing villages of which Atlit Yam is among the earliest known examples. In the temporary specialised activity settlements, the earliest known evidence for the production of olive oil and the production of table olives was found. Rising post-glacial sea level eventually forced, in turn, the abandonment of the early and later sites, and sealed the remains in anaerobic conditions under a protective cover of marine sand. Only recently, sand-mining exposed parts of the sites, enabling archaeological discovery and research.

Keywords: Underwater archaeology, Sea level rise, Early Mediterranean fishing village

Paleo-demography and health status of the population of Atlit-Yam, a Submerged Neolithic site off the Carmel coast, Israel.

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R20

¹Israel Antiquities Authority

Abstract: The demography characteristics and health changes that followed the transition to an agricultural, food producing economy – the “Neolithic way of life” will be demonstrated through the research findings of the study of the Atlit-Yam submerged population, dated to the Pre-Pottery Neolithic C. The site is located in the north cost of Israeli Mediterranean Sea, Southern Levant. The paleo-demography characteristics, and the health status of the AY population (65 individuals) was compared to the large south Levant PPN population (271 individuals).Results showed that the AY population experienced a high mean age at death compared to populations from other South Levant Neolithic sites (such as Ain Ghazal), and general Neolithic populations studded in this research. Males and females experience different life expectancy during the Neolithic period. Health status of the AY population showed special pathological features, probably associated with the location of the village, on the coastline, and their subsistence, depending on agriculture, hunting-gathering, and fishing as part of their daily way of life.

Keywords: Submerged Neolithic site, Paleo-demography, health status, Atlit-Yam site, Israel coast

Caucasia

R22 - The Caucasian Neolithic

Session Organiser

Yoshihiro Nishiaki / The University of Tokyo, Japan

Abstract

In 2023, it is proposed to hold a session on the Caucasian Neolithic within the framework of the World Neolithic Congress in Turkey. The reason for this is the joint archaeological investigations done in the recent 10 years at the archeological complexes of the Neolithic period in the South Caucasus by local and foreign researchers, and as a result, a lot of new information was obtained. In the Caucasus, small conferences have been organized in several countries related to archaeological research, mainly in the South Caucasus. A large number of scientific articles and even monographs have been published in Azerbaijan, Georgia and Armenia related to the scientific information obtained by archaeologists.

Thus, at the World Neolithic Congress, the emergence of the pre-pottery Neolithic at the territory of the Caucasus in the 7th millennium BC and the main genetic roots and influence of the late pottery Neolithic which was still on progress in the 6th millennium BC are among the most relevant topics on the problem of Neolithic cultures. The role of Eastern Anatolia in the formation of the Neolithic cultures of the Caucasus and the opposite influence of the South Caucasus on Anatolia are also important part of the topic discussed here.

Considering all this, joint archaeological investigations by archaeologists from Russia, Azerbaijan, Georgia and Armenia and other foreign specialists working with local scientists in these countries will be included in the session on the topic of the Caucasian Neolithic. The mutual comparison with the Neolithic cultures of Anatolia through the issues of the Neolithic cultures of the South Caucasus, distinguished by its local characteristics, will be the subject of discussion.

The last Mesolithic hunter-gatherers at Damjili Cave, west Azerbaijan, the South Caucasus

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R22

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²Institute of Archaeology and Anthropology, Azerbaijan

Abstract: The advent of the Neolithic socio-economy in the South Caucasus probably resulted from the immigration and cultural spread from Southwest Asia and their interaction with local Mesolithic hunter-gatherer societies. Recent studies have revealed that the Neolithic Period began around ca. 6000 BC across the South Caucasus regions. However, the details of this process, including immigrant-local interactions and their regional variations, remain unclear. In this regard, the archaeological evidence obtained from Damjili Cave in western Azerbaijan is significant. Excavations conducted by the authors' team between 2016 and 2022, yielded cultural remains from the late Mesolithic (ca. 6500-6000 BC) and Neolithic (ca. 6000-5300 BC) periods. Moreover, the stratigraphy has been firmly established by two dozen radiocarbon dates. Thus, for the first time in the South Caucasus, it became possible to examine the process by which a local Mesolithic hunter-gatherer society transformed into (or was replaced by) a Neolithic agro-pastoralist society at a single site. This presentation illustrates our research results, focusing on evidence of Mesolithic hunter-gatherer cultural remains, and provides observations on the relationship between the last Mesolithic and the first Neolithic societies in west Azerbaijan.

Keywords: Neolithization, South Caucasus, aceramic, animal domestication, plant cultivation

Personal ornaments from the South Caucasus: highlighting a hub of past cultural exchanges

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R22

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Abstract: The processes that led hunter-gatherers living in Southwest Asia to cultivate plants and domesticate animals 10,000 years ago have been puzzling archaeologists since decades. Following their emergence in different parts of the Fertile Crescent, agricultural technologies then spread 8,000 years ago eastwards into the southern Caucasus, northern Zagros and beyond. With the idea of documenting the cultural transfers that contributed to the spread of the Neolithic, the personal ornaments from Kültepe I (Neolithic, 8200-7000 cal. BP) and Ovçular Tepesi (Late Chalcolithic/Bronze Age, 6400-4400 cal. BP), located in the Autonomous Republic of Nakhchivan, Azerbaijan, were studied. The South Caucasus has been a crossroads for connections between the Near and Middle East and Eurasia for millennia. The exchange of goods, ideas and know-how in the region provided fertile ground for the social and cultural developments of this period. By working on this region we explore different aspects of the creativity and inventiveness of the communities that occupied this area, and more specifically how contacts influenced the creation of personal, individual and cultural identities, and how these were materialized through body ornaments. Microscopic, spectrometric and elemental analyses were carried out to determine the nature of the different materials used in the manufacture of the beads, as well as how they were made and used, in order to help document how symbolic messages were materialized in each community. The findings contribute to a broader understanding of cultural developments in the region, encompassing the Caspian area from east to west.

Keywords: Neolithic, personal ornament, style, symbol

Genetic continuities and discontinuities in the South Caucasus during the Neolithic and Chalcolithic

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R22

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Abstract: The South Caucasus lies on the edge of the Fertile Crescent, where the Neolithic began 10,000 years ago. However, agriculture and animal husbandry appeared in the South Caucasus with a delay of approximately two millennia. Archaeological evidences highlight the significant role of various regions of the Fertile Crescent (eastern Anatolia, northern Mesopotamia, Iran) played in the emergence of Neolithic cultures in the southern Caucasus. To better understand the role of population movements in this phenomenon, we conducted paleogenetic analyses on Neolithic and Chalcolithic individuals from the sites of Mentesh Tepe, Kültepe, and Ovçular-tepesi. Our study of ancient DNA from these human remains reveals that the Neolithic spread involved the migration of populations similar to those in eastern Anatolia and intermixing with local populations or those from the Zagros region. The genetic proximity between the different sites strengthens the hypothesis of population continuity during the Protohistoric period, even though the latest individuals from Ovçular-tepesi show gene flows from populations related to those of the Levant and the Zagros. Our paleogenetic findings reinforces the model of Neolithization in the South Caucasus, at least partially driven by migrations of populations from the Fertile Crescent. The observed heterogeneity in genomes from this period suggests that multiple regions within the Fertile Crescent were involved in these demographic events.

Keywords: Chalcolithic, Paleogenetics, Migrations, Admixture, Neolithic

Getahovit 2. New Evidence of Late Neolithic and Chalcolithic Occupation in Northern Armenia

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R22

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Abstract: Getahovit 2 is a cave site located in the Tavush region in northern Armenia. The cave has been excavated since 2011 by Irena Kalantaryan from the Institute of Archaeology and Ethnography National Academy of Science, Republic of Armenia, since 2021 working in cooperation with the Faculty of Archaeology, University of Warsaw, Poland. Archaeological data show a large interest in the cave by prehistoric populations from highland and mountain areas of the Caucasus during the Neolithic and Chalcolithic periods. The over-a-dozen occupation levels discovered thus far cover the period of mid-6th until the end of the 4th millennium BC and provide evidence of regular, short-term visits by pastoralists, which indicates the development of a transhumance model of subsistence among Neolithic and Chalcolithic populations of Northern Armenia, with human groups traveling seasonally between valleys and the mountains. The paper will present general characteristics of the Getahovit 2 settlement, with particular emphasis on the results of recent discoveries. The latter provided evidence of Late Neolithic and Early Chalcolithic occupation – phases hitherto unknown from the territory of Armenia. Although the groups of artefacts found there are limited in range and numbers so they do not provide a complete cultural picture, they do constitute an important supplement to the state of knowledge about the Neolithic in Armenia.

Keywords: Late Neolithic, Chalcolithic, Northern Armenia, Cave settlement, new evidence

On the problem of the origin of Neolithic cultures in the South Caucasus and their connection with the Middle East

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R22

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Abstract: The formation of ancient farming cultures in the South Caucasus and their connection with Middle Eastern cultures is one of the urgent problems. This makes it necessary to reconsider the relations of the South Caucasus, Eastern Anatolia and Mesopotamia during the Neolithic period. In the presented article, it is intended to investigate this problem in the context of the monuments of Nakhchivan, which are located at the junction of those regions. The artifacts discovered by the Azerbaijan-France international expedition in Kultepe I in 2013-2018, by the local archaeological expedition in Nakhchivantepe in 2017-2023, and in Osmantepe in 2020-2021 allow us to express new ideas about interregional relations. Research shows that there are several centers of formation of Neolithic culture in Southern Caucasus, one of such centers was Nakhchivan region. Among the factors determining this, the decisive role of favorable climatic conditions and the natural-geographical environment as a whole is confirmed by the botanical and zoological remains found here. Neolithic period, the mobile way of life prevailed in this region, and in the spread of cultures, the nomadic herding tribes, who were constantly searching for raw materials, took the main place. The presence of mutual relations with the Halaf, Ubaid and Southern Caucasus Shomutepe cultures of the Middle East was related to these factors.

Keywords: Neolithic period, South Caucasus, Nakhchivantepe

Kazreti Ortvala Cave New Agricultural sites

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R22

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Abstract: The Kazreti Ortvala Cave is located in the Caucasia region, 50 km away from the capital city of Georgia. It represents a cave complex developed within a basalt massif, featuring lava tubes and a terrace in front of it. After archaeological campaigns conducted in 2018-2023 it has become possible to have a certain understanding about the site stratigraphy and chronology, as well as identify the cultures discovered on the site in form of archaeological layers. The study investigates the remains of a Neolithic settlement, obtaining new information about an agricultural site. This includes excavation findings and evidence of human occupation, such as tools used by humans in this area. The most commonly used materials are obsidian and river stones, particularly obsidian and flint lamellas, burins, perforator tools, and hand mill stones. Fragments of such roughly made pottery have simple forms and are characterized by simple, cylindrical shapes. These ceramic fragments are decorated with handmade coarse, embossed lines, which have analogues in Sholaver-Shomutepe Settlements (Shulaveri, Aruklo, Kramis Didi Gora) dating back to the 6th to 5th millennium BC.

Keywords: Neolithic, prehistoric, excavation, pottery, stone tools.

New data on the Neolithic settlement from the Elbrus region, North-Central Caucasus

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R22

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Abstract: The authors report new data on the Neolithic settlement of the Elbrus region, North-Central Caucasus, Russia, based on recently discovered Neolithic layers 6B and 6/7 at the Alebastrovyy zavod rockshelter, dated by serial radiocarbon dates from c. 9 to 6,7 kya ago. Rich archaeological and faunal collections from 2021 and 2023 excavations include > 12 000 lithic artifacts and > 25 000 animal bone fragments, and provide evidence of intense economic activity at the site. The Neolithic pottery found in these layers includes fragments of ceramics ornamented using the prick-comb technique. The closest analogies for this pottery can be found in the Neolithic of the Azov Sea region. Raw material analyses provide data on obsidian and flint exploitation during the Neolithic. Use-wear analyses indicate active wood-working at the site. Among lithic tools, small segments or lunates, including Helwan segments, assymmetrical triangles, and microscrapers made on small flakes are characteristic. A striking feature of the stone industry is the appearance of bifacial triangular-shaped transverse arrows made of obsidian that have analogies in the Neolithic of the South Caucasus. The stylistic similarity is strengthened by the fact that all triangular-shaped transverse arrows in the Alebastrovyy zavod rockshelter, like in the Neolithic sites in the South Caucasus, are made of obsidian. The microlithic industry from the Neolithic layer at the Alebastrovyy zavod rockshelter consists primarily of inserts used in composite tools, and this is supported by finds of residues of adhesives. The research is supported by the Russian Science Foundation grant №22-78-10120.

Keywords: Neolithic, Northern Caucasus, Lithic industries, Climate dynamics, Ceramics

Trapeze projectiles of Starobilsk-1 site in the Siverskii Donets River Basin

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Abstract: Starobilsk-1 is one of the earliest Neolithic sites in Eastern Ukraine (1st quarter of VI mill. BC). The site is attributed to the Rakushechnii Yar Culture and marks the northernmost occupation of this group. Despite the presence of pottery within this complex, the inhabitants of the site demonstrated a hunter-gatherer lifestyle. Hunting and the exploitation of both terrestrial and aquatic resources remained the primary economic activity. Through the analysis of the recovered geometric microliths, the contacts of the inhabitants of Starobilsk-1 with other regional cultures can be compared and considered. Two types of trapezoidal projectiles are present in the flaked stone assemblage: Type 1, with abruptly retouched margins, and Type 2, with only one modified margin. The unmodified margin of Type 2 was used as a platform for invasive dorsal removal. Type 2 trapezoids dominate the assemblage. The presence of such trapezoidal projectiles has also been documented at the site of Haci Elamxanlı Tepe (early VI millennium BC, Middle Kura River Basin, Azerbaijan). The main distribution of such trapezes is in Upper Mesopotamia (late VII millennium BC, Sabi Abyad, strata 6-4). The synchronous appearance of trapezes with the same characteristics in distant regions may indicate either a convergent development or large-scale migration processes resulting in the spread of Neolithic innovations. The initial distribution of Type 2 trapezoids may have been associated with migrations along the coastline of the Mediterranean and Black Seas. However, the latest assumptions require additional research and at the moment they are not the main version.

Keywords: Eastern Ukraine, Neolithic, trapezes, convergent development.

Taubodrakian industry of Crimea

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Abstract: The Taubodrakian flint industry was first identified during excavations at the Skelyasty grotto site in the Mountain Crimea. The main characteristics of this culture are related to the direct percussion method of flint knapping, the use of biolar retouching for the production of geometric microliths, the use of microburin technique for the production of geometric microliths. The Taubodrakian industry appears in the Mountain Crimea at the end of the Pleistocene (11500 BP uncal) and continues into the Holocene (8500 BP uncal). The appearance of the Taubodrakian industry was spontaneous, associated with migration. The search for possible ancestors of the Taubodrakian industry bearers led to the conclusion about the possibility of migration of the Karain B culture bearers (Antalya, Turkey) to the territory of Crimea. Analyses of complexes associated with the Taubodrakian industry (Skelyasty grotto, layer III-3-X; Fatma Koba, layer 5/6; Shan Koba, layer 4) have shown that migration from Antalya was not a one-off event, but that strong links were established between two distant regions. The development of Taubodrakian industry ended with the transition to the Neolithic when the Tash-Ayir Neolithic culture appeared. The cultural change did not lead to the disappearance of contacts between the Crimea and Antalya. Geometric microliths from the Neolithic layers of Suluin Cave were found in Crimea. Thus, the appearance of the Neolithic on the territory of Crimea was preceded by the establishment of cultural relations with the bearers of those cultures that mediated the spread of Neolithic innovations.

Keywords: Taubodrakian industry, Karain B culture, geometric microliths, Neolithic, migration.

When Does the Neolithic End? Bayesian Chronology of Settlement Phases and Gaps in the South Caucasus and Adjacent Regions 6000-4500 cal BCE

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R22

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Abstract: The first agricultural communities appeared in the South Caucasus around 6000 cal BCE, relatively late compared to the core area of Neolithization. The new subsistence practices seem to have been quite successful: at least an explosion of Neolithic sites can be observed in the valleys around the Kura and Araxes rivers in the central and southeastern part of the region in the first half of the 6th millennium BCE. Around 5400-5300 cal BCE, many Neolithic settlements in the lowlands seem to have been abandoned, and there is little evidence of occupation in the following centuries. Neighboring regions also show discontinuities in occupation as evidenced by data drops, which in some regions apparently run parallel to processes in the South Caucasus. Did local or supra-regional crises and population fluctuations lead to the decline of the Neolithic record? The more precise anchoring of Neolithic abandonment and re-settlement events on a calendar scale by means of Bayesian modeling of radiocarbon dates is at least an approximation to this question, as it allows statements to be made as to whether Neolithic settlements in certain regions ceased synchronously and abruptly or successively. For this purpose, the available ¹⁴C data at the transition to the Neolithic and Chalcolithic from the South Caucasus and neighboring regions are modeled.

Keywords: Radiocarbon chronology, Bayesian Modeling, Caucasus, Crises, Settlement gaps

Eurasia, Central and East Asia

R25 - The Dawn of the Neolithic in Northern Eurasia: Development of Foraging Complexity

Session Organiser

Ekaterina Dolbunova / The State Hermitage Museum, Russia

Marianna Kulkova / Herzen University, Russia

Viktor Karmanov / Russian Academy of Sciences, Ural Branch, Russia

Evgenia Tkach / Russian Academy of Sciences, Russia

Abstract

Vast areas of the both sides of the Urals with different ecotones were populated by foraging communities that sustained their way of life for several millennia. The instability of ecological niches due to climatic and/or anthropogenic factors and the variability of biodiversity may have forced societies to change their adaptation mechanisms - through the development of new habitats, the adoption of innovation, the formation of new social and economic systems and networks. Crucial changes of the 7th- 6th mill calBC within these hunter-gatherer societies are marked by settlement of larger areas, appearance of ceramics which became of a wide use in the whole hunter-gatherer world, increase of sedentism, changes in foraging strategies, and new settlement systems manifesting all a new way of life. The asynchronous appearance of these changes in different societies may have been due to their rate of acceptance of innovations, the speed of the process, the way how they were transferred. The new 'Neolithic' networks established might have been limited both by natural and, possibly, cultural borders. The session aims to show how local foraging groups reacted to the new reality, accepted and adapted to it or not. We are encouraging papers showing changes occurred comparing to the preceding Mesolithic time, the speed of these processes; the innovations emerged, whether these processes were triggered by global and local paleoclimatic changes through archaeological studies and implication of natural scientific methods.

The Neolithic in archeology

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R25

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Abstract: The question is not what is considered the Neolithic, but whether it makes sense to single out a special, relatively universal stage in the development of mankind. If the emergence of a producing economy is recognized as a staged innovation of the highest level, then how to assess the state of the rest of the ecumene? Should we consider that the ordinary Stone Age continues there or not? It is now obvious (again since the time of John Lubbock) that in many societies the evolution of the appropriating economy leads to the same thing as the emergence of the producing economy: sedentism, the complication of the social structure, property and social inequality, the development of technology, etc. Of course, this occurs much more slowly and ultimately still leads to a producing economy even in the tundra. That is, the New Stone Age with its appropriating economy differs qualitatively from the previous Stone Age not only in the types of tools and technology, but also in the socio-economic structure. Thus, the Neolithic in the archaeological sense is associated with global changes in the history of mankind, both in societies with a producing economy and with an appropriating economy. At a higher level, this reanimates the old idea of “natural” human progress. Finally, it is necessary to separate archaeological periodization from socio-economic one, since in general they do not coincide, as accumulated facts show. Neolithic is a stage (taxon) of archaeological periodization; a producing economy is a stage (taxon) of socio-economic periodization.

Keywords: Neolithic, appropriating economy, periodization

The impact of natural and climatic factors on the development of the Neolithic processes in the Lower Volga region.

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R25

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Abstract: The Lower Volga region includes the semi-desert Northern Cis-Caspian region and the steppe Volga region. In this area, the Seroglazovskaya and Orlovskaya cultures were distributed. On the base of radiocarbon dates, the transition from the Mesolithic to the Neolithic occurred here at about ca. 6200 calBC in the period of strong aridization. In the southern regions about ca.5800 calBC, the climate was dry, but in the steppe zone an increase in precipitation was recorded. This was confirmed by the fauna: the kulan dominates in the semi-desert, and the aurochs dominate in the steppe. Around ca.5700 calBC, a short episode of aridization is recorded and the transition to the second stage of the Neolithic occurs. In the Northern Caspian region, the Tenteksor type of sites appeared. When the climate becomes more humid, an aurochs appears in the semi-desert zone. About ca.5400 calBC, in the semi-desert, the Neolithic cultures transformed into the Cis-Caspian culture under the influence of cultures from the Lower Don region. Domestic animals appeared. In the steppe zone, a decrease in aridization was registered after ca.5200 calBC. About ca.4900 calBC, carriers of the Cis-Caspian culture appeared on this territory from the south. Improvement of paleoclimatic conditions in the Lower Volga region around ca.4800 calBC provided the advance of people into the forest-steppe zone. The work is supported by the project 24-28-00103

Keywords: Northern Cis-Caspian region, the steppe Volga region, paleoclimate, transition of Mesolithic- Neolithic, transition of Neolithic_Eneolithic

Transition from Mesolithic to Neolithic in the forest-steppe Volga region (Eastern Europe)

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Abstract: The process of neolithization in the territory of the forest-steppe Volga region was associated with the spread of ceramic production without a manufacturing economy. The earliest pottery of our region is closest to the vessels of the Central Asian interfluvial (Kelteminar culture). The similarity is manifested in the shapes of the dishes - S-shaped ovoid vessels with a sharp bottom and their ornamentation with traced lines and rare pricks. The Mesolithic flint industry differs from the Early Neolithic. It is characterized by a large number of plates and tools in contrast to a flake. The types of flint raw materials used and the categories of tools differ significantly. Thus, we assume a direct migration of the early Neolithic population to the forest-steppe Volga region and the absence of its connection with the previous Mesolithic groups. According to a series of radiocarbon dates, the time of the appearance of the first Neolithic complexes in the forest-steppe Volga region dates back to the beginning of the 7th millennium BC while Late Mesolithic groups exist until the middle of the 7th millennium BC. Apparently, the first half of the 7th millennium BC was the time of coexistence. However, no contacts were reflected in the flint inventory. The low population density and the itinerant way of life could be the reasons. Finally, the migration of the Neolithic population may be associated with the gradual deterioration of natural and climatic conditions in the Holocene on the territory of the Central Asian interfluvial. RSF project <https://rscf.ru/project/23-78-10088/>.

Keywords: Mesolithic, Early Neolithic, Forest-Steppe Volga Region, Eastern Europe

The last hunter-gatherers of NW Europe: global vs local paleoclimatic trends and ways of adaptation

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R25

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Abstract: Climatic factors had a great influence on the spread of different societies, adaptation, mobility, economic, social systems, and demography. For the territory of Eastern Europe, the system of hunter-fishermen-gatherers, which emerged at the Pleistocene/Holocene transition, turned out to be very flexible and existed for a long time. Global trends reconstructed by paleoclimatic investigations could have been not followed completely by smaller microregions. The paper represents the results of long-term studies of the Upper Dvina Lakeland (W Russia) which was settled successively by hunter-gatherers over several millennia. Paleoclimatic fluctuations recorded in this area with colder and warmer phases coincide only partially with global trends, as showed by recent study. Detailed paleoclimatic reconstructions allow tracing the ecological and economic potential of the forested postglacial regions of Eastern Europe, where major migrations from the south of the East European Plain were directed. Stable climatic conditions in micro-regions of the forest zone could ensure permanent maintenance of the ecosystem, providing rich resources for the economic system of hunter-gatherers for a long time. The geo- and bio-diversified ecological niches allowed ancient societies to pursue a long-lasting hunter-fisher-gatherer lifestyle, with an important role of fishing in lakeland area. Prolonged exploitation of the ecological niches in the Neolithic, with a gradual increase of population compared to previous eras, may have implied the existence of certain environmental management strategies to maintain its renewability. Archaeological investigations were supported by RSF №22-18-00086, paleoecological study - by "National Science Centre, Poland" No. 2021/41/B/HS3/00042, C14 dates - by MEAE Project 2NOR.

Regional Bioavailable Sr Isoscapes for the Urals and Black Sea regions and Caucasus

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Abstract: $^{87}\text{Sr}/^{86}\text{Sr}$ isotope ratios demonstrate unique variations on the Earth's surface depending on the geological age and lithology of the underlying rocks, which can be predicted and modeled with varying degrees of reliability. As rocks interact with the hydrosphere, atmosphere, and biosphere, strontium is transferred from bedrock to other surface reservoirs such as soils and plants. Over the past few decades, researchers from various fields of science have widely exploited the potential of $^{87}\text{Sr}/^{86}\text{Sr}$ isotope ratios to track the mobility and/or geographic origin of biogenic samples to address new issues in archaeology, ecology and paleoecology, forensics, hydrology and food authentication. As part of the work to construct strontium isoscapes for various regions of the Eurasian and Southern regions of the Russian Federation, samples were collected characterizing bioavailable strontium (vegetation, soil, surface and underground water, as well as bone and dental remains of modern fauna, mollusk shells), and rocks. Sample preparation and analysis of $^{87}\text{Sr}/^{86}\text{Sr}$ isotopic ratios was conducted in the cleanrooms (class 1000) and laminar boxes (class 100) of the “Geoanalitik” center for collective use (Institute of Geology and Geochemistry UB RAS, Ekaterinburg, Russia) by the MC-ICP-MS (Thermo Neptune Plus) after Sr chromatographic purification using the Sr ion-exchange resin (Triskem). Sr isoscapes were constructed for the territories of the Ural and Black Sea regions and Caucasus. The work is supported by the RSF grant No. 22-18-00593.

Keywords: strontium, isotopes, isoscapes, mobility, origin

Dating the Taiga Forts: New chronological and archaeological evidence on Stone Age fortified hunter-gatherer settlements in the West Siberian taiga

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Abstract: The taiga zone of Western Siberia has a long history of fortification construction, with more than a thousand fortified sites known. Most stem from the Early Iron Age and the Middle Ages, but the earliest fortifications date back to the Stone Age. Through joint Russian-German research we obtained new radiocarbon dates, dating the earliest fortifications to the local Early Neolithic (late 7th-6th millennia cal BC). Two types of early fortified settlements existed. Settlements on promontories above river floodplains had several fortification lines, each typically consisting of rampart, palisade and ditch (example: Amnya I). The second type encompasses settlements with a circular layout, with dwellings connected to each around a larger central one, enclosed by a bank and ditch (example: Kayukovo 2). Stratigraphic observations and ¹⁴C dates at Amnya I suggest that some of the dwellings were already abandoned when the outer defence line was built. Similarly, at the Eneolithic promontory fort (4th millennia cal BC) of Imegan 2.1, dwelling 7 on the cape is c. 500 years younger than dwelling 2 at the lower-lying area of the settlement. Repeated settlement may testify to the overall attractiveness of such sites, concerning e.g. resource abundance or strategic location. Although the question of the function (protection, status, cult, subsistence?) remains open, their very existence testifies to a high level of technology and social organisation. The existence of two types of settlements persists into the Bronze Age. It is promising to study similar sites and to also search for new monuments.

Keywords: Western Siberia, fortresses, Neolithic, Eneolithic, radiocarbon dating

Quarrymen and artisans of the North-Eastern Europe in the final Stone Age. Lithic quarries and workshops of the western shore of Lake Onega

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Abstract: Exposition on the surface of the Proterozoic formations of volcanic origin is the main geological peculiarity of the western shore of Lake Onega (Karelia, Russia). These formations are characterized by associated deposition of a number of rocks and minerals valuable for ancient human populations, including tuffs, shists, asbestos, copper, quartz and some other silica-containing materials. In the Late Neolithic – Eneolithic all of them were involved in the economic activities. Investigations of production complexes – quarries (of which very few are known at the moment) and numerous lithic workshop sites demonstrate intensive exploitation of the mineral resources and speak in favor of the beginning of production specialization. A distinct group of quarrymen-artisans played an important role in the socio-economic processes in Karelia and North-Eastern Europe.

Keywords: Lake Onega, workshop, specialization, quarry, Late Neolithic / Eneolithic

The adoption of pottery into Northeastern Fennoscandia: early pottery technology, variation and chronology on the Kola North

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Abstract: Pottery technology was adopted by hunter-gatherers in Northeastern Fennoscandia in the last third of the 6th millennium cal BC. This pottery probably had its roots in the Upper Volga region. Recent studies of Kola Peninsula materials have shown that there were two various traditions among the earliest ceramics (called Varzina and Chavanga variants). These traditions had obvious differences in decorative, technological and morphological patterns and their existence may reflect both different sources of their origin and internal changes in pottery-making over hundreds of years. Though, the available radiocarbon dates do not yet give a definite answer about the chronological correlation of these traditions. In the northernmost territories, pottery practically comes out of use about 4300 cal BC (i.e. a thousand years after its adoption here) and appears again as a widely distributed technology only at the end of Neolithic period. The proposed work will examine the features and possible sources of the pottery tradition in Northeastern Fennoscandia, the development and variability of this technology in its early stages, and possible reasons for its later abandonment.

Keywords: Fennoscandia, pottery, hunter-gatherer

New data of the Sub-Neolithic Zedmar culture on the South-Eastern Baltic

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Abstract: Production of ceramics in the South-Eastern Baltic is associated with the emergence of the Zedmar culture at the end of the 5th mill.BC. In the literature, this refers to the “Sub-Neolithic” or “Forest Neolithic”. Our research involved ceramic from two sites – Zedmar A and Zedmar D, excavated in the 20th century. In total, two technological groups are presented - with mineral (crushed stones, sand) and organic (crushed shells, plants) admixtures. Vessels with crushed stones and plants admixtures at the same time are less common. Among the collection of materials from Zedmar A, vessels with organic admixture predominate, in Zedmar D - with mineral admixture. The vessels are made using the coiling technique. Vessels have S-profiles, bottoms are flat. In one case, a pointed bottom was revealed (Zedmar D). The ornament on the vessels is located in the upper part and is represented by notches, punctures, drawn lines, and in exceptional cases - comb imprints. A total of 53 ceramic fragments were analyzed using petrographic analysis. Ten groups have been identified, of which five groups are identical at both sites. According to previously obtained radiocarbon dates, and results of the food crust AMS-dating, the period of existence of the sites dates back to 5300–4800 BP. These dates and similarity in the clay raw materials indicate the possible synchronicity of both settlements. This period refers to the transition from Early to Classical Zedmar. The work was carried out within the framework of the Russian Science Foundation grant No. 23-78-01172.

Keywords: ceramic, Zedmar, production, technology, Sub-Neolithic

Mineralogical, geochemical and technological characteristics of pottery as an indicator of cultural and chronological changes in the Neolithic and Early Metal Age in the Southern Ladoga Lake region (Eastern Baltic)

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Abstract: Investigations of the mineralogical and geochemical compositions of the ceramic pastes, firing conditions and the radiocarbon analysis of ancient pottery from the Neolithic and Early Metal Age periods from the Podolie 1, Podolie 3 sites located in the Southern Ladoga region provided valuable information about the cultural and chronological changes of the ancient population. The ceramics were analyzed using various analytical methods: XRF analysis, Scanning Electron Microscopy – SEM-EDX, thin section analysis, and microtomography. Analysis of stable isotopes ($\delta^{13}\text{C}$, $\delta^{15}\text{N}$) and radiocarbon dates on charred food crusts on pottery were obtained. The thin section analysis allowed us to determine the mineralogical clay and temper compositions and porosity of ceramics. The results obtained gave the possibility to determine the raw material sources for pottery moulding and their availability. The different cultural groups could use different sources of raw materials. Changes in the temper composition of ceramic pastes indicate a change in cultural traditions and the emergence of a new population. Analysis of charred food crusts helped to establish the food that was cooked in the wares. Radiocarbon dates show the chronological framework of different cultural traditions and complexes that belonged to them.

Keywords: ceramic, mineralogical, geochemical, technological, radiocarbon

Palaeoenvironment of the Upper Kama basin at the early stage of Neolithization of the region

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Abstract: The first stage of neolithization of the Upper Kama region dates back to the second half of the 7th-6th millennium BC (8.5-7 cal. ka BP), i.e., the end of the Early - beginning of the Middle Holocene. The sites of hunter-fisher-gatherers of the Late Mesolithic are associated with this period. Synchronously, the first sites with comb and pricked ware pottery appeared, which we attribute to the Neolithic. Palaeoecological studies have shown that at the beginning of this period, middle taiga forests of spruce, pine and birch grew in the region. The climate was close to modern. The low water content of the Kama and its tributaries allowed to inhabit second and first river terraces. At the beginning of the Middle Holocene (7.5 cal. ka BP), broad-leaved tree species penetrated into the region and coniferous-deciduous forests of linden, elm, spruce, pine and birch were formed. The water content of rivers increased. That very time the sites with ceramics appeared in the region. They occupied the edges of the low river terraces and were often located close to water. That was the reason that the part of those sites could have been destroyed during subsequent meandering of the rivers. We suppose that climate warming and an increase in the water content of rivers which can be considered as natural means of communication, played a decisive role in the initial stage of the Neolithization of the region.

Keywords: Environment, Middle Cis-Urals, Mesolithic, Neolithic

R27 - The Emergence of Food-Producing Economies in Central Asia: The Intersection of Cultural and Biological Data

Session Organiser

Svetlana Shnaider / Al'-Farabi University, Kazakhstan
Robert Spengler / Max Planck Institute, Germany

Abstract

Central Asia has been, throughout a large part of human history, a primary conduit for the diffusion of cultural elements, technological innovations, and genes. Over the past few years, human ancient genomics projects, combined with growing data from archaeobotany, zooarchaeology, and isotopic analysis are allowing archaeologists to better contextualize their archaeological sites and associated artifacts. Despite major advances in scholarship, little remains known about the Neolitization processes of the Early and Mid-Holocene and the ways they underscored or reshaped population structures and cultural repertoires across Central Asia. This session seeks to bring together new insights into the transition to the food producing economies, and mobility dynamics of Neolithic populations that inhabited diverse environmental and cultural contexts across Central Asia. This session welcomes new perspectives derived from excavations, faunal and botanical analyses, and biomolecular and genomic records, with the overall aim of building holistic explanatory frameworks that better resolve the temporality and the cultural mechanisms associated with the origin and spread of farming and herding across the core of the ancient world. Among the questions that we hope to grapple with in this session are:

- 1) what role did wild plants and animals play in the diet prior to the advent of cultivation behaviors.
- 2) Can we still discuss local innovations in economy or was the Neolithization of Inner Asia part of a demic wave spreading from southwest Asia. And,
- 3) what are the timing and routes of dispersal for the earliest crops and cultivation practices within this vast geographic region.

Unearthing the Heart of Eurasia: New Insights Into Neolithic Central Asia

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Abstract: Central Asia is pivotal for understanding the spread of innovative ideas and technologies across Eurasia, as it served as a major route for ancient human migrations. One of the most significant milestones in human history is the transition to a food-producing economy, encompassing agriculture and livestock breeding. Substantial data has been gathered on the distribution of domesticated animal species across Eurasia, including the primary centers of domestication and their subsequent diffusion. However, Central Asia, which can rightfully be considered the heart of the continent, has seen limited data coverage for various reasons. This article presents key findings from an extensive international research team examining archaeological remains from the Obishir-5 and Surungur sites. The presentation will discuss the results of this new study. The research was supported in frame of PaleoCALM ANR Funded project ANR-23-CE27-0019 and BR18574057.

Keywords: Central Asia, neolithisation, domestication, Obishir-5, Surungur

The Origins of Agriculture in Central Asia

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Abstract: Central Asia has been the crossroads of the ancient world for millennia, and peoples in this vast geographic area are responsible for shaping cultures across two continents. Over the past decade, archaeobotanical methods have advanced throughout Eurasia, illustrating the processes of agricultural intensification over time, including the first mingling of East and southwest Asian crops. That said, the earliest origins of agriculture in this culturally influential part of the world have remained elusive, with scholars discussing early dispersal of farming communities and local innovations or adoption of cultivation practices. Once the early origins of cultivation practices in Central Asia are elucidated, they will provide another comparison to the processes of cultural development that accompany agricultural transitions. In this talk, I discuss the state-of-the-art evidence and the prevailing views on when productive economies spread north of the Iranian Plateau. I ask the questions of whether pastoralism preceded farming and what the earliest domesticated crop and cultivation systems looked like.

Keywords: Central Asia, Origins of Agriculture, Archaeobotany

Advance in microarchaeological studies of Neolithic sites in Central Asia

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Abstract: Central Asia, and the Ferghana Valley in particular, are important areas in human history. Nevertheless, complex multiproxy studies aimed at reconstructing paleoecological aspects of human economy and surrounding landscapes are rare, partly due to harsh sedimentary conditions not favorable for organic preservation. Microarchaeological methods (pollen, phytoliths, charcoal analyses, etc.) are essential for reconstructions from stratified archaeological sediments. The presentation presents the results of microarchaeological approaches conducted between the years 2019 and 2024 for sediment samples collected from the Istikskaya cave and rock shelters of Kurteke and Surungur. Pollen and phytolitic data from Surungur were used to reconstruct climatic aspects and the presence of walnut pollen since 7 ka BP. Macro-charcoal analysis of Surungur and Kurteke sediments helped to reconstruct fuel sources and showed climate-related change in fuel strategy for the Surunger site and use of dung as fuel since 9 ka BP. Calcitic dung spherulites were also used to identify dung use. Pollen and phytolith data from goat coprolites from different archaeological layers of Istikskaya were used to reconstruct climate and vegetation cover. The data obtained are in good agreement and are complementary to data from sediments of the site. The research was supported by RSF project 23-28-01347.

Keywords: Ferghana Valley, dung spherulites, pollen, phytoliths, macro-charcoal

Beyond the daily subsistence: rituals among the prehistoric farmers of the Inner Asian Mountains

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Abstract: The spread of domesticated plant species cultivation in Central Asia occurred several millennia later than the earliest evidence for the adoption of pastoral practises in this region. By ca 2500 BC the mountain valleys of the eastern Inner Asia became harbours for the first agropastoral communities, which formed permanent settlement sites, due to their ability to utilise the diverse environmental niches of their alpine landscapes. Previous research projects which have investigated these populations were heavily focused on the economic and adaptive subsistence strategies of early agropastoralists. However, little attention has been dedicated to understanding who were these first farming communities and what were the various aspects of their spiritual life. In this presentation we discuss different elements of the ritual burial practices found within cemeteries of the first farming societies of the Inner Asian Mountains. These practices have been noted during several research expeditions in the present territory of Kyrgyzstan, identified from both excavations and magnetometry surveys. We discuss several specific discoveries: The unusual insitu burning of multiple species of domestic animals and cultivated crops in ship-shaped stone settings, mysterious ash pits with evidence of burning entire ears of cultivated plants and the specific body parts of sheep and horses, layers of ash within burial grounds with crop remains and signs of deliberate pottery breaking, along with some enigmatic burials of a headless wolf puppy (identified using aDNA) next to an engraved stone which acted as a symbolic replacement for the wolf's head.

Keywords: Central Asia, rituals, spiritual life, agropastoralism, crop dispersal

Cereal storage or cereal processing or both? Some thoughts on post-harvesting activities in the Late Bronze Age Fergana Valley

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Abstract: Recent archaeological excavations at the early agricultural and pastoral village of Dalverzin in the Fergana Valley of Uzbekistan have revealed two unique pits containing several grinding stones from the lowest level, suggesting that these pits are associated not only with cereal storage but also with cereal processing. In this paper, we examine how we can interpret the functions of these pits by observing the morphological characteristics of the pits in comparison to other pits discovered at the site, and by examining the entire assemblage of finds from the pits. Although the analysis of the macrobotanical assemblages from the pits is still in progress, a preliminary identification of archaeobotanical samples from other trenches at the site has revealed a massive proportion of broomcorn and foxtail millet, rather than wheat and barley. In order to reconstruct dietary traditions at the site, our paper also includes preliminary results of starch analysis of the grinding stones to identify possible processed cereal species.

Keywords: Late Bronze Age, Central Asia, Cereals, Storage, Processing

Earliest pathways of broomcorn millet to the west

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Abstract: Among the earliest domesticated grass species is broomcorn millet (*Panicum miliaceum*). Archaeobotanical evidence indicates that its cultivation began simultaneously at sites across northern China around 5800 calBC, with full domestication traits, such as increased seed size, evident by 3300 calBC. Yuezhuang in Shandong stands as the oldest site with clearly domesticated broomcorn millet, dating back to 5876-5718 calBC. The emergence of sedentary lifestyles and small-scale villages approximately 6,500-5,000 years ago coincided with the earliest evidence of domesticated crops at sites like Cishan, Dadiwan, and Peiligang. The rapid dispersal of broomcorn millet from its region of origin in today's North China to Inner Asia to Europe during the Late Bronze Age raises questions. Modelling based on directly dated millet seeds reveals it to be among the quickest dispersing traits in the ancient world. Its spread followed an ecological belt from east to west, diffusing through established farming communities across West Asia and Europe at an average rate of 5.3 km per annum. In contrast, estimates suggest that Neolithic peoples took approximately 4,000 years to disperse from the Fertile Crescent to regions like central Spain and southern Scandinavia by 5,000 years ago. Unlike wheat, barley, rye, oats, maize, and other grass-derived crops, broomcorn millet exhibits unique ecological demands, thriving in warm, dry climates and poor soils. This specialization facilitated its rapid adoption by developed agricultural communities along its westward expansion, contributing to food security. These ecological advantages hold significant potential in a world grappling with rising temperatures

Keywords: Millet, dispersal, ecological traits

Eastern Caspian culture in the late Stone Age

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Abstract: The Caspian Sea shores likely played a key role in the historical processes that took place in the territory of the Near East and Central Asia. The history of the Caspian Sea during the final Pleistocene and the Holocene is characterized by sea level fluctuations, which include the Khvalinian transgression, the Mangyshlak regression, and the New Caspian transgression, with several stages of various magnitudes. Currently, few sheltered multilayer sites (Kaylu, Jebel and Dam-Dam Cheshme1 and 2), and several open sites (Kuba-Sengir, Dhanurpa, Kyzyl-Lay etc.) are presently known in Eastern Caspian. Recent reassessment of the materials from Eastern Caspian sites, based on lithic assemblage analysis, shows a single technological tradition during the Mesolithic and a complex pattern of cultural diversity in the Neolithic. Such a discrepancy between the presented cultures can be explained by different climatic conditions in the Mesolithic and Neolithic, and consequently, different types of economy. The Mesolithic industries are represented by hunter-gatherer complexes, while the Neolithic industries included complex multicomponent agropastoral economies. The research was supported by RSF 24-78-10127.

Keywords: Central Asia, Eastern Caspian, Neolithization, culture

Letting The Grass Grow Under Our Feet: Weedy Remains Of The Early And Mid-Holocene Neolithization In Central Asia.

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Abstract: The Tian-Shan and Pamir mountains have been an important cultural node of human movements between Central and Eastern Asia throughout the Quaternary. The Ferghana Valley provides a natural corridor, connecting the deserts and steppes to the mountains. Scattered along this geographical gradient of the Ferghana Valley and Pamir Mountains are caves and rock shelters with stratified archaeological contexts, providing unique archives of past human activities. The first results of archaeobotanical analyses of the samples retrieved from four rock shelters, Obishir 5, Istikskaya, Kurteke, and Surungur, are examined together with previous archaeological studies of the sites. Novel archaeobotanical data help to contrast food subsistence economies of valley and high-elevation settings, trace cultural exchange, and specify which wild plants and animals played a role in the economies of peoples before the onset of Neolithization. The finds of weedy seeds in all stratigraphic layers of the sites and their presence in dung remains serve as evidence of animal grazing on wild plants. Some of these small robust seeds might have represented wild foraged foods of the Holocene and served as a diet basis for peoples migrating to new habitats. Furthermore, the evidence of past resource use will be discussed in relation to the climatic transition we have identified: a transition from more humid climatic conditions in the period of 14-8.5 thousand years BP to aridization of the climate from 8.6-7.1 thousand years BP.

Keywords: Ferghana Valley, Pamir Mountains, Archaeobotany, weedy plants

Neolithic-Chalcolithic burial complexes of the Barnaul Ob region: problems of chronology and cultural affiliation

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Abstract: On the territory of the Barnaul Ob region, a number of large burial grounds and single burials have been identified, the materials of which reflect various aspects of the material and spiritual culture of the population over a long chronological period, starting from the Early Neolithic (the turn of the VIII-VII millennium BC) and up to the Eneolithic (mid III millennium BC). Burials differ in the funeral rite (“squatting”, extended on the back, burial on the side, burial in a “standing” (vertical) position). The set of archaeological artifacts is also unique (products and blanks of tools made of stone and bone, jewelry made from animal teeth, jewelry made from mollusk shells, jewelry made from bones or animal horns). This concentration and diversity of burial complexes is unique not only for the territory of Southern Siberia. Problems arise with the connection between settlements and burial complexes, since there is no ceramics in the burials, and anthropological finds are not presented at the settlements. There is also the problem of chronological correlation between settlements and burials. All dating of settlements was based on animal bones and coals, burials were dated on the basis of anthropological material. There is a chronological gap between them, since the human paleoration included fish and, as a consequence, here we record a reservoir effect. For the Firsovo-11 burial ground, a reservoir effect lasting about 700 years was recorded. The study was prepared with the help of a grant from the Russian Science Foundation, project No. 24-28-01030

Keywords: Neolithic, the Barnaul Ob region, burial in a “standing” (vertical) position

Origins of Production Economies in the Steppe Zone of Eurasia

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Abstract: Neolithization processes in the steppe zone of Eurasia were associated with the settlement of the first pastoralists and the expansion of the territory of production economies beyond the Fertile Crescent. The abundance of wild ungulates here created conditions for the development of more advanced forms of hunting with the usage of projectile weapons. At the same time, groups of bearers of geometric microliths, having crossed the steppe zone and preserving their technologies, very early reached fairly high latitudes, including the Southern Ural and Western Siberia. The process of the formation of an economy based on cattle husbandry here took shape only during the 5-4 millennia BC. In the western part of the steppe zone, it was associated with the taming of ovicaprids and cattle. In the eastern part, efforts were focused on the domestication of horses and cattle. Here these processes took shape by the middle of the 4th millennium BC and were associated with cultures of the Botai circle. It should be noted that the process of domestication was long and complex; therefore, the complete domestication of the livestock was preceded by an equally long period of early stages of livestock husbandry. This process had its roots in the Neolithic, as evidenced by the materials of the Borly settlement, which predates the Botai culture with an abundance of horse and cattle bones. Their study has not yet confirmed domestication; however, these people can be assumed to be associated with the period of nascent livestock husbandry.

Keywords: Central Asia

Push and pull factors in the adoption of innovations in plant economy: learning from the Neolithic

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Abstract: Movement and exchange of agricultural products bring innovations in food production and drive food globalisation. A diversity of factors modulate, enable or constrain the innovations, acting as a push or a pull to their adoption by producers and consumers. Among the pull factors identified by agronomic and market studies are technology, people and environment; some of the push factors are food availability, production potential and food waste. Neolithic ‘cropspace’ (Bray et al. 2023) have served as excellent laboratories for inferring push-pull connections in the adoption of innovations in early plant economies. This paper explores the relevance of these connections, and the legacy of Neolithic cropspace, for the innovations that came about (millennia) later, using the adoption of broomcorn millet cultivation as a case study. Millet is a well-studied prehistoric innovation demonstrating interconnectedness and integration of distant regions in the networks trading and circulating materials, objects and technologies. The paper addresses the question of which factors ‘pushed’ or ‘pulled’ the new source of food and the related agrarian practice into new regions and economies, and how the process benefitted from the Neolithic agricultural heritage. The paper also looks at the modern examples of adoption or revival of millet production, and there it learns more about the context and framing of successful innovations. (Bray, F., Hahn, B., Lourdasamy, J.B., Saraiva, T. 2023. Moving Crops and the Scales of History. Yale University Press)

Keywords: adoption of innovation, Neolithic legacy

R28 - Non-Sedentary Neolithic Cultures

Session Organiser

Ayça Avcı / Dokuz Eylül University, Türkiye

Erhan Aydođdu / Dokuz Eylül University, Türkiye

Abstract

The definition of the Neolithic Period of Asia differs from other parts of the world such as Mesopotamia and Anatolia. The Neolithic Age cultures, which continued the hunter-fisher-gatherer economy and nomadic lifestyle, are distinguished from the Mesolithic Period cultures by using pottery and some developments in the stone tool industry. Especially in Eurasian archeology, it is known that excavations belonging to the Neolithic Period were carried out in burial complexes due to these features. For this reason, cultures are mostly defined through burial traditions. On the occasion of the World Neolithic Congress, under the title of such a session, the Neolithic Period perceptions and research methods of researchers from different geographies can be recognized and evaluated.

About the Traces of Water-Related Beliefs in Southern Siberian Neolithic Cultures

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Abstract: Burial structures, which are the defining elements of the Neolithic Period cultures that have been well studied, especially in the eastern part of Southern Siberia (Cis-Baikal), are remarkably in contact with water bodies. This geographical feature is seen as a rule in all Neolithic and Eneolithic/Early Bronze Age cultures in Cis-Baikal from 6500 BC to 1500 BC. The fact that not only the burial structures but also the individuals in the burials have positions consonant with this connection shows the power of the water cult in the belief world of the region. In this study, in the light of data reflecting the traces of this belief in the Neolithic Period cultures of Southern Siberia, which has been studied for more than a hundred years, we tried to make comments on the world of thought and emotion of the people of the Southern Siberian Neolithic Period, taking references from the later cultures of Siberia and the surrounding regions. The study emphasizes that it may not be completely impossible to understand ancient people's perception of existence by looking at it from today, and that we can have an idea about it, at least partially. In this context, the aim is to trace the connections of the Neolithic Period cultures of the region with the previous and subsequent periods in terms of existential thought structure regarding death and life, under some conditions, and to realize their contributions to the formation of other subsequent cultures.

Keywords: Water cult, Burial traditions, Southern Siberia, Cosmogony, Ethnography

Evidence of Hunting Activity in the Middle Neolithic in the Surgut Ob Region

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R28

¹independent researcher

Abstract: In 2018, in the southern taiga part of the Central Ob lowland, on the left bank of the Bolshoy Yugan River (a left tributary of the Ob River), the Kulunigy 66 hunting complex was investigated, consisting of 7 pit traps, probably used for passive hunting of migratory animals. On the modern surface, oval-shaped pits with weakly defined embankments or without them, ranging in size from 4,3 m to 13,5 m, were recorded. On the surface the pits have a rounded shape in the upper part and a rectangular shape with rounded corners in the lower (at a depth of 1-1.5 m), the walls of the pits are inclined and steep, the bottom is flat. The sizes of the studied pits at the bottom level range from 1,05×2,3 m to 1,5×3,0 m, the depth from the modern day surface is 2,2-2,98 m. In the lower parts of the pit-trap fillings, carbonaceous remains were recorded, probably from wooden floor poles, structural elements for strengthening walls, or stakes. According to the results of radiocarbon dating (AMS ¹⁴C carried out at the collective center “Geochronology of the Cenozoic” Institute of Archeology and Ethnography SB RAS), after converting radiocarbon age to calendar age using the IntCal13 calibration curve of the OxCal program, trapping pits 2-7 are dated in the range of 5841-5301 years BC. (mid-6th millennium BC), trapping pit 1 - the latest - dates back to 5321-4817 years BC. (end of the 6th – beginning of the 5th millennium BC).

Keywords: chronology, the Middle Neolithic, the Surgut Ob region, southern taiga, hunting complex

Shore and shell-midden Rakushechny Yar site: the neolithic way of foraging communities (the Azov Sea basin)

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Abstract: Pontic-Caspian region reveals one of the earliest evidences of the Neolithic cultures in Eurasia with intensified foraging economy ca. 5900-5600 cal BC. It was much later, in the 5th mill BC, when single traces of productive economy were recorded in the northern part of the Pontic-Caspian region. Ancient communities were oriented towards shell middens and rich aquatic resources exploitation, seasonal and long-term occupation which left multilayer sites all manifested phenomenon of local Neolithic. Multilayer floodplain site with buried soils Rakushechny Yar located in the Lower Don basin allowed uncovering evidences of the initial Neolithic phase. Particular items and technological features found at this site show possible connections with southern Caucasian cultures. Resilience of these shore communities was embedded in diversification of ancient economy, oriented towards rich seasonal resource exploitation. The research was supported by RFBR (RCSI)/FDMH № 21-59-22008.

Keywords: Neolithic, Pontic-Caspian, shell middens, aquatic resources, Azov Sea basin

The Most Ancient Burial Complex of the Middle Neolithic of the Surgut Ob Region

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Abstract: In 2018, the Kulunigyi 64 burial ground, located on the elevation of the indigenous left-bank terrace of the Bolshoi Yugan River (a left tributary of the Ob River), was explored. During the archaeological excavations, 8 spots of burial pits were recorded, forming a row stretched from northwest to southeast. All grave spots are irregularly oval in shape, oriented along the northeast–southwest line, the boundaries are blurred. The walls of the grave pits were steep and gradually tapered towards the bottom. The nature of the filling of the grave pits is the same: in the southwestern part there is ocher filling, in the northeastern part there is whitish sand with carbonaceous remains on top, and below there is gray-yellow sand saturated with carbonaceous inclusions. The burials contained a complete pendant made of red shale rock (burial 1) and 4 fragmented stone arrowheads (burials 2, 5 and 7). The results of radiocarbon dating (AMS ¹⁴C was carried out at the collective use center “Geochronology of the Cenozoic” of the Institute of Archeology and Ethnography SB RAS) after converting radiocarbon age to calendar age using the IntCal13 calibration curve of the OxCal program allowed, based on the time period in which burials 2, 4-7 fall, to determine the time of formation of the burial ground in the range of 4230-4053 years BC. At the same time, the dating of burial No. 1 was removed from the series, since it is slightly out of this series (4653-4342 BC).

Keywords: subsoil burial ground, the Middle Neolithic, the Surgut Ob region, chronology, southern taiga

R29 - Breaking the Neolithic in Asia: Questioning Tropes, Recentring Boundaries and Nuancing Lifeways

Session Organiser

Jennifer Bates / Seoul National University, South Korea

Matthew L. Conte / Seoul National University, South Korea

Yeji Lee / Seoul National University, South Korea

JungWoo Choi / Seoul National University, South Korea

Kim Pangyu / Seoul National University, South Korea

Abstract

That the Three Age system and the subdivisions of the lithic ages do not work outside Europe and Near East has been debated in many forums. However, beyond this easily cited trope, the age-old idea of a “Neolithic” continually raises its head within literature. We see the presence of agriculture as a way to ‘mark’ the Neolithic, the absence of microliths as a marker of change, and ceramics used to debate the validity of chronological boundaries. Nuances underlying what this meant for the lives lived by people and the diversity underlying this in different regions are often overlooked in the eagerness to ‘find’ the Neolithic. The Neolithic has in essence become an ‘archaeo-geological age’ - so stratigraphically bounded and ubiquitous we find it hard to break from its presence. Local narratives are peripheralized in favour of an all encompassing, un-nuanced and imported age. In this session we invite papers that explore diversity and break the homogeneity of ‘Neolithic’ life in Asia, moving away from mere tropes to how new lifeways were adopted, assimilated, rejected or replaced in different parts of Asia. Debates in the Neolithic of Asia (e.g.: use of aquatic resources, the adoption of pastoral and agricultural systems, domestication, changes in technology) are sought to explore the diversity of what it was ‘to have been Neolithic’. Through this session we ask: is there something about the ‘Neolithic’ as a concept and term that helps people to understand the diversity of lifeways and societies associated with it across regions within Asia?

Rethinking Neolithic from Jomon: Recent advances in archaeobotany and zooarchaeology

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R29

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Abstract: Jomon is a period in the Japanese archipelago that is marked by the appearance of pottery. It lasted for more than 10,000 years before a full-scale agricultural culture centering on rice cultivation was introduced from the continent. It is impossible to discuss the various lifeways that developed in different regional environment of the archipelago over such a long period of time. However, the period is sometimes classified as “Neolithic” owing to the evidence of a highly sedentary life in some period/areas, the presence of cultivated plants, and considerable human modification of the surrounding environment, as seen in the management of chestnut forests. On the other hand, hunting, fishing, and gathering played important role in most cases, and food production did not occupy a crucial position. The essential difference from the “Neolithic” is that domesticated plants or animals did not lead to significant social transformation such as expanded reproduction, stratification, or the development of cities. In this presentation, we will introduce recent achievements in zooarchaeology and archaeobotany in Jomon studies, such as the increased evidence of soybeans and Azuki beans, or the issue of wild boar husbandry, to provide topics for rethinking the “Neolithic” in East Asia.

Keywords: Jomon, archaeobotany, zooarchaeology, Japanese archipelago

Archaeobotanical evidence from Wari-Bateshwar for the emergence of agriculture in the Bengal frontier zone.

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Abstract: This research elucidates recent archaeological findings from the Wari-Bateshwar site in Bangladesh, which reveal the initial phases of agriculture in an aceramic context. Despite its strategic location at the confluence of South and Southeast Asia and China, the Neolithic habitation of Bangladesh and its neighbouring regions in Northeast India and West Bengal has remained relatively understudied. The discovery of Neolithic tools such as hand axes, shouldered axes, and celts across the Pleistocene uplands and Tertiary hilly landscapes underscores the likelihood of longstanding Neolithic settlements and supports a rich historical inquiry into this region. Recent excavations at Wari-Bateshwar have unveiled successive stratigraphic layers that provide the earliest evidence of directly dated rice agriculture within the Ganges-Brahmaputra-Meghna (GBM) delta in the lower Brahmaputra valley, suggesting the onset of the Neolithic Period in this region by the beginning of the 1st Millennium BC which is comparatively later than the adjoining regions. Furthermore, the emergence of aus rice along with the introduction of japonica and indica rice varieties have implications for understanding the development of agrarian societies, supporting urban growth, and sustaining increasing populations in this deltaic region.

Keywords: Origin of agriculture, rice, domestication, Wari-Bateshwar, Bengal frontiers.

The issue of Archaeology studies on related ancient mass hunting of Neolithic

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Abstract: The desert kite is a well-known archaeological feature in the Middle East and Western Central Asia, but its role in East Asia is under-examined. This kind of archaeological feature was distributed over a large geographic area and it is not known whether they represent a single widespread tradition or multiple independent traditions. Desert kites have been dated from the Early Neolithic to the Late Bronze and Early Iron Ages. In this paper, we explore the possibility of identifying similar archaeological sites in East Asia based on comparisons with other regions and related in the Altay mountains. In the Gobi region of the Altai Mountains, stone structures similar to several desert traps have been discovered. These monuments are distinguished as the first to be found in these regions.

Keywords: Altay, Petroglyph, Mass-Hunting, Archaeological features, Neolithic of Mongolia

Fish, Milk and Meat: An assessment of changing subsistence and human-environment interactions in Neolithic South Asia using lipid residue

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R29

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Abstract: Our understanding of the origin and development of Neolithic Culture and Early Settled Villages (ESVs) in South Asia is limited and patchy, limiting our understanding of early subsistence practice, sedentary lifestyle and human-environment interaction. While there are only a few absolute dates available, it is generally agreed that at least by 5th millennium BP, Northeastern India witnessed the emergence of ESVs. However, considering the potential for East Asian influence it is likely that the emergence of ESVs along with rice cultivation, celts and cord-marked handmade pottery should date much older possibly going back to as early as between 10th and 8th Millennium BP. Unfortunately, despite of extensive potential in providing unique evidence of prehistoric human-environment interaction, due to the lack of preservation of organic remains, this region has never received the importance it should. In this paper, for the first time we discuss the results of absorbed lipid residue analysis from 44 cord-marked and other potteries from the site of Sonai, in Tripura, India. While the limited excavation at this site has revealed no residential structures, but a thick deposition of cord-marked as well as plain handmade pottery were found in primary context in association with “neolithic type tools” made on fossil woods, a typical stone age raw material in Northeastern South Asia. In this presentation we will discuss Neolithic foodways, the use of early pottery vessels and the influence of regional physical environment on early settled villages from Northeastern South Asia.

Keywords: Neolithic, Northeast South Asia, Lipid residue, Hand made pottery, Compound specific isotope

Insights into a Neolithic maritime economy: Recent archaeological research from Abu Dhabi's islands, United Arab Emirates

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Abstract: In this paper we explore the implications of new discoveries from recent archaeological excavations carried out along the coast of Abu Dhabi emirate in the southern Arabian Gulf. Investigations on Delma Island, Marawah Island and Ghagha Island have provided a new insight into Neolithic coastal life in the southern Gulf. Radiocarbon dates indicate that these coastal settlements were occupied by 6500 cal BC (on Ghagha Island), between 5800-4500 cal BC (on Marawah Island) and between 5400-4500 cal BC (on Delma Island). Remarkable settlements with stone architecture with clusters of stone-built rooms preserved to nearly one metre in height have been discovered on both Ghagha and Marawah Islands. Finds include interesting lithics assemblages, plaster vessel fragments, shell and stone beads and other artefacts. Here we will describe some of the key bioarchaeological remains discovered at these sites. These include relatively scarce evidence for the exploitation of terrestrial mammals, but abundant fish bones and marine shells, as well as evidence for the consumption of marine mammals, turtles and other marine organisms. Early evidence for the exploitation of what are presumed to be wild date palms has been identified from both Marawah Island and Delma Island, raising the possibility of them being harvested in Eastern Arabia prior to their subsequent regional domestication. Evidence of this highly specialised maritime economy demonstrates an alternative pathway and strategy utilised in this region of South-West Asia during the Neolithic period. It shows a complex interdependent economy that leveraged the region's rich marine resources on the Fertile Coast.

Keywords: Arabian Gulf, Economy, Fishing, Maritime, Neolithic

The Japanese Neolithic: new research on the Jomon period through the study of the sea and its use

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Abstract: Japan's Neolithic period is currently the subject of new research aimed at answering the still numerous questions about the so-called Jōmon Period (ca. 10,000 BC - ca. 1000 BC) and the origins of the archipelago's early socio-cultural structures. The International Research Institute for Archaeology and Ethnology (IRIAE) is pursuing its research by focusing on the sea and the role it played in Japan during the early Neolithic period. This has led to the identification of the island of Tsushima (Nagasaki Prefecture) as an extremely interesting area for understanding the first relationships that the local inhabitants had with Korean communities; relationships that strongly characterised the early social, cultural, and economic development of Japan. The land and underwater investigations that IRIAE is carrying out have focused, therefore, on two sites that are providing important data on the subject in question. These are the site of Meotoishimae and Ongaura, which are not only providing insight into the types and patterns of sea contact between the two populations, but also appear to have been the outposts of actual Korean settlements on the island. Both sites are characterised by the presence of freshwater streams that flowed into the sea and whose estuary is now below sea level. This, together with the conformation of the areas surrounding the two courses, the presence of archaeological evidence of Korean origin and the proximity of the, so far, only identified Neolithic landing place, make these sites a valuable case study for understanding the aforementioned issues.

Keywords: Jomon, Neolithic, Japan Archaeology, Sea, Whaling

The Neolithic lithic assemblage of Meghalaya plateau, North eastern India: An Appraisal

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Abstract: Archaeological records of South Asia and East Asia present easily distinguishable cultural and technological patterns. For instance, the distinction between the lithic technologies of South Asia (based on bifaces) and East Asia (based on flake tools) is evident from the Palaeolithic assemblages onward. Northeast India, located between these two distinct techno-complexes must have played a crucial role in the transfer and spread of the two technologies on either side. The Meghalaya plateau, which comprises the Khasi-Jaintia hills in Northeast India, has several Neolithic sites that incorporate lithic artefacts and ceramic assemblages similar to those in Southeast Asia. A significant part of the lithic assemblages from these sites, apart from a few typologically diagnostic artefacts, consisted of amorphous flakes that might have been used as impromptu tools; a fact that has not been investigated so far. The current paper analyses the lithic assemblages of the Meghalaya plateau to assess recognizable patterning of artefacts, especially the flakes. The paper also critically reviews the Southeast Asian affiliation of the Stone Age sites of Meghalaya plateau and nearby regions.

Keywords: Meghalaya, Hoabinhian, Southeast Asia, Northeastern India, Shortaxes

Jomonization process in Northern Japan: emergence of pottery and sedentism

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Abstract: This paper explores the correlation between the early pottery and the process of sedentism in northern Japan. Emergence of pottery is regarded as an element of Neolithic in the East Asia. While one of the oldest pottery is founded in the northern Honshu Island, it is still controversial whether this phase is categorized as a "Jomon" period or not. By reconstructing the chronological dates of the earlier periods of the Jomon/Neolithic based on the correlation between the estimated dates pottery types and the tephra chronology in the Towada volcano studies, the target period (17-9 ka) can be subdivided into ten phases. Among them, our recent excavation survey at Chojakubo site (CJK), which had gained wide attentions by the characteristic lithic assemblage including the edge-polished stone axe, provides the earliest calibrated date (16.3-16 ka) of wood charcoal found in the layer under the pyroclastic flow deposits with the key tephra (To-H; 15.5 ka). Since it was difficult to identify the exact date of earliest pottery only with charcoals adherent to pottery found in another site, CJK plays an important role to reconsider the emergence date of pottery. Site formation process of CJK might provide the clue to reconstruct the non-sedentary settlement in the Late Glacial Period. Furthermore, we illustrate the stratigraphical correlation between the pottery types and frequently-occurred eruptive events of Towada in the subsequent phases. As a result, it is likely that sedentary Jomon settlement sites with pit houses, storage pits and shell middens emerged after the long-lasting volcanic activities.

Keywords: Jomon, emergence of pottery, Lake Towada volcano, sedentism, tephra chronology

Lingjiatan: An outbreak of prehistoric jade and stone artifacts wave in East Asia

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Abstract: The Lingjiatan site, located in Hanshan County, east China's Anhui Province, dates back to ca. 5800-5300 BP. It became a regional central settlement of the lower reaches of the Yangtze River (LYR) around 5500 BP, with the characteristics of exquisite and unique jade and stone artifacts. The site, a significant prehistoric representative in using jade and stone artifacts in the LYR, initiated a new fashion, and influenced the development of the most famous jade and stone artifacts culture of Liangzhu thereafter. The jade and stone artifacts from Lingjiatan, both in terms of its form and making technology, clearly inherited the style of the Beiyinyangying Culture, mainly distributed in the Nanjing and its surrounding areas. On the basis of inheritance, Lingjiatan site innovatively created jade pendants with tooth patterned, carving technique, and numerous unique human and animal figures. These artifacts were buried in the tombs as funerary objects, showing a relatively clear burial rite. The phenomenon reflects that social complexity has significantly initiated at that time. Systematic regional archaeological survey conducted in its surrounding area of nearly 500 km² also shows a high concentration of population and settlements. The emergence of the Lingjiatan central settlement was closely related to the more stable agricultural settlements in the LYR, and increasingly growing demands for jade and stone artifacts corresponding to rituals need for social management. This demands reached its peak during the Liangzhu Culture, which created the glory of the most representative prehistoric jade culture in East Asia.

Keywords: Neolithic, jade and stone artifacts, lower reaches of the Yangtze River, Lingjiatan site, social complexity

Kayukovo 1 – a new sample of defensive architecture in Northern Asia

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Abstract: The Kayukovo 1 settlement was discovered in the middle reaches of the Ob River on the territory of modern Khanty-Mansi Autonomous Okrug-Yugra. The structure is dated by the turn of the 7th–6th mill. BCE. The settlement consists of 8 archaeological structures, situated in a checkerboard pattern, with an external wooden wall 1.5 m thick. Probably, the outer wall had not only a defensive function, but also was used for soil restraining. During the excavations of one of the dwellings we found the presence of two rooms – the upper and the lower. The upper one was obviously residential, there were ceramics and other tools discovered. The lower room had no finds; it could be a food cellar, and the living area was located above. This two-story residential structure is a new architectural tradition for the Neolithic of the North of Western Siberia untypical for the hunter-gatherers of the region, especially because it was obviously a long-term settlement, not a seasonal one. Two-story dwellings are common, for example, of the Chalcolithic community of Cucuteni–Trypillia, but never this early on the northern territories. Kayukovo 1 is the settlement with unique earth-wooden structure that precedes the beginning of the fortified defensive structures in the North of Siberia. Moreover, the origins of the flat-bottomed spheroidal ceramics, its potential connections with the ancient centers of Southeast Asia and the possible migration routes of ancient man from south to north are also issues to discuss, because this was probably one of the end points of mass migrations in Euroasia.

Keywords: north of Western Siberia, Neolithic settlement, ancient architecture, fortified residential complex

Paleolithic-Neolithic transition at the Shangshan site

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Abstract: The Shangshan Site is the earliest Neolithic site in the Lower Yangtze River Valley of China. The early occupation date back to 10,000BP. It is also the earliest example of the open-area settlement in southern China. Excavations at Shangshan have yielded flaked tools representing the Paleolithic lithic technology of southern China. Fiber-tempered pottery and material remains of early rice agriculture have also been discovered. Moreover, pebble tools, which are commonly recovered from southern cave sites, have been unearthed. These findings provide valuable archaeological data into the Paleolithic-Neolithic transition from cave-based to open-area settlements in East Asia.

Keywords: Shangshan Site, rice cultivation, lithic technology, Paleolithic-Neolithic transition

Recent Investigation at the Neolithic Site of Molapalayam and the Extent of Southern Neolithic Culture of India

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Abstract: Southern Neolithic Culture is an important Neolithic complex of India concentrated in the southern part of India, mainly south of 18° N Latitude. Archaeological excavations and research have revealed the temporal limit of this Neolithic complex between 3000 BCE and 1200 BCE. The research undertaken so far has revealed the southern boundary of the Neolithic cultural complex at Payyampally which is at 12.5514136 N, 78.2913061 E in the state of Tamil Nadu. Recent investigations have brought to light a Neolithic Site at Molapalayam in Coimbatore District, Tamil Nadu. The site is located at 10.932293 N, 76.820254 E in the Noyyal River Valley, which is part of the Kaveri drainage system. The site was excavated in 2021 and evidence of polished stone axes, burnished ceramics, settlement activities, human burials and floral and faunal remains including *Oliva* sp shells were recovered. AMS radiocarbon dates have placed the site tentatively between 1600 and 1400 BCE, clearly suggesting Neolithic antiquity. Three human skeletons were recovered from the site in the residential area. The site had many pits which were perhaps used for residential as well as storage purposes. Animal bones indicate cattle and sheep-goat pastoralism. Plant remains suggest the prevalence of millet cultivation. The paper presents an account of the Neolithic materials recovered from the site and their importance in understanding the extent of the Southern Neolithic culture.

Keywords: Southern Indian Neolithic Culture, Noyyal River Valley, Kaveri River Basin, Ash Deposits, Burnished Ceramics

R31 - Neolithic Migrations and Adaptations: From East Asia to the Indo- Pacific

Session Organiser

Hsiao-chun Hung / Australian National University, Australia

Hirofumi Matsumura / Sapporo Medical University, Japan

Khanh Trung Kien Nguyen / Southern Institute of Social Sciences, Vietnam

Abstract

This session delves into human migrations dating back to the Neolithic period in the East Asian mainland, when ancient rice and millet farmers migrated from the core areas of early agricultural zones in Central China to various other regions, including different parts of China, Taiwan, Japan, Mainland and Island Southeast Asia, and the Pacific Islands. The session aims to present and analyze state-of-the-art evidence from archaeology, physical anthropology, genetics, and linguistics across the region.

Participants in this session will offer insights into the timing, routes, motives, processes, and adaptations of these Neolithic dispersals, which have played a significant role in shaping the contemporary landscape of East Asia and the broader Indo-Pacific region.

“Two Layers” of Ancient Hunting-gathering and Farming Populations in Eurasia, Revealed through Analysis of Cranial Morphometrics

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R31

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Abstract: This study explores the ancient population movements by Neolithic farmers and their impacts on the prior populations of hunter-gatherers across Eurasia, as reflected in the cranial morphometrics of human skeletal remains, including classic 2D linear measurements and new 3D homologous template fitting. With these datasets, we applied multivariate statistical analysis to test whether or not a “Two layer model” was accurate in Eurasia, namely involving an older population of hunter-gatherers with tropical African features, overlain by later migrations of Neolithic agriculturalists with different features. In eastern Eurasia, the later features of agriculturalists involved adaptations to a cold climate. In western Eurasia, the later agriculturalist features involved adaptations to a dry environment. So far, our analysis has shown overall congruence with the “two layer model”.

Keywords: Neolithic farmers, hunter-gatherers, cranial morphometrics, Two layer model

Ancient DNA in Southeast Asia

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Abstract: In 2018, insight from ancient DNA studies confirmed that the transition from Hunter Gathering to Neolithic Farming in Southeast Asia was accompanied by the migrations of people from the north. However, the limited number of genomes from the surrounding regions hindered the ability of these studies to determine potential source regions in more detail. In more recent years, a series of papers containing ancient whole genome and genome-wide data from India, Nepal, China and Taiwan have been published. As a result, additional context can now be provided to the original Southeast Asian genomes.

Keywords: ancient dna, southeast asia

Reconstructing the Spread of Agriculture into Southeast Asia: Insights from Archaeobotanical Evidence

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R31

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Abstract: The timing and routes of agricultural spread into Southeast Asia have long been subjects of debate, particularly concerning their connection with the formation and dispersal of Austronesian and Austroasiatic peoples. A key factor contributing to this debate has been the lack of systematic archaeobotanical research in the relevant regions. However, over the past decade, targeted efforts have been undertaken at many archaeological sites across southern China, Island Southeast Asia, and Mainland Southeast Asia, yielding solid evidence that enables us to reconstruct this process more accurately. By around 5000 cal. BP, or slightly earlier, a form of mixed agriculture involving millets and rice had already spread into the southeast and southern coasts of the Chinese mainland. Both the crop assemblage and rice grain metrics of these regions suggest a possible dispersal route via Jiangxi Province, ultimately originating from the middle Yangtze Valley. Subsequently, agriculture further dispersed into Southeast Asia along two main directions: one route led from Fujian to Taiwan around 4800-4500 cal. BP, then to Luzon around 4000 cal. BP, and finally to Sulawesi by 3500 cal. BP. The other route extended from the Pearl River delta into the coastal areas of mainland Southeast Asia, reaching the southern part of Vietnam and Thailand around 4500-4000 cal. BP, along with possible contribution of another inland route originating from southwest China. This process of agricultural dispersal coincided with population migrations and other technological changes, as evidenced by ancient DNA analysis, funerary customs, and material culture features.

Keywords: Agriculture dispersal, rice, foxtail millet, broomcorn millet, Southeast Asia

First island farmers in the South China Coast

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Abstract: The spread of agriculture and population from Mainland East Asia to the islands of Southeast Asia and Oceania was the last and far-reaching prehistoric phenomenon in the Pan-Pacific region, but when their sea voyages began, was unknown and contested. Here, we perform phytolith and OSL dating analysis on two Neolithic shell mound sites on Haitan Island of Southern China Coast. Our results indicate that two occupation peaks of the Kequtou Culture occurred at 6.8 and 5.5 ka, respectively. Continuous rice phytolith records, including rice bulliform, are observed through the neolithic layers of two sites. Moreover, we found rice bulliform phytoliths with ≥ 9 fish-scale decorations accounted for 41%, which is higher than the established standard for wild rice, suggesting that rice cultivation had already emerged at 6.8ka but probably older on the Haitan Island of Southern China Coast. These findings provide the earliest presence of rice cultivation on the Haitan island, adding evidence to the first farmers' sea voyages and colonization of the islands of the Southern China Coast.

Keywords: rice phytolith, Austronesians, Agricultural Dispersal, Island Southeast Asia

The Neolithization of Taiwan and Hainan Islands: The Emergence of Austronesian and Kra-Dai Peoples

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Abstract: Austronesian populations inhabit two-thirds of the world's water-covered areas, mainly in Island Southeast Asia and the Pacific Islands. Taiwan is widely regarded by archaeologists and linguists as the homeland of the Austronesian populations. Recent ancient DNA studies have confirmed the out-of-Taiwan model. The Kra-Dai people, another language group, are distributed from Hainan and southwest China to Laos, Thailand, and Vietnam. This presentation examines the oldest inferred Neolithic contexts in Taiwan and Hainan, as shown in Neolithic sites and layers with pottery and signs of sedentary settlement. First, we will establish the starting date based on site formation layers and radiocarbon dating. Next, we will discuss the Neolithic package, including crops, animals, housing structures, burial practices, pottery, other artifacts, food middens, and material culture remains. By comparing findings from both sides of the strait and their dated periods, we can identify the Guangdong coast of mainland China as the likely source of the early Neolithic migrants. Recent discoveries in Hainan show similarities to those on the Guangdong coast, with parallel Neolithic cultural development and similar pottery to that found in Taiwan. We propose that the earliest farming societies in Taiwan (Austronesian) and Hainan (Kra-Dai) originated from the Guangdong coast. They likely split into two distinct language families and settled in Taiwan and Hainan around 4,800 years ago. This result supports the view of several linguists who previously proposed the homologous origin of the two language families.

Keywords: Neolithic, Taiwan, Hainan, Austronesian, Kra-Dai

Exploring Unique Settlements: Circular Earthwork Sites in Southern Vietnam, Mainland Southeast Asia

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Abstract: This presentation will begin with a brief introduction to the Neolithic phase in Southern Vietnam, followed by an exploration of the circular earthwork sites located in Southern Indochina (Vietnam and Cambodia), dating back 4000 to 3000 years BP. These sites are unique forms of prehistoric settlements characterized by large circular areas of communities enclosed by ditches and earthen-walled structures. Most of them have been discovered in the red-soil plateau of Binh Phuoc Province in Vietnam, as well as in Kratie and Kampong Cham Provinces in Cambodia. Recent field surveys have revealed over 100 of these sites, with 36 in Cambodia and 70 in Vietnam. Notably, the shape and size of these settlements evolved over time, likely influenced by local resources and population dynamics in the region. The author will present the latest first-hand information, including details on the spatial distribution, layouts, AMS dating of the sites, as well as excavated artifacts and plant remains. This comprehensive analysis aims to enrich our understanding of these distinctive settlements in Neolithic Mainland Southeast Asia.

Keywords: Neolithic, Vietnam, Indochina, Circular Earthwork Sites, Agricultural Society

A reconsideration of the fragmentation and continuum of cultural aggregates in Neolithic Eastern Taiwan

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Abstract: Since the beginning of earliest settlements of Neolithic farmers appeared in the Taiwan at least 5000 years ago, flourishing archaeological manifestation of diverse adaptations have attracted broader discussions among scholars. While many focused on differentiation of regional materials of the similar horizon, I will re-examine archaeological findings from eastern coasts in the past 20 years through temporal axle. This study is centered on scrutinizing unearthed ceramic assemblages to postulate each's evolutionary direction in order to argue a fragmentation or continuity between locally preceding and subsequent assemblages. This long-term approach will enhance our understandings on distinct evolutionary scenarios in identical socio-ecological backgrounds or similar adaptation toward diverse niches vise-versa. A regional comparison will follow to improve our interpretation of local Neolithic cultural developments of more than three millennium.

Keywords: Long-term approach, Neolithic coasts, cultural evolution, fragmentation and continuum

Human migrations and Ancient Tooth Ablation Custom in Southeast Asia (5000–2000 BP)

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Abstract: Ritual tooth ablation, involving the deliberate removal of erupted anterior teeth, serves as a significant bodily alteration that provides insights into group identity and leaves discernible traces in archaeological remains. This practice is notably prevalent in the Asia-Pacific region, with origins dating back to 7000 BP in East Asia among agricultural communities and spreading during the Neolithic across Southeast Asia, formerly inhabited by hunter-gatherers. Taiwan and Vietnam stand out as crucial regions for understanding demographic shifts and human interactions since the Neolithic, acting as pivotal crossroads linking continental Asia with both Island and Mainland Southeast Asia. This study focuses on tooth ablation as a cultural marker, examining its development in Taiwan from 4800 BP and Vietnam from 4000 BP. Through a comprehensive synthesis of local evolutionary trajectories and detailed analysis of archaeological and ethnographic evidence, our research underscores the socio-cultural significance of this practice in these regions. Furthermore, it elucidates its role in shaping group identities and contributing to the expansion of linguistic populations. By contextualizing these findings within broader issues of identity formation, cultural practices, and interregional contacts across the Asia-Pacific, this study enriches our understanding of ancient societies and their dynamics.

Keywords: tooth ablation, bio-cultural trait, human migration, Vietnam

Crops domesticated in East Asia spread across the Himalayas to South Asia

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Abstract: Due to the relatively small amount of archaeological work on the Tibetan Plateau, whether the spread of wheat-barley agriculture to the east or the spread of millet agriculture to the west, was generally believed to have passed through the Eurasian steppe or the Hexi Corridor of China. In recent years, we have been excavating the Mabu Co site in Tibet, which is more than 4440 meters above sea level, and here we report the latest research progress. Through the systematic study of plant remains recovered from the Mabu Co site, it is found that during the period of the second half of third millennium B.C., millets and rice were spread across the Himalayas to South Asia, especially the trans-Himalaya spread of japonica rice domesticated in the middle and lower reaches of the Yangtze River, which promoted the domestication of indica rice in South Asia. Crossing the Himalayas is also a very likely route for the backspread of indica rice to East Asia.

Keywords: millets, rice, high-altitude, Tibetan Plateau

An aceramic Neolithic in Northeast India

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Abstract: Ethnographic and archaeological data from Arunachal Pradesh, Northeast India, provides evidence for an almost complete inversion of the characteristic narrative of the Neolithic. From Kameng in the west to Anjaw in the extreme east, a range of populations seem to have made the transition from foraging to iron use without passing through a ceramic phase. Even today, memories of a hunting-gathering past remain vibrant and more significantly, one population continues to subsist on wild sago without the use of iron tools. In the east of the region, there is evidence for the use of stone bowls for cooking, before being replaced by large cauldrons. In the west, stone bowls are absent, and the transition from roasting/grilling to cooking in metal vessels appears to be seamless. These populations were engaged in active trade networks with peoples who had both potters and blacksmiths. Although remaining entirely dependent on wild foods, they raised domestic animals, typically goats, and the cultivation of domestic plants such as the chili for sale to their trade partners. The widespread consumption of domestic plants and animals has only been adopted in the last three decades. Despite being foragers, these populations had complex social stratification, including both slavery and serfdom. The paper describes these remarkable systems in some detail and asks why such transitions are otherwise apparently rare globally. It suggests that we may need to take a more sceptical eye to typical progressivist narratives of the Neolithic, with respect to food production, ceramics and acephalous social structures.

Keywords: Neolithic, Foraging, Aceramic, NE India

Revealing Two Types of Nephrite and Their Trading Systems in Prehistoric Japan: Non-Invasive Lithological Investigation of Stone Artifacts from Early Jomon Sites

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Abstract: The production and exchange of jade, particularly nephrite, reached its peak during the Neolithic phase in East Asia. However, understanding the utilization of nephrite among hunter-gatherer societies, as well as the exchange patterns of nephrite objects between hunter-gatherer and farmer societies, remains rather limited. Here, we report a series of lithological investigations of stone artifacts and geological sourcing for the Initial and Early Jomon Periods, representing typical hunter-gatherer phases. Non-invasive analyses using p-XRF and SEM-EDS revealed various monomineralic rocks used for tools and ornaments. Among the findings, large quantities of nephrite artifacts were found in central and northeastern Japan. These nephrites can be categorized into white (Fe-free tremolite) and green (actinolite dominant) types based on mineral chemistry. Tremolitic nephrite ornaments, such as slit rings and fragments, were confirmed in limited central Japanese sites but disappeared after the Middle Jomon Period. Previous researchers assumed that such white slit rings originated from farming societies in northern China, based on typological studies. Geological evidence indicates that tremolitic nephrite is not from domestic deposits in Japan but from eastern Eurasia. Now, analytical results support the hypothesis of material transportation from the East Asian mainland. Conversely, actinolitic nephrite artifacts, mostly axes and chisels, were widespread in East Japan, sourced from local deposits in the Hida marginal tectonic belt in central Japan. This suggests domestic transportation of nephrite had begun before the widespread of Jadeitite (Jadeite jade) in Japan. The study reveals two intriguing patterns of nephrite exchange networks in the Early Jomon Period.

Keywords: Neolithic, Jomon, nephrite, portable-XRF, Japan

Neolithic Prototypes of Sanxingdui Ritual Bronzes

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Abstract: A bronze “sacred altar” or “altar of spirits” belonging to the end of the 2nd millennium BC was found at the Sanxingdui site in Sichuan province of the PRC. This find measures 53 cm tall and consists of four levels. The bottom level is represented by zoomorphic beings. The level above consists of four big standing anthropomorphic figures, followed by a level of four mountains and the topmost part is the square bronze box, the so-called “celestial chamber”. In the middle of each “chamber” wall, there are wide openings with rows of small kneeling figurines inside. The second level figures’ heads are mounted with V-shaped hats from the middle of which rise flat anthropomorphic images with long necks wearing fancy headdresses. These figures depicted on different levels of the “sacred altar” may have Neolithic roots. Kneeling figures in the “celestial chamber” have headdresses resembling hoops of twisted ropes. Similarly, such a headdress resembling the hoop of twisted rope can also be found in a carved jade head from W7 urn burial at the Xiaojiawuji site of Shijiahe late Neolithic culture in Hubei province. This jade head dates back to the end of the 3rd millennium BC. One more parallel to “sacred altar” figures has also been found among jade Shijiahe artifacts. A flat jade head with a long neck and a fancy headdress resembling those rising from the middle of the V-shaped hats of Sanxingdui figures was also seen in W6 urn burial at Xiaojiawuji cemetery.

Keywords: Sanxingdui, migrations and contacts, ritual bronzes, Xiaojiawuji cemetery, Neolithic prototypes

SITE-BASED / RECENT RECOVERIES

P – Recent Finds, Recent Recoveries

Big caves and Neolithic open air settlements in the Upper Guadaljuz river (Andalusia, Southern Iberia). Latest archaeological works in Mármoles Cave and Cerro del Cercado (Priego de Córdoba, Spain))

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Abstract: The beginnings of farming and animal husbandry in southern Iberia are usually traced from 5500 cal BC (c. 7450 cal BC) onwards. In this territory, it is not usual to trace the archaeology of the Early Neolithic through several well-preserved archaeological sites, both in caves and in the open air. In this study, we present the latest works regarding a small area in Central Andalusia, known as the Priego-Alcaudete Basin or Upper Guadaljuz River Valley. Showing a typical bioclimatic range of thermomediterranean type, this territory has a Triassic geology with fertile marly soils. Mineral resources include gypsum, abundant iron oxide, and salt, which may also have contributed to a large distribution of archaeological sites, including cave and open-air settlements. Mármoles Cave stands out among the subterranean sites. Excavated during the 1980s, new work was carried out in 2018, resulting in part of a storage structure with a large amount of charred cereal and crops. The archaeological survey carried out inside, proved a dense human occupation at the end of the 6th millennium BC. Among the open-air sites in this territory, several archaeological works were carried out between 2022 and 2024 in Cerro (Hill) Cercado. This site, which covers an area of nearly four hectares, shows architectural features, including pits, postholes, and stone block structures. Both enclaves provide major examples for understanding the distribution of the settled landscape in the inner part of Andalusia during the Early Neolithic.

Keywords: Early Neolithic, Southern Iberia, Open air sites, Caves, Dwellings

Digging ditches: The Mangolding Neolithic earthwork complex (Bavaria)

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Abstract: In the Neolithic, earthworks were repeatedly constructed at central locations. This need for collective communal work at the same place was observed several times in Bavaria. To the east of Mangolding, one such earthwork complex was fully explored by a magnetometer prospection. An oval-rectangular earthwork with an internal area of 3.1 ha was recognised. At least three causeways once provided access. To the north of it is a large oval ditch with an internal area of 1.8 ha and a maximum diameter of around 160 m. This is followed upslope by a smaller complex of three ditch rings. The three representative access areas, which consist of inwardly tapering earth bridges, are remarkable. This earthwork encompasses the highest point in the surrounding area. In the Final Neolithic, settlement activities shifted 3 km upstream, where two enclosures were erected in the typical style of the Altheim and Cham cultures. Ditch systems could be set up in a relatively short time, and the spatial relationship between contemporaneous settlements and monumental earthworks is of particular interest. Once they had fulfilled their purpose, they remained recognisable for subsequent generations as monuments of former landscape design. It is unclear whether settlement continued without interruption from the Early to the Final Neolithic. A pulsating settlement activity with alternating centres over the course of two and a half millennia is the most likely possibility. In this respect, continuity depends on the chosen spatial and temporal parameters.

Keywords: earthwork complex, continuity, persistence of causewayed enclosures, Bavaria, Early to Late Neolithic

Route of Megalithic Culture - A Cultural Route of the Council of Europe

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Abstract: The European Route of Megalithic Culture serves as a platform for museums, geoparks, scientists, and experts in tourism from Denmark, England, Germany, Lebanon, The Netherlands, Portugal, Spain, Sweden and Türkiye to underline the outstanding importance of the megalithic culture for European history, to rediscover and promote the tourism value of its monuments and, in this way, improve their protection as part of the common cultural heritage. The goal of the Association is to link together a selection of the oldest monuments of Europe by cultural routes which not only lead to the megalithic monuments but also highlight the manifold features of the surrounding landscape. Throughout Europe there is a close link between the origin of megalithic monuments and the early history of the cultural landscape: both begin at the same time and symbolise the first efforts of human communities to tame nature and shape the natural environment. The “Megalithic Routes” project is committed to the principles of “low-impact tourism” and refrains from any irreversible measures affecting the natural environment when developing opportunities for tourism. Priority is given to the use of existing roads and nature routeways as well as promoting mobility in harmony with nature and current social and recreational trends such as hiking and cycling. Moreover, museums and educational institutions such as schools, colleges, universities, charities, and public bodies are being encouraged to develop new cross-border collaborations in the field of youth education and European exchange programmes for children and young people on the subject of “Megalithic Roots”.

Keywords: Heritage, Tourism, sustainability, Heritage protection, Cultural Route of the Council of Europe

The Neolithic Trajectory and Social Complexity in the Shandong region in eastern China

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Abstract: The Shandong region is an important part in the cultural territory of the Neolithic in China. In recent years, many important discoveries have been found in various periods with the large-scale development of archaeological work. These discoveries continue to improve and supplement the regional archaeological cultural sequence, such as the discoveries of Zhaojiaxuyao, Bianbiandong, Zhangmatun and other early Neolithic relics, so that finally the Neolithic culture of Shandong is presented as a relatively complete sequence. Moreover, the trajectory of settlement and social development of this cultural sequence has become more clearly with comprehensive study, especially the accumulation of a large number of settlement archaeological sites in Dawenkou Cultural and Longshan cultural, especially the emergence of a series of city sites, such as Jiaojia, Gangshang, Dawenkou, Gaixia, Chengziya, Liangchengzhen, Dinggong, Tonglin sites that have been continuously excavated in recent years, which enables us to make a credible description of the social development level at that time.

Keywords: Neolithic trajectory, Regional society, Society complexity, Settlement, City-state

The Niuheliang Complex and the Social Complexity Process of Hongshan Culture

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Abstract: The Hongshan Culture is the most important prehistoric archaeological culture in northern China, distributed in the eastern part of the region, especially found in Liaoning Province, Inner Mongolia Autonomous Region, and northeastern Hebei Province. It covers an area of approximately 300,000 km² and dates back approximately from 6500 BC to 4900 BC. The Niuheliang Complex, located in Chaoyang, Liaoning Province, is the center of sacrificial rituals in the middle and late phases of the Hongshan Culture. It consists of more than 40 Hongshan Culture localities, including a group of platforms, elite tombs constructed with stone slabs, altars, and other relics. The first locality consists of 9 huge platforms, with hydraulic facilities, such as symmetrical drainage ditches, water-retaining walls, as well as religious buildings such as the Goddess Temple. The Niuheliang Complex, along with several other sacrificial and ceremonial sites, forms a three-rank sacrificial system, which suggests that there was already a complete social stratification system in the middle phase of the Hongshan Culture and that it had entered a civilized stage.

Keywords: Chinese Neolithic, Hongshan Culture, Niuheliang

The High-Altitude Macroband Camp of Tuco Ragra: Aggregation and Ceremonies During the Neolithic in the Peruvian Andes (5000 - 3800 BP)

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Abstract: The Neolithic in the Andes is defined as the Late Archaic period (5000 - 3000 BP). During this time, mobile groups settled in villages along valley rivers and shorelines of the Pacific Ocean. The current archaeological consensus assumes a whole level of sedentarism as a prerequisite to forming villages, as well as leadership organizations for erecting monuments for ceremonial purposes. In contrast, the social organization in the high-altitude (above 3800 masl) is typically documented as small hamlets for camelid herders with high levels of mobility: a strategy to overcome the domestication and management of South American camelids. Among these high-altitude mobile societies, only a few sites can be defined as monuments, usually explained as products of early sedentarism, leadership coordination, or rapid cultural change. Nevertheless, the newly discovered site of Tuco Ragra provides the opportunity to extend our understanding of monuments in mobile societies in the Andes. Tuco Ragra is a 50-hectare site with 133 huts, corrals, communal structures, and four megalithic shrines. We interpreted this settlement as a macroband camp that is a gathering place for dispersed foragers and early herders' groups. This type of site offers an alternative explanation of seasonal sedentism for dispersed mobile populations that come together on a seasonal basis to fulfill ceremonial agendas and social reproduction.

Keywords: Andes, Macroband, Aggregation, high-altitudes, megaliths

The Epipaleolithic-Neolithic transition at Medjez II (north-eastern Algeria): New insights into the neolithization process in Northwest Africa

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Abstract: Medjez II, an open-air site excavated in the 1960s, is known as one of the most important sites of the Upper Capsian (an Epipaleolithic culture), both for the extent of its surface, the depth of its archaeological deposit, the richness of its archaeological remains, and for its numerous burials. The new excavations (2014-2023) have yielded a rich and varied archaeological material, including lithic and bone industry, faunal remains as domestic species, ornaments, ceramics, an Associated Bone Group (ABG) of a domestic sheep, human bones (isolated and a burial) and well-preserved habitat structures. These new finds reveal a rich Neolithic level and an Epipaleolithic-Neolithic transition level, which already shows the first signs of a behavioural change in relation to the previous levels attributed to the Upper Capsian culture. In addition, this work provides new radiometric dates from the current excavation sequence. This new evidence from the Medjez II site brings new insights into the process of neolithization of the Capsian populations of north-eastern Algeria in particular and for the north-west African region in general.

Keywords: Algeria, North-West Africa, Epipaleolithic, Upper Capsian, Neolithization

First Farmers of the Deccan: Reconfiguring the Entrenched Narratives

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Abstract: Deccan Chalcolithic (c. 2450 – 900 BCE), comprising the first farming communities in western India, has been one of the most extensively studied archaeological cultures in the domain of non-Harappan protohistoric South Asia. These studies led to a construction of detailed narratives about their lifeways as well as the cultural chronologies, including the much-debated terminal phase Late Jorwe and its exact nature. Deccan Chalcolithic sites are seen as predominantly single-cultured loci having almost uniform intra-settlement morphology, with the presence of terminal phase limited to the Bhima valley which would corroborate the hypothesis of environmental adversity resulting into the abandonment of sites and sedentary lifeways. However, the discussions have almost always centred on the prior excavations, chiefly that of Inamgaon in the upper Bhima valley, and the data available from the surrounding area. In the light of the available data from the upper and lower reaches of Bhima valley, a systematic survey was carried out in the almost unexplored middle Bhima valley – which had the highest probability of yielding the record of the elusive terminal phase. The survey, carried over 9500 sq.kms through a mix of sampling methods, yielded 11 new chalcolithic sites. Apart from this survey the present author also discovered, for the first time, Late Jorwe sites outside the Bhima valley. These constitute 2 in the upper Krishna valley and 1 in the Manjra valley. The nature of evidence therein challenges the entrenched perceptions mentioned above and underline the need to reconfigure the present discourse on the Deccan Chalcolithic.

Keywords: Deccan Chalcolithic, Late Jorwe, Bhima valley

New Contributions to the Neolithic in Upper Mesopotamia: Late Neolithic Pottery from the Hakemi Use

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Abstract: The Hakemi Use settlement which is located within the borders of Tepe town in Bismil district of Diyarbakır province is extremely important in terms of adding new information to the Late Neolithic Age data of Upper Mesopotamia. Started in 2001, the excavations were carried out under the scientific supervision of Halil Tekin within the scope of the "Project for the Documentation and Recovery of Cultural Assets to be Submerged Under the Lake Waters of the Ilisu Dam". During the excavations, traces of three different periods were found in the settlement. While the data from the earliest period provide information about the Late Neolithic Age, the data from the latest period belong to the Iron Age. The Late Neolithic pottery of Hakemi Use, which will be analyzed in this study, indicates that site's pottery assemblage contain with the same characteristic features in Upper Mesopotamia extend to the Upper Tigris Valley. The Late Neolithic pottery which belongs to the five different levels (Hassuna-Samarra) is categorized in four main groups. The main aim of this study is to make a comparative evaluation of the ceramics belonging to the standard, dark-faced burnished ware, qualified ware and qualified orange ware groups and to determine their importance in the Upper Mesopotamia Region within the period.

Keywords: Hakemi Use, Hassuna-Samarra, Late Neolithic, Pottery, Upper Mesopotamia

Chagar Bazar (Upper Khabour, Syria: New Data on Paleoeconomic Management in Halaf Communities

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Abstract: Chagar Bazar, located in modern-day Syria, stands as a significant archaeological site shedding light on the Halaf phenomena. The site offers a glimpse into the lives and developed cultures of late agricultural societies in the Near East at the end of the Neolithic period. Through excavation and analysis, new data have been unearthed with the aim to go further in our understanding of ancient human societies and their interactions with the environment. Chagar Bazar exemplifies this transition, showcasing evidence of agricultural practices (field and forest resources) at the beginning of the Halaf period, including the cultivation of crops such as cereals (emmer wheat, naked wheat, einkorn or two-row barley) and pulses (grass pea, bitter vetch or lentils), including flax, accompanied by weeds that come mainly from the crops. Forest resources, represented by wood charcoal indicate the presence of different species of trees, such as fig, ash or deciduous oak. The site's strategic location near water sources and fertile land likely played a crucial role in its development as a thriving agricultural community. One of the most remarkable aspects of Chagar Bazar is its extensive set of archaeological remains, which include domestic structures, storage facilities, and communal spaces (firepits, tannurs). Excavations have revealed the layout of the settlement, with evidence of carefully planned architecture and infrastructure. In this contribution new data on domestic layout and plant remains further illuminate's subsistence strategies, dietary practices in an anthropized process of the landscape management.

Keywords: Upper Khabour, Chagar Bazar, anthracology, carpology, settlement pattern

Transcending the Neolithic by Prehistoric Reformation: Interpreting the Ubaid Period at Tepe Gawra

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Abstract: During the 5th millennium BC, under the action of Ubaid interaction sphere, the material culture of Northern Mesopotamia changed from local Halafian style to Ubaidian style originate from Southern Mesopotamia, which was named the Northern Ubaid. By analyzing the material culture from Tepe Gawra, including pottery, architecture, burials, and clay objects, it is clear that the formation of Northern Ubaid culture underwent three different cultural processes. In the first phase, Ubaid pottery-making and firing techniques were adopted by a small group of people in northern Mesopotamia. In the second phase, the painted pottery and temples of the Ubaid culture were introduced and simulated proactively by local society. In the third phase, local communities were forced to accept Ubaid religious rites and burial customs aggressively promoted by the people from southern Mesopotamia. Through these processes, especially the second phase, social relations in northern Mesopotamia changed, which then catalyzed the improvement of the administrative system and the emergence of theocracy. Taking the transition between the first and second phase at Tepe Gawra was likely the consequence of selection and imitation by local people into consideration, the process could be regarded as “prehistoric reformation”. Ultimately, new social complexity emerged, ending the Neolithic and transcending the Neolithic.

Keywords: Mesopotamia, Halaf-Ubaid transition, Tepe Gawra, Cultural interaction, Prehistoric reformation

Pottery Unity in Diversity: Red on White Ware and Neolithic Cultural Synthesis in Cyprus

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Abstract: This presentation will critically analyse how the Neolithic ceramic styles evolved in Cyprus. It will further discuss how island-wide Late Neolithic experienced significant cultural synthesis and exchange, evident in its pottery styles. The dominance of red-on-white pottery, in the northern regions, characterizes the island's Late Neolithic Period. This ware is represented by Vrysi, Troulli and Philia indicating an interconnected tradition across the island. The uniformity of the linear patterns, lines, circles, and triangles across settlements suggests a widespread, easily replicable pottery-making practice. Similar pottery styles were shared islandwide in the 5th millennium and on the mainland settlements in the 6th millennium BC. This delay conceivably highlights Cyprus's subsequent interaction with the mainland, as the island's geographical isolation and distinctive customs facilitated a slower rate of cultural change. It is also plausible that contemporary sites may have existed but remain undiscovered due to the limitations of current research. Despite subtle regional and temporal variations, Cypriot pottery traditions are part of the broader Eastern Mediterranean dominant painted pottery culture. The variations observed in the pottery traditions of Cyprus probably originated from individual artisan choices and the decentralized nature of production. These variations mirror cultural expressions in neighbouring regions such as Southern and Southeastern Anatolia and the Northern Levant, where painted ware groups share technological traits and artistic motifs with Cypriot pottery. Future archaeological research is anticipated to refine our understanding of these timelines and cultural exchanges, thereby reinforcing Cyprus's role as an integral participant in the Neolithic transformations across the Eastern Mediterranean.

Keywords: Cyprus, Late Neolithic, Red-on-White Painted Pottery, Regional Interaction

Neolithic Pottery in the Karpaz Peninsula: Insights into Production Techniques and Cultural Practices

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Abstract: Traces of the Pottery Neolithic, known from various regions of Cyprus, were unearthed in the excavation at Kaleburnu-Kral Tepesi/Galinaporni-Vasili in the Karpaz Peninsula. As well as during surface research in Taşlıca/Neta village, Neolithic pottery remains were found in the Mustafa Karataş and Trakhonas Halasmata sites. Red on White Ware, similar to those in other Neolithic sites on the island, has been identified in these sites; however, the locations where these potteries were produced remain unknown. The question arises whether these potteries were made in the Karpaz or another region of the island. The research question of this study is the first phase of this broader inquiry. By evaluating the Neolithic pottery found in significant numbers for the first time in the Karpaz, insights into the production techniques employed by Neolithic craftsmen will be gained. For this purpose it will be the initial analyses focus on the production techniques and firing temperatures of the potteries from the Kral Tepesi, Mustafa Karataş, and Trakhonas Halasmata sites, aiming to illuminate the technological skills and cultural practices of the craftsmen who produced them. Analyses through Fourier Transform Infrared Spectroscopy (FTIR) and Optical Microscopy have provided a detailed understanding of the manufacturing temperatures and conditions of the sherds. This research will also enable comparisons with pottery from the same period in Cyprus and overseas areas in future researchs. This study presents the first recorded evidence of pottery usage during the Neolithic in the region, leading to a reevaluation of previous archaeological assumptions about local activities.

Keywords: Cyprus, Ceramic, Neolithic, Pottery, FTIR

A New Neolithic Settlement on Cyprus? Recent Discoveries at Aphenrika, on the North-Eastern Coast of the Karpas Pensinsula

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Abstract: Previous research at Cyprus's northern coast between Kyrenia and Cape Andreas have revealed two certain and one possible aceramic Neolithic settlements, five ceramic Neolithic settlements and two settlements of uncertain prehistoric date, not taking into account several additional sites of single prehistoric finds. Among these currently known coastal settlements only Agios Epiktitos-Vrysi (PN), Klepini-Troulli (PPN/PN), Akanthou-Arkosyko (PPN) and Cape Andreas-Kastros (PN) are excavated to some extent. At the coastal rural site Aphenrika, so far, a single non-ceramic artefact had been found in the sea in 1968. In recent years Marko Kiessel has been conducting a non-invasive survey project in Aphenrika, including aerial photography, yielding a remarkable number of prehistoric ceramic and non-ceramic finds, concentrated in an area unrelated to the find from 1968. Based on the analysis of the finds, especially of the Red-on-White ware, this paper aims to suggest a dating between the Cypriot PN and the Chalcolithic period, and to introduce a 3D-model of the area derived from drone images. The model, created by Elif Tangül, apparently shows round-shaped colour changes of the crops within the agriculturally used zone. Considering the find-spots of most artefacts these crop marks possibly point to a settlement with round-shaped buildings, as recorded in Khirokitia and Akanthou-Arkosyko (both PPN). In any case, the small finds are sufficient to suggest the existence of new PN settlement on the north-eastern coast of Cyprus, filling a long gap between two prehistoric sites of debated date, Phlamoudhi-Pygadoullia to the west and Kordhyli to the east.

Keywords: Cyprus, Coastal settlement, aerial photography, 3D-model, non-invasive survey

Isotopic and biomolecular lipid analyses in 7th millennium pottery from tepecik-çiftlik: exploring culinary practices at the neolithic core

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Abstract: Lipid residue analysis is based on identifying the biomolecular components of lipids preserved within pottery vessel pores due to human activities. Analyzing lipid residues preserved in pottery vessel pores provides direct and indirect evidence for understanding communities' pottery usage, dietary preferences, and culinary practices. In this context, lipid residue analysis was employed to obtain data on the food economies of the people inhabiting the site of Tepecik-Çiftlik. The site, located in the Melendiz Plain, life continued uninterruptedly from the Neolithic to the Early Chalcolithic Period (6100-5800 BC.). In a region rich in primary and secondary clay deposits, pottery typology and technology exhibited different characteristics in various layers dating from the beginning to the end of the 7th millennium. Due to advancements in pottery-making techniques, there is a noticeable diversity in forms consistent with new vessel types, but there is no distinct group classifiable as cooking vessels. Aiming to understand the dynamics of pottery used at the site, a systematic organic residue analysis was conducted on 119 pottery vessels from different layers, considering a range of forms or types, and studied by Gas Chromatography (GC) and Mass Spectrometry (MS). Proportionally high preservation rates, 71.45%, were obtained from Tepecik-Çiftlik pottery vessels, and GC-C-IRMS results were also obtained for 13 of the analyzed vessels. The detection of lipid residues among Tepecik-Çiftlik pottery has provided tangible data on the food consumption patterns of the inhabitants and allows for evaluating pottery use since its introduction in a core neolithic area.

Keywords: Lipid Residue, Gas Chromatography, Central Anatolia, Neolithic, Pottery

Precision Mapping in Archaeology: Case Studies from Key Neolithic Sites in Şanlıurfa

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Abstract: This study examines the mapping activities conducted during the archaeological excavations at Karahantepe, Sayburç, Çakmaktepe, Gürcütepe, and Sefertepe, located in the province of Şanlıurfa, which is also home to Göbeklitepe, often referred to as the "zero point of history." Precise and accurate mapping in archaeological excavations is crucial for the proper documentation of the locations and structural relationships of the findings. In the mapping efforts, before the commencement of excavations, the existing condition of the terrain is mapped, and high-resolution orthophotos and Digital Elevation Models (DEMs) are generated with the support of Unmanned Aerial Vehicles (UAVs). During the excavation process, the corner points of the trenches are precisely applied, some artifacts are modeled in three dimensions (3D), and orthophotos are produced to document the progress of the excavations. Following the earthquakes in Kahramanmaraş on February 6, 2023, noticeable shifts and changes in the earth's surface were observed in the region. The changes induced by the earthquake required updates to existing orthophotos and DEMs, as well as adjustments to the excavation processes to account for the new conditions. In conclusion, this study emphasizes the critical role of mapping in archaeological excavations, illustrating how archaeological research can be supported by modern technologies such as UAVs and GPS, and demonstrates the effects of natural disasters on these processes. The high-resolution data and models obtained provide a valuable resource for both current and future excavations, thereby enhancing the accuracy and efficiency of archaeological research.

Keywords: archeology, High resolution orthophoto, Digital elevation model, Unmanned aerial vehicle

Luminescence Dating and Archaeometry of Mortar Samples from the Sefertepe Archaeological Site: Unveiling Chronological Insights

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Abstract: Archaeological dating is essential for understanding cultural evolution and the timelines of human civilization. This study focuses on the application of luminescence dating techniques to mortar samples obtained from the Sefertepe archaeological site, aiming to contribute to the chronological framework of this historical location. Luminescence dating (optically stimulated luminescence (OSL) and thermoluminescence (TL)) is a method used to estimate the last exposure of quartz and feldspar grains in mortar to sunlight or heat. Mortar, which is a common construction material in ancient structures, has been underutilized in archaeological dating. The Sefertepe site is an archaeological excavation site from the Pre-Pottery Neolithic Period located in řanlıurfa Viranřehir in southeastern Trkiye. The mortar samples are composed of minerals that are sensitive to ionizing radiation and accumulates trapped electrons over time. The study entails extracting mortar samples from different archaeological layers at Sefertepe, each corresponding to distinct historical periods. Laboratory analysis involves applying OSL and TL dating methods, calibrated with established luminescence chronologies. The obtained luminescence ages could be compared with existing chronological data from other dating techniques to ensure robustness and reliability. The aim of this research is to refine the chronological sequence of the Sefertepe archaeological site. The results might be shed light on the construction phases, habitation periods, and potential cultural transitions over the region. This study presents the first application of luminescence dating method in the region.

Keywords: Luminescence, archaeometry, mortar, analysis, Sefertepe

Kahintepe: An Aceramic Neolithic Gathering Site in The Black Sea Region

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Abstract: Kahintepe is a hill settlement located approximately 4 km north of the Araç Çayı, extending towards the north of the İhsangazi Araç asphalt in the Araç district of Kastamonu province. It represents an aceramic Neolithic settlement excavated within the scope of the Filyos Dam salvage excavation project. Two layers have been identified during the excavation works. The lower layer is dated to the aceramic Neolithic period, while the upper layer is dated to the end of the Early Bronze Age. Excavations conducted on the summit revealed oval-planned pit structures in the eastern part of the site. It has been understood that various stones were carved to create sculptures of some animals within these structures, leading to the conclusion that the eastern part of the summit served as a workshop area. Excavations on the western part of the summit revealed architectural structures and steles, indicating that this area was a place of worship. Numerous animal sculptures, believed to have been left as offerings, were found in the same area. Of particular interest are the steles and Turkey's first hieroglyph, both discovered at Kahintepe. Stones of various sizes were roughly carved into animal shapes, and these stones were used to construct an architectural form resembling a sparrow. Being the first excavation project to reveal a Neolithic settlement in the Black Sea region, Kahintepe will contribute significantly to Anatolian and World Archaeology by shedding light on the prehistory of the Black Sea region.

Keywords: Black Sea, Neolithic, Architecture, Sculpture, Kahin Tepe

Art of the dreamtime - images of early Human life history

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Abstract: The art reflects the society that creates them. Concept art is the idea visually presented to anyone in the form of drawings, paintings, quick sketches, sculptures, etc., and any type of art that defines the purpose or attempts to explain the meaning. In archaeology, rock art is an early human-made recorded markings placed on natural stone/other media; it is largely synonymous with parietal art. A global phenomenon, rock art is found in many culturally diverse regions of the world with some similarities in both style and subject. Rock art traditionally includes a wide variety of man-made markings, such as those created to mark/map territory (geocontourglyphs), pictorialize the nature, record events, or illustrate myths and other rituals. It has been produced in many contexts throughout human history, although the majority of rock art that has been ethnographically recorded has been produced as a part of ritual. Recent studies in south Indian Rock art of transitional phase from Lithic to Early Iron Age along with memorializing the death are subject matter. Rock art studies are providing ample information about the socio-cultural trends of the early agrarian communities and/or Early Iron Age indigenous practices to shaping the identity of local communities.

Keywords: Rock art, agrarian communities

Reflections of Göbeklitepe Humans' Interaction with Animals on Daily and Social Life

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Abstract: Göbeklitepe, dating back to 9600-9500 BCE, is one of the most significant archaeological sites of the Neolithic period. The discoveries at Göbeklitepe provide crucial insights into the transition from hunting to agriculture and animal domestication. This study aims to examine the animal bones, figures, and symbols found at Göbeklitepe to understand the interactions between Neolithic humans and animals, including domestication and hunting activities, and their implications for social life. The research involved analyzing animal bones, animal figures, and symbols on stone pillars obtained from the Göbeklitepe excavations. Osteological analyses identified the species and purposes of the bones, while iconographic analyses revealed the meanings of the figures and symbols. The excavated bones of species such as deer, gazelle, wild boar, wild sheep, and wild goats provide significant information about the region's fauna and hunting practices. Cut marks and bones processed with stone tools indicate hunting techniques and meat processing methods. Certain mammalian bones found at Göbeklitepe suggest their use for hunting and dietary purposes. Animal figures on stone pillars, such as those depicting snakes, vultures, and foxes, are interpreted as components of religious and ritualistic beliefs. In addition to their symbolic meanings, these figures reflect the community's relationship with animals and the impact of these relationships on social structures. The ritual use of bones and the role of animal figures in fostering social cohesion are evident. Göbeklitepe is thus a unique source for understanding the social, economic, and cultural evolution of the Neolithic period.

Keywords: Göbeklitepe, hunting, domestication, animal figures, faunal remains

Narratives and Perceptions of Göbeklitepe as a Site of Memory: The Case of Nearby Village Residents

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Abstract: Göbeklitepe, located 15 km northeast of Şanlıurfa Province in a mountainous area near the village of Örencik, is recognized as a globally significant archaeological site. Excavations have led to a reassessment of human history. Despite numerous theories regarding its function, the narratives of nearby village residents have been largely neglected. This oversight represents a significant deficiency, ignoring the evolving cultural narratives. This study focuses on the sociological interpretation of Göbeklitepe, including nearby archaeological hills, rather than purely archaeological or anthropological perspectives. Furthermore, this study aims to ask questions such as "What kind of change did the discovery of Göbeklitepe create in the perceptions and narratives of village residents? What are the narratives carried to the present day by the oral tradition related to the existing hills?" and intends to learn about the narratives created by the village residents from generation to generation regarding the hills. Using qualitative research methods and oral history techniques, the study includes the villages of Örencik, Bahçeli, Akziyaret, Kuşluca, and Yığınak, with ten village residents representing the sample group. Findings obtained from this study, aimed at interpreting Göbeklitepe as a site of memory, reveal that the discovery of Göbeklitepe has led to significant changes for the village residents, altered perspectives towards existing stone hills, and developed cultural heritage awareness. In this context, the awareness that every meter of the geography after the discovery of Göbeklitepe holds historical significance was expressed by every participant in the study

Keywords: Göbeklitepe, Hills, Oral History, Narratives, Site of Memory

Transformation or transcendence? – A cross-cultural and morphological approach to visualized tribal narratives in the early Holocene Harran plain

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Abstract: Ever since publicizing them to a broader audience, the pictorial worlds of Göbekli Tepe, Karahan Tepe, and their contemporaries are subject to vivid and controversial debates. With the notorious “religion and temples-paradigm” set aside, the visual legacy of sculptures and other decorations applied in low and high relief instead betrays the manifestation not of lofty places for pious contemplation but a rather dark, ferocious, and explicitly male-centered world at the onset of the Holocene, once aptly phrased an “apocalyptic imagery” by the late field director of Göbekli Tepe, Klaus Schmidt. Since hilltop sites like Göbekli and Karahan Tepe generally seem to lack typical features of nascent early village communities (the emerging PPN village dwellings encircling the earlier round buildings at Göbekli Tepe set aside here), these places are currently rather understood as focal spots for tribal communities roaming the Harran plain, undergoing recurrent changes and adaptations with every community visit, however retaining some fundamental concepts and outlines over time. This contribution tries to contextualize some recurrent critical concepts in the artworks of these places in the scope of diverse tribal narratives and re-read their visual legacy within the frame of cultural synchronisms as exemplified by Spenglerian cultural morphology. Furthermore, ethnographic studies about the rite of passage rituals as documented in contemporary tribal communities in Zambia and Papua New Guinea may shed further light on the deeper context of the explicit “maleness” prominently displayed in these Early Holocene hilltop edifices.

Keywords: Türkiye, Upper Mesopotamia, PPN, Tribal Narratives, Cultural Morphology

The Neolithic Kargopol type ceramics of the East European taiga: what is hidden beside simplicity?

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Abstract: The particular ceramic type is widely dispersed along the taiga belt of the Eastern Europe around 1000 km by longitude at the lake depression settlements which contain multi-cultural Neolithic ceramic types. The Kargopol type ceramics features the simple pottery paste recipe with minimal artificial sand admixture, and the original scarce decoration. Four composition variants were distinguished. The basic one is extremely simple, and consists of only two motives: a row of pierced round holes, and a row of short incisions at both rim edges. It could probably reflect the birch-bark-vessel features, such as sewed rim, and sewing punctures. Compositions of variants 2-4 feature additional elements (rows of pins, different stamps). The distribution indicates big variety of the variant 4 'evolution' in certain micro-regions of Karelia (Lake Vodlozero), Arkhangelsk Oblast' (Lakes Lacha and Moshenskoye) and the Republic of Komi (Lake Sindor). Variants 1-3 belong mostly to the western half of the entire territory of the Kargopol type dissemination. The only obtained AMS-date made by the birch-tar sample from the variant 1-herd's outer side has given 4200-4000 cal BC, which preliminarily places the Kargopol type ceramics at the Pitted Ware/Pit-Comb Ware late phase basing on the Karelian 14C-database. The second 14C-date by a crust sample is in process. Thus, two main hypotheses are discussed: can this phenomenon be interpreted as a particular ceramic tradition related to a Pitted Ware sub-group, or as a specialized group of vessels, aimed to serve some special needs and therefore having a very special décor.

Keywords: Russian North, Neolithic, ceramics, decoration, network

Chemical-technological analysis of ceramics from the Kayukovo 1 Early Neolithic settlement (based on materials from excavations of 2021 and 2023)

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Abstract: The Kayukovo 1 settlement is located in the Nefteyugansk region of the Khanty-Mansi Autonomous Okrug-Ugra, on the territory of the Punsu yurts of the Khanty people. There are 8 archaeological structures, which are the remains of residential and household buildings. The first full-scale excavations were carried out in 2021. The stationary excavations of building No. 4 and the surrounding area continued in 2023. The most abundant material is the fragments of ceramic vessels. Eight fragments of ceramics (K-1.1 – K-1.8) from the filling of the pit of building No. 4, as well as from the southern part of the site, where the outer wall was supposedly located, were selected for FTIR spectroscopy, scanning electron microscopy, and X-ray fluorescence analysis to study the structure, morphology of particles, mineral and elemental composition, and also to find out how high the firing temperature was. FTIR spectroscopy showed that the firing was carried out in an oxidizing environment, the temperature was about 800°C. The elemental composition showed that the main components in the ancient ceramics of Kayukovo 1 are oxides of silicon, aluminum, and iron. The relatively high content of phosphorus oxides probably indicates the addition of organic matter (for example, animal or fish bones). The use of scanning electron microscopy revealed that the grains with a moderate and high degree of vitrification of the clay body (51-92 wt.% SiO₂) can be observed in some areas of the ceramics, which also indicates an increase of the firing temperature up to 800°C.

Keywords: Western Siberia, ancient settlement, ceramics, Fourier-transform infrared spectroscopy, X-ray fluorescence analysis.

New chapter in Eastern Eurasian steppes - Discoveries of the monumental complex of Husta

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Abstract: Discovered and excavated since 2016, Husta is a protohistoric archaeological site located in the Bo'ertala Valley of the western region of Xinjiang, China. Spanning an estimated 12 hectares, this vast settlement is believed to be the largest and most complex archaeological site of the first half of the second millennium BC in the Eastern Eurasian steppes. The prominent position of the settlement is reflected in a high-ranking architectural complex comprising semi-underground stone buildings carefully arranged with individualised passages and courtyards, emphasising hierarchical and functional differences. Enclosed by an inner wall covering an area of around 5,000 square meters, this complex is further surrounded by a second outer enclosure extending over a larger 5-hectare area. A massive territorial presence on the north side includes ritual or functional buildings, water supply installations, gateways, and more. The settlement also features two sentry posts distinguishing the north and south peripheries, along with stone installation complexes that played a crucial role in the overall site layout, including cemeteries of varying sizes. The discovery of Husta, with its monumental architectural complex and well-developed system on a large scale, suggests the existence of centralised power in a vast steppe region, challenging our understanding of material culture derived from the Neolithic pastoral tradition.

Keywords: Eastern Eurasian steppes, Stone architectural complex, Settlement of Husta

Problems of reconstruction of the paleolandscape of the cultural layers of Neolithic and Late Bronze Age sites in the Belaya River basin in the Southern Urals.

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Abstract: The Neolithic sites are located in the basin of the Belaya River in the Southern Urals, they are associated with the first terraces of the oxbow lakes of the rivers. The sites located in the basins of the Urshak, Dema and Belaya rivers were investigated. Recent studies of this area have revealed the relationship between the sites of the Neolithic and the Late Bronze Age. The sites of these two periods have two variants of location. The first option, when the sites are located on the same site, the second option, when the sites create a single multi-layer complex in the landscape of the area. This is explained by similar natural-ecological and hydrological characteristics of the paleoclimate during these periods. Neolithic sites were saturated with artifacts. However, when conducting paleosol studies at the Neolithic sites, a very low level of gross phosphorus and a small amount of phytoliths were revealed. This allows us to make an assumption about the short duration of the existence of Neolithic sites or about temporary workshops. Also one of the versions is ritual. One suggestion is the ancient ritual use of these Neolithic sites. Ritual throwing away of individual objects, such as stone arrowheads and so on.

Keywords: Southern Urals, Neolithic sites, palaeoenvironment, anthropogenic landscapes, paleosol

POSTERS

1030-Paleoenvironmental research in the hinterland of Göbekli Tepe, SE Türkiye

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Abstract: The Pre-Pottery Neolithic site of Göbekli Tepe (c. 11,500–10,000 cal. a BP / c. 9500–8000 BCE) is certainly among the most prominent archaeological sites in southeastern Türkiye—a region that is known for its rich cultural heritage and that repeatedly witnessed cultural and socioeconomic key developments during the last 12,000 years. However, this region is also characterized by a distinct scarcity of paleoenvironmental studies and lacks high-resolution continuous paleoclimate proxy records. Beyond this, paleoclimate records that are available on a supra-regional scale often show diverging trends throughout the Holocene. Therefore, the consideration of the evolution of the natural environment for this historico-cultural significant area is a difficult task and still poorly understood compared to other regions in the Eastern Mediterranean. This contribution presents a synthesis of the late Pleistocene to Holocene evolution of the natural environment in the hinterland of Göbekli Tepe by integrating our recent results of analyzed local sediment profiles from slope deposits and alluvial archives that roughly cover the last 20, 000 years and literature-derived findings from previous local to regional geoarchaeological and paleoenvironmental research.

Keywords: Geoarchaeology, Paleoenvironment, Late Pleistocene to Holocene

1399-Landscape evolution and ancient settlement patterns of small river basin: A case from the Huangshui River and the prehistoric Wangjinglou City in Central China

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Abstract: Prehistoric humans seem to have preferred inhabiting small river basins, where settlements were more densely distributed compared to larger rivers. The Holocene landscape evolution is considered to play a pivotal role in shaping the spatiotemporal patterns of these settlements. In this study, we conducted comprehensive research on the relationship between landscape evolution and settlement distribution within the Huangshui River basin, which is a representative small river in Central China with numerous early settlements, including a prehistoric city known as the Wangjinglou site (WJL). Using geoarchaeological investigations, OSL dating, pollen analysis, and grain size analysis, we analyzed the characteristics of Holocene environment. The results indicate the presence of two distinct geomorphic systems, namely the red clay hill and the river valley. The red clay hill formed in the Neogene, represents remnants of the Songshan piedmont alluvial fan that was eroded by rivers. There are three grades of terraces within the river valley. The T3 is base terrace and formed around 8.0 ka. Both the T2 and T1 are piled terraces, which were developed around 4.0 ka and the historical period, respectively. The sedimentary features and pollen analysis indicate the existence of an ancient lake-swamp on the platform during 11.0-9.0 ka. This waterbody gradually shrank during 9.0-8.0 ka, and ultimately disappeared after 8.0 ka. Since then, the development of large-scale water areas ceased on the higher geomorphic units. River floods also cannot reach the top of these tablelands, where numerous prehistoric settlements are located, including the Xia-Shang cities of WJL site.

Keywords: small river basin, prehistoric settlement, landscape evolution, human-environment interaction, Central China

1414-Did Indo-European Languages Stem from a Trans-Eurasian Original Language? An Interdisciplinary Approach

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¹French Embassy in Kosovo

Abstract: This interdisciplinary study allowed me to establish, on the basis of linguistic, genetic, archaeological, historical and religious data, that linguistic concordances between Gaulish and Slavic were linked with Neolithic migrations from North-Western India and Pakistan to Iran, Mesopotamia, Anatolia, the Caucasus, the North of the Black Sea, Danubic and Balkan Europe, Gaul and Iberia, where Neolithic farmers contributed to the formation of the megalithic civilisation which developed in Gaul from 5,000 BCE and brought an archaic language stemming from a Trans-Eurasian original language. This explains the linguistic concordances I established between Gaulish and Dravidian languages – 250 common words from the 500 words I studied (and 160 with Burushaski), as well as with Altaic, Uralic, Kartvelian, Anatolian and Middle-Eastern languages. This also explains similarities I have found in the organisation of the Society and religion, which lead certain researchers to suggest, on the basis of the spread of the very ancient haplogroup H2 P-96 from India to Western Europe, that first Europeans and proto-Dravidians had a very ancient common origin, as macrohaplogroup F and haplogroup H Y-DNA could appear in India, as well as haplogroup C Y-DNA, found in Vinča, and Central Asian haplogroups F, K, P, Q Y-DNA were found in Europe at significant frequencies from Serbia and Croatia to France and Great Britain, which pleads for a Central Asian origin of Gauls, Celts and Balkan peoples.

Keywords: Neolithic Europe; Neolithic archaeology; ancient DNA research; ancient Indo-European languages; Anatolian studies

1561-Neolithic beyond the Upper Euphrates: Survey Results from Tunceli/Türkiye

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Abstract: The Upper Euphrates Basin, located in the northern part of the Neolithic core zone, has been less explored compared to other regions of the SW Asia. Although partial information about the prehistory of the region was obtained during the salvage excavations of the Keban Dam in the 1970s, comprehensive research has not been conducted north of the reservoir lake, and this area has been thought to only have been settled in the later stages of the Neolithic period. To address this gap, surface surveys conducted between 2015 and 2021 have revealed new data indicating sites north of the Keban Dam, as well as in the surrounding regions attesting to the occupation since the Neolithic period. Findings from different stages of the Neolithic have been encountered in Deşti Tırkan and Süleymanağa Çeşmesi, located in the north of the Keban Dam. Systematic surface surveys conducted at Deşti Tırkan did not yield any potsherds so far. Techno-typological analyses of obsidian and flint tools indicate potential dating of the sites to the Pre-Pottery Neolithic (PPN) period. In addition, pottery and lithic artifacts found at Süleymanağa Çeşmesi suggest that the occupation in the area can be dated to the Pottery Neolithic. Furthermore, similar finds uncovered on the river terraces of Mercan Deresi, a tributary of the Munzur River in the north, also provide insight into the Neolithic presence. This study, based on new findings from surveys, emphasizes the presence of Neolithic lifestyles and local Neolithic cultures in the regions north of the Levant and Mesopotamia.

Keywords: Tunceli, Neolithic, Upper Euphrates, Survey

1570-A review on the spread of prehistoric agriculture from southern China to mainland Southeast Asia

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Abstract: The origins and spread of agriculture was one of the milestones in human history. When and how prehistoric agriculture spread to mainland Southeast Asia is highly concerned, which contributed to the formation of modern Austroasiatic in this region. Previous studies mainly focused on the time and route of rice agriculture's introduction into Southeast Asia while millet agriculture was not paid proper attention. Here we analyze 312 ¹⁴C dating data yielded from charred seeds of rice (*Oryza sativa*), foxtail millet (*Setaria italica*) and broomcorn millet (*Panicum miliaceum*) from 128 archaeological sites in China and mainland Southeast Asia. The result shows that millet farming was introduced to mainland Southeast Asia in the late third millennium BC and rice farming was in the late second millennium BC. The agriculture of mainland Southeast Asia might originate from three areas, Southwest China, Guangxi-West Guangdong and coastal Fujian. The spread route of ancient agriculture in Southwest China is close to the "Southwest Silk Road" recorded in literature, which implies there was possibly a channel of cultural exchanges on the eastern margin of Tibetan Plateau already in the late Neolithic period, laying the foundation for the Southwest Silk Road later.

Keywords: Mainland Southeast Asia, Southern China, Agriculture spread, Prehistoric age, Southwest Silk Road

1690-Spatial Analysis in Sayburç

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Abstract: Sayburç, located on the plateau surrounding the Harran Plain to the west of Şanlıurfa, is a Pre-Pottery Neolithic settlement. Archaeological excavations have revealed that the construction techniques, building materials, size, and plan features of these architectural remains, which form the texture of the settlement, alongside the macro and micro remains found within them, provide detailed information about past communities. In this context, it is possible to say that there is a strong connection between the inhabitants and buildings. In addition to special buildings, well-preserved domestic structures, which are thought to have been used for daily life, were also uncovered at Sayburç. The microartifact and soil chemistry analyses conducted within the scope of the spatial analyses focused on these structures in the settlement and interpreted the use of the dwellings and the activities that may have taken place within them. The distribution of elements in the soil samples obtained from the floor of the space was analyzed by soil chemistry analysis and combined with the results of microartifact analysis. This revealed differences between architectural elements such as benches and niches within the space and the areas with different floor applications. The insights provided by macro-level studies on settlement have been transformed into concrete data through the analysis of microartifacts and soil chemistry. This examines residues that are not visible to the naked eye. The new perspectives created by the results led to the development of a settlement-specific methodology for microarchaeological studies to be conducted in Sayburç.

Keywords: Pre Pottery Neolithic, Sayburç, Daily Practice, Soil Chemistry, Microarchaeology

1816-What Was the Function of Conical Objects “Tokens”: The Case from Ekşi Höyük

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Abstract: Conical objects are one of the materials of the Neolithic Period. At the same time, these objects are often associated with different types of artefacts and are referred to in the literature as 'tokens', which are associated with counting. On the other hand, they are also referred to as "geometric objects, geometric figurines or earplugs", and discussions on this topic have increased in the last decade. From a chronological point of view, the objects under discussion have been present since before the Neolithic Period, but these objects intensify with the Neolithic Period and their presence has been proven until the Iron Age. This group of archaeological finds, frequently found in the archaeological literature in a region extending from Europe to Anatolia and Mesopotamia, is examined as a case study with the Ekşi Höyük material, which contains new data from the Neolithic of Western Anatolia. This poster presents the results of a spatial, typological and temporal analysis of 156 cone-shaped objects found at Ekşi Höyük. The relationships that can be established on the basis of symbolism, ethnographic data and archaeological finds from contemporary settlements are also highlighted. The conical objects found at Ekşi Höyük are far from being part of a numerical system. The aim of this presentation is to suggest what functions and meanings the objects may have had.

Keywords: Conical objects, Neolithic Period, Tokens, West Anatolia, Ekşi Höyük

1997-Domestication of the Pig in the PPNB Period in Southeastern Anatolia in the Light of Ancient DNA: The Case of Boncuklu Tarla

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Abstract: Studying animal bones helps us understand how past societies lived. Morphometric and molecular analyses of the remains of domestic animals also provide important information about the history of human-animal relationship, the domestication process of animals, their place in the economy and their areas of use. It is known that the domestication region of sheep, goat, cattle and pig, which are the most widely used livestock species in the world today, is today's Anatolia. Since the pig has undergone a different domestication process compared to sheep, goat and cattle, it is necessary to support the ancient pig remains found in Anatolia with DNA-based studies in terms of both anthropology and zooanthropology. It examines the history of pig domestication in Southeastern Anatolia. In this study, DNA was isolated from bone samples of 17 pigs belonging to the 2012 Boncuklu Tarla Pre-Pottery Neolithic B Period (10000-7000 BC) and sufficient quantity and quality of DNA was obtained. An 80 bp region in the D-loop of the mtDNA was then amplified by PCR. PCR products were obtained from five samples, and sequence analysis provided a usable sequence from only one sample. When analysed alongside other sequences in the database from the same region, the sample clustered with sequences from the early domestication period. This project is supported by Hatay Mustafa Kemal University Scientific Research Projects Coordination Office with the code 19.M.037. Investigation of the domestication process of pig in Southeast Anatolia Region by aDNA-based methods: The case of Boncuklu Tarla.

Keywords: Domestication, Anatolia, DNA Analysis, Zooarchaeology, Anthropology

2010-Observations on the Distribution of Ground Stone Tools in Karahantepe Domestic Areas

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Abstract: In Southwest Asia, tools such as mortars and pestles for grinding plants have been found in settlements belonging to the Natufian culture since 15,000 BC. We can define the Neolithic Age as the golden age of ground stone finds, especially grinding stones. Wild grain and plant collecting, which started with the Epi-Paleolithic period, continued in the Neolithic Age and gained an important place in the food economy. Discussions of the changing food economy with the Neolithic period first turned to evidence of changes in hunter-gatherer seasonal mobility strategies leading to possible cultivation and changes in wild grain morphology prior to cultivation, and the effects of food storage on the evolution of social organization and the adoption of sedentary faunal remains. Along with many factors, the change in subsistence economies from the Late Epi-Paleolithic to the end of the Pre-Pottery Neolithic period, especially the selection of certain species, new techniques and applications of processing processes and storage elements, is reflected in archaeological finds and findings. In Karahantepe, an Pre-Pottery Neolithic settlement in Şanlıurfa, many ground stone tools were found that may have been used in the food preparation process mentioned above or for different functions. These tools come from areas divided into private and domestic. In this context, ground stone tools obtained from the domestic area of the settlement were examined according to typological and spatial distribution analyses.

Keywords: pre-pottery neolithic, ground stone tools, domestic spaces, spatial distribution

2069-EDXRF Sourcing of Obsidian Artefacts from Neolithic Gürcütepe, Türkiye

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Abstract: Prior to his world-renowned work at Göbekli Tepe, Prof. Klaus Schmidt undertook exploratory excavations in 1995 of five mounds at Gürcütepe (I-V), just to the east of Şanlıurfa, close to a tributary of the Euphrates. The occupation of these mounds spans the Aceramic Neolithic to Late Chalcolithic, potentially the same community shifting over time. A recurrent component of the flaked stone assemblages from these sites are implements and associated knapping debris made of obsidian, a non-local raw material whose closest sources lay ≥ 330 km linear distant to the northeast in the volcanic complex of Bingöl, plus the Lake Van region beyond. With permission from the Turkish Ministry of Culture, a sample of obsidian artefacts was loaned to the McMaster Archaeological XRF Lab (Canada) for non-destructive elemental characterisation using energy-dispersive x-ray fluorescence spectroscopy. This poster reports on the analysis of >100 pieces from Gürcütepe I, II and IV, the results situated within the larger context of obsidian consumption patterns in Southwest Asia during the Neolithic.

Keywords: Neolithic, Anatolia, Obsidian, Sourcing, Exchange

2124-Plant exploitation by the first sedentary communities of the Southern Levant in the Mount Carmel region (Israel) in the context of Late Pleistocene climate changes.

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Abstract: The cultural changes during the Late Pleistocene in the Southern Levant preceding the onset of the Neolithic were accompanied by significant climatic fluctuations after the Last Glacial Maximum (LGM). The onset of the first sedentary groups of the Late Epipalaeolithic Natufians (15,000-11,500 cal. BP) marked the culmination of this cultural process. Palaeoclimatic data from natural deposits and, more recently, from stable carbon isotope analysis ($\Delta^{13}C$) of archaeological almond charcoals from Northern Israel, suggest that climate conditions were more humid than today throughout the Epipalaeolithic, with the peak precipitation in the Late Epipalaeolithic around 14,700-13,500 cal. BP. In the Epipalaeolithic archaeobotanical record of Mount Carmel, in Northern Israel, the most humid period in the climatic sequence corresponds with the appearance of various seed specimens of cereals, legumes, and fruits. Some species identified are considered progenitors of pulses or will be later domesticated. In this contribution, we present the data about the plant species and modes of plant exploitation of the first sedentary groups of the Southern Levant obtained from the archaeobotanical assemblages retrieved in the inhabited contexts of el-Wad Terrace (EWT) and the burial site of Raqefet Cave (RAQ). We compare the two contexts and provide new and unpublished data on the species from the latest excavated layers at EWT to address the topic of palaeoenvironment and its exploitation by the first prehistoric sedentary communities of the Southern Levant.

Keywords: Southern Levant, Epipalaeolithic, Archaeobotany, Palaeoclimate, Plant exploitation

2672-Courtyard as a part of the sedentism within the Neolithic society of Khramis Didi Gora (Georgia)

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Abstract: Shomu-Shulaveri culture is the Neolithic culture spread in the southern Caucasus lowlands, which is characterized by a specific architectural tradition of circular or oval buildings built with mud-brick. The buildings come in different sizes and have various functions. The largest (D. 6-3) buildings are considered to be a household for families, while the medium (D. 2-1) and smallest (smaller than 1 m.) ones should have had storage purposes. The examination of the settlement structure shows that the larger and medium-sized buildings pile up the courtyard complexes inside the settlements. Very interesting is to understand and analyse the complex identity, realise how the different buildings were connected, and reconstruct the daily life in the courtyards. The household complexes had a crucial role for the village society on a daily basis, the complexes present three different types of hearth/fireplaces in the common space, which could have worked as a light source in the evening, as well as temporary storage for the tools. The paper presents the idea and the function of communal space at Khramis Didi Gora. This research will be focused on the human-settlement relationship and the significance of the courtyards. The one will try to understand and picture the symbolic role of the hearths in correlation with communal space, and its role in the social organisation of human labour.

Keywords: Khramis Didi Gora, Shomu-Shulaveri Culture, Communal Space, Courtyards, Caucasus Neolithic

2749-The Layout and Size of the Neolithic Settlement at Harbetsuvan Tepesi revealed by Geophysical Prospections

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Abstract: The Pre-Pottery Neolithic (PPN) period in Southwest Asia marks a significant change in material culture, social organization, and technology, likely related to the onset of agro-pastoralism. The layout and size of settlements are crucial for understanding this transition as they reflect the social organization and population dynamics. However, changes in the layout and size of settlements in Southwest Asia, especially southeastern Anatolia, need better understanding due to limited cases in which the distribution of the subsurface buildings was investigated across the entire site. Archaeological excavations need much time and effort and typically are limited to small areas. In contrast, geophysical surveys need a shorter amount of time and are suitable for examining an entire site. This study presents the findings from geophysical surveys at Harbetsuvan Tepesi in southeastern Anatolia. The site, dating to PPN B period, previously yielded several rectangular buildings through excavations. Our research, part of a renewed research project initiated in 2022 (Shimogama et al. 2024 in this conference), utilized magnetometry, ground-penetrating radar, and Real-Time Kinematic Unmanned Aerial Vehicle to reveal the settlement's layout and size. The topographic survey identified Harbetsuvan Tepesi as an oval-shaped mound covering approximately 5900 m² with a height of 2.4 meters. The magnetometric survey revealed a dense distribution of subsurface rectangular structures in the central part of the mound. Although building types differ, the layout resembles that of the PPN A period settlement at Hasankeyf Höyük (Tatsumi, 2020), suggesting that the layout of the settlements may not have significantly changed between these periods.

Keywords: Pre-Pottery Neolithic, Taş Tepeler, geomagnetic survey, UAV, GPR

3134-Neolithic ceramics of the Middle Kama Region: multiple match analysis

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Abstract: For Neolithic ceramics, statistical processing of the material was performed through multiple correspondence analysis (MCA). During the analysis, by increasing the weight of the feature encoding the vessel's belonging to a specific monument, it was possible to achieve a more compact dispersion of them in space. We used data on individual vessels of Neolithic monuments of the Middle Urals. As a result, it was possible to identify three groups of vessels: Group 1 clearly distinguishes dishes from Neolithic monuments of the Middle Urals, ornamented with tattoos. Group 2 highlights dishes decorated with a comb stamp. Group 3 is located on the periphery and contains vessels of mixed complexes, where dishes decorated with a comb have the characteristics inherent in dishes with a ringed ornament, and vice versa. At the same time, it is worth noting that the presence of a ringed or combed ornament did not always have the most significant significance. As a result, it was possible to identify the dishes of group 1 (with ringed ornamentation) that have the greatest similarity and separation from other clusters, this most likely indicates that the population that made these dishes had little contact with the carriers of the Kama culture, and we do not record a mixture of traditions in this group. As for groups 2 and 3, they have more similarities in both ringed and combed dishes, which indicates contacts between these groups of the population and a mixture of traditions.

Keywords: ceramic, multiple correspondence analysis, the Middle Urals

3213-How reindeer (*Rangifer tarandus*) domestication started with castration: Traditional Knowledge and domestication theory

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Abstract: The traditional practice of reindeer castration is an integral component of all known past and present reindeer herding cultures around the globe. It is a key aspect of reindeer training, taming, control, herd management, resilience and food production. It has likely played an essential role in the reindeer domestication process, making it relevant for understanding initial and subsequent human-reindeer interactions beyond hunter-prey relationships. This paper presents ethnographic data on the Traditional Knowledge of reindeer castration among Sámi and Finnish reindeer herders in Finland and explores human-reindeer relations through this traditional practice. Based on the collected data, it argues that castration has been an antecedent to and a key element in domestication and human-reindeer relationships beyond the wild. The logical support for this proposition can be separated into three main arguments. Firstly, castration is indispensable for the keeping of reindeer for working purposes. Secondly, the keeping of working reindeer is fundamental to (the development of) reindeer pastoralism. Thirdly, castration is also an essential feature of this same lifestyle beyond the use of working reindeer.

Keywords: Animal domestication, Domestication theory, Arctic, Zooarchaeology, Reindeer

Unveiling the Late Neolithic of Lebanon: New Discoveries from the Akkar Highlands

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Abstract: The Neolithic period in Lebanon remains poorly understood, with existing knowledge primarily derived from sites at Byblos and in the Bekaa Valley. This poster highlights the discovery of a Late Neolithic occupation within the northern Levantine cord-impressed pottery horizon in the basaltic highland of Akkar, northern Lebanon. The new finding sheds significant light on the period. Extensive surveys and soundings conducted as part of the "MEG-A: First Megalith Builders in the Northern Levant" project, focusing on the study of the Chalcolithic/Early Bronze Age megalithic culture, revealed the Late Neolithic as a surprisingly prominent phase in the region. A large site has been identified, characterized by an abundance of chert adzes, flint tools, semi-finished products, and obsidian artifacts, accompanied by cord-impressed ceramics. Neolithic lithics and stamp seals, were also found at the later megalithic sites in Akkar. The abundance of non-local materials indicates extensive trade networks, which seem much more intense than during later periods. Analogous findings on the Syrian side were identified by a Spanish-Syrian-Lebanese team in the basaltic area west of the city of Homs (H. Haidar-Boustani, J. Ibanez, M. Al-Maqdissi, A. Armendariz, J. Uquijo, L. Teira 2005, *Tempora. Annales d'Histoire et d'Archéologie* 16-17). This suggests that the Late Neolithic communities benefitted particularly from the basaltic highlands. The MEG-A project is carried out in partnership with the Directorate General of Antiquities and Ministry of Culture in Lebanon, contributes to ongoing debates about the transition from the Late Neolithic to the Chalcolithic and EBA in northern Levant.

Keywords: Late Neolithic, northern Lebanon, basaltic highlands

3246-Spatial Analysis of Aktopraklık Hoyuk in Early Chalcolithic Age

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Abstract: This thesis is the interpretation of the intensity rate of pottery and animal bones by using analysis of distribution of mobile artifacts which were excavated from the settlements having the same architectural plan and interior elements. These settlements were discovered in the wide area dated at 5800-5600 BCE. Aktopraklık settlement is a defined space regarding its place in chronology and its artifacts. In this respect, distribution analysis of artifact assemblage will contribute to understanding of the other settlements in the same regional network, especially settlements in the Balkans and Anatolia by considering Aktopraklık Hoyuk as a pattern on a small-scale. GIS's (Geographic Information Systems) potentials of handling with the complexity and multiplicity of the materials worked on, and its feature allowing to analyze in multiple perceptions help researchers to examine the activities in the houses. Ultimately, Settlement Spatial Analysis of Aktopraklık Hoyuk in Early Chalcolithic Age is one of the processes which aim to determine the similarities and differences in intra-settlement spaces, to understand and to interpret settlements as a inseparable whole.

Keywords: Aktopraklık Hoyuk, Early Chalcolithic Age, Spatial Analysis, Household Archeology, Geographic Information Systems (GIS)

3379-The Role of Paleoenvironmental Reconstructions in Understanding the Neolithic Period: The Case of Aşağı Pınar (Nw Anatolia)

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Abstract: Considering that all Neolithic formations observed in various regions of the world commonly reflect a period in which the human-environment relationship was reshaped, understanding the past requires a comprehensive paleoenvironmental context. This study aims to interpret the reshaping process observed during the transfer of Neolithic culture to Europe, in a paleoenvironmental context, through the prehistoric settlement of Aşağı Pınar, located in Eastern Thrace, one of the Neolithic migration routes. Developing adaptive and causal perspectives for reconstructing past environments is a complex and interdisciplinary undertaking that requires the analysis of various data sets of different quality, scale, and relevance. In this study, spatial characteristics were evaluated through remote sensing and GIS technologies to determine the effects of the paleoenvironment on the Aşağı Pınar settlement and interaction area during the period of occupation, and sedimentary data of the paleoenvironment were used to determine the Holocene climatic conditions. According to the first conclusions, the geomorphological characteristics of the interaction area (slope, aspect, roughness, etc.) are capable of meeting the natural resource needs of the settlement economy. The modeled drainage and flow potential of Haydardere, which is the most important water source of the settlement but has dried up today, shows that the settlement and the envisaged agricultural locations are the right choices. Mineral and multi-element analyses point to reference levels for different climate periods. Five periods with different temperature and humidity characteristics are monitored through geochemical data. Radiometric dating studies continue to establish the relationship between these periods and cultural history.

Keywords: Proxy data, Paleoclimate, Paleoenvironment, Neolithic, Aşağı Pınar

3425-Organic Residue Analysis of Archaeological Artifacts and Objects of Cultural Heritage by Gas Chromatography-Mass Spectrometry

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Abstract: Lipids (fats, waxes, and resins) can survive for longer periods of time due to their hydrophobic properties, i.e., they are not readily dissolved in water. The need to study the low contents of preserved lipid components in archaeological samples necessitates the development and application of suitable extraction, purification and analysis methods by gas chromatography–mass spectrometry (GC-MS), the method most often used for qualitative and quantitative analysis of complex organic mixtures, including those of archaeological origin. A methodology for fatty and amino acid GC-MS determination was tested using the archaeological woolen textile, the frankincense residues, and the rock art pigments. The GC-MS determination of fatty acid methyl esters (FAME) and amino acids after silylation was conducted at the Ural Federal University. Fatty acids (FAs) were extracted using a chloroform:methanol (2:1) mixture. The dry residue after vacuum removal of solvent was dissolved in acetonitrile and derivatized with dimethylformamide-dimethyl acetal. The amino acid composition was determined after dissolution in ammonia and followed by the acid hydrolysis with HCl. The dry residue was then silylated with pyridine and TBDMS-MTFA. A Perkin Elmer Clarus 600T GC-MS with the electron impact (EI) ionization was used for analysis. Mass spectra were obtained in the range of the mass-to-charge ratios of 35–400 a.m.u. The peaks were identified using the integral mass spectral library and literature data. The work is supported by the RSF grant No. 22-18-00593.

Keywords: GC-MS, organic residue analysis, FAME, fatty and amino acids

3525-Neolithic art of the population of the Orlovka culture (Lower Volga region)

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Abstract: The main monument of the Orlovka Neolithic culture is the Varfolomeevka site in the Volga-Ural interfluv (last quarter of the VII - VI millennium BC). All the components of the archaeological culture on a multi-layered settlement - dwellings, tools made of stone and bone, ceramics, burials - have been studied. and objects of art and worship. The site stands out among other Neolithic settlements of the Lower Volga region by the presence of dwellings with floors and walls painted with red ochre, bone tools with meander ornaments and complex geometric ornaments on ceramics, pictographic images on bone products, a combination of anthropomorphic and zoomorphic plastics. It is the objects of art that are a characteristic feature of the Orlovka Neolithic culture. The shortage of wood and stone directed the efforts of craftsmen to the processing of bone, from which most of the art objects are made. These are ornamented female figurines made of horse bones (proximal phalanxes), horse shaped pendants made of thin-plate bone, bone amulets. Tools for making ceramics and processing animal skins are covered with geometric ornaments. One of the unique indicators of the Orlovka Neolithic culture is the meander ornament, the origins of which can be traced in the regions of primary Neolithization. At this level of sources, we can state the undoubted influence of the Near East on the process of neolithization of the steppe Volga region. The population of the Orlovka culture directly or indirectly perceived part of the Neolithic package.

Keywords: Neolithic art, Orlovka culture, Lower Volga region

3619-Settlement of the Ilmen region by early humans: Archeological knowledge, paleogeographic conditions

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Abstract: Lake Ilmen lies in the Novgorod region in northwestern Russia. This area was covered in ice during the last Valdai glaciation and became ice-free at about 16,000-15,000 BC. Ilmen was preceded by a vast proglacial lake with progressively decreasing levels. At about 10,000 BC ancient Ilmen reached its modern size and the area became suitable for human habitation. However, the oldest known archaeological sites in the Ilmen region are dated to the Neolithic period (ca. 6,000-4,000 BC). There is a mention of finds from the Mesolithic era, but this data raises questions and has not yet been confirmed. The first excavations of Stone Age sites in the Ilmen region began in the 19th century, when several sites were discovered. The 20th century scientific efforts focused mainly on studying Stone Age sites in the western parts of the Novgorod region. It is not uncommon for locations to be determined only based on archaeological finds. The boundaries of sites are often not established, and artifacts are attributed without any context. A total of 20 monuments are currently known around Lake Ilmen. There are also many debatable questions related to the reconstruction of the region's Late Glacial and Holocene history. Among the studies currently underway is investigating the region's geological history and gathering information about known Stone Age archaeological sites, with the information added to the GIS database.

Keywords: Lake Ilmen, Neolithic sites, paleogeographic conditions

3869-The Architecture of the Sefertepe from a Regional and Cultural Perspective

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Abstract: The Euphrates and Tigris Basins were intensively inhabited during the Neolithic Age, as revealed by the identification of settlements such as Nevali Çori, Akarçaytepe, Mezraa-Teleilat, Çayönü, Körtik Tepe, Gusir Höyük, Boncuklu Tarla, and Gre Filla. Following the launch of excavations in Göbeklitepe settlement in 1995, building elements and architectural traditions unearthed there were named the “Göbeklitepe Culture”. Then, excavations launched in Karahantepe, Sefertepe, Sayburç, Çakmaktepe, Gürcütepe, Mendik Tepe, and Harbetsuvan settlements within the scope of the “Taş Tepeler” Project allowed us to reinterpret this Culture. Sefertepe is located in the Viranşehir and dates back to the Pre-Pottery Neolithic Period. When we look at the contextual architecture of the settlement, it can be said to be a building complex formed by the articulation of quadrangular-planned spaces unearthed so far. The individual and combined functional characteristics of these spaces and the relations among them are being studied not only in terms of architecture, but also of settlement and household archaeology. In terms of interaction, considering the geographical location of Sefertepe, its proximity to the Euphrates and Tigris Basins is thought to reflect the traditions of both regions in the period, and building elements and types of finds unearthed so far support this opinion. The architectural tradition of the Sefertepe settlement dating back to the B phase of the Pre-Pottery Neolithic Period will thus be discussed in the light of the above-mentioned perspective.

Keywords: Neolithic, Architecture, Euphrates and Tigris, Pre-Pottery Neolithic

3937-Technology, 3D documentation and function of lithic tools in the Epi-Paleolithic and PPNA - New insights from Akrotiri-Aetokremnos and Ayia Varvara-Asprekremnos in Cyprus

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Abstract: This poster presents the initial steps of a newly initiated study examining the evolution of lithic industries from the Epi-Paleolithic to the Pre-Pottery Neolithic A in Cyprus through a diachronic perspective. The research employs technological study, 3D documentation and functional analyses to characterise both Cypriot PPNA and the Epi-Paleolithic lithic traditions, as well as unravel similarities and diversity from a functional perspective by investigating in detail the chipped stone assemblages from Akrotiri-Aetokremnos and Ayia Varvara-Asprekremnos. The methodology of functional analysis includes reconstruction of the chaîne opératoire, combining techno-typological and use-wear techniques to determine tool functionality, tool morphology, and deliberate modifications. Regarding use-wear analysis, both the Low-Power Approach (LPA) and High-Power Approach (HPA) techniques are utilised as complementary methods. LPA provides insights into edge damage, fractures, angles, rounding, and profiles, which help identify material hardness and tool use movements. HPA offers detailed micro-trace examinations, including striations, micropolish, hafting traces, and residue remains, yielding valuable information about contact materials by examining micropolish development. On the other hand, the 3D analysis serves as our tool for investigating tool morphology, offering a lifelike depiction of artefacts and facilitating a thorough examination of the objects. This method permits the subdivision of tools into their constituent parts, the exploration of spatial relationships between specific points in three or two dimensions, the accurate measurement of morphometric characteristics, and the gathering of statistical information. Ultimately, this study aims to enhance our understanding of Cyprus's early colonisation and Neolithisation processes from a holistic approach in lithic analyses.

Keywords: Cyprus, Epi-Paleolithic, PPNA, Lithic Techno-Functional Analysis, 3D Documentation

4033-Neolithic Socials in Luristan Province, Central Zagros, Iran

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Abstract: The changes that occurred in the transition of human societies from the Paleolithic period to the Neolithic period are the most fundamental changes in human life. The changes that caused fundamental changes followed in various economic, cultural, social and religious aspects of human societies. Luristan is one of the provinces located in the west of Iran, which is located in the Central Zagros region. Central Zagros is one of the most important areas for studying the Neolithisation in the Near East, where valuable researches have been carried out. In the studies carried out until now, more than 30 sites belonging to the Neolithic period have been identified in Luristan province, of which 3 sites have been excavated, all of which belong to the PPN period. Of these sites, pottery was found in only 3 sites. which indicates the continuity of settlement from the PPN to the PN in Luristan. Based on the results of previous excavations, the presence of Neolithic communities in Luristan dates back to the 9th millennium BC, and according to the identification of PN sites, the presence of these communities is likely to continue until the 7th and 6th millennia BC. It seems that most of these sites belonged to nomadic and herding communities. However, some of these new sites, such as Ghelazeka in Khorramabad, have the potential of a central and permanent establishment, which needs further excavation and studies. Perhaps future research can confirm one of the models presented by Hole and Mortensen.

Keywords: Neolithic, Central Zagros, Luristan, nomadic

4156-The Use of Interdisciplinarity in the researchfield of Megalithism as a New Approach led to the Discovery of the Menhir Sanctuary of São Brás de Alportel (Algarve, Portugal)

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Abstract: The cornerstone of this research is the interdisciplinary work that has led to the identification of localization patterns and the discovery of a new megalithic complex in the Algarve region (Portugal), in the municipality of São Brás de Alportel. The important discovery, albeit preliminary information, includes a vast prehistoric sanctuary made up of dozens of menhirs . The Algarve region has a large number of different megalithic structures of various types. The different types of megalithic monuments are distinguished by the organization, connection and quantity of stones. Different processes and techniques were required for their construction. The choice of the location of the megalithic monuments would respect norms and principles, both in terms of location (geological, geographical and astronomical) and ideology and religion (beliefs_practices and rites). In the area under study, environmental and ethnographic variables such as legends and toponymy were used. Architecture, including megalithic constructions, has two points of interaction: intention and planning. Before the megalithic monuments were actually built, there were certain points that reveal the intellectual and cognitive capacity (awareness, existence and connections) of the builders in the realization of projects.

Keywords: Architecture; Megalithism; Interdisciplinarity; Discovery

4205-North meets South: The Difference of Epi-Jomon pottery making techniques in Rebun island

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Abstract: Japan's Neolithic period is so-called Jōmon Period (ca. 10,000 BC - ca. 1000 BC), and metal artifacts, rice cultivation from Korean settlement has brought to light a new agrarian society, cultural, and economic development of Japan. It is called Yayoi Period. In the other hands, at Hokkaido there is a still strongly characterized and consistent development of Jōmon Period. For example, the strong livelihood of hunting and fishing (Toyohiro Nishimoto 1984). Hence Sugao Yamanouchi (1933) called it Epi-Jōmon Period (BC 300- AD 700). Studies show the northern regions of Hokkaido, especially the Rebun Island, imply the intense cultural interaction with Sakhalin Island and demonstrates strong "marine" characteristic at Epi-Jōmon Period. For instance, Suzuya pottery (Kumaki 2008). It's a different cultural trait between main land of Japan or Hokkaido, and northern Islands. This study explores the pottery production process especially focus on the preparing of raw material from the late Epi-Jomon culture at the Hamanaka 2 site on Rebun Island. The main aim is to compare the environmental adaptation strategies of the cultures, as well as re-examine pottery styles changes from the late Epi-Jomon culture by focusing on technological approaches. In order to understand the variation in pottery styles spatially and chronologically, the samples were subjected to attribute analysis and petrographic analysis. Moreover, the study also explores the procurement and preparation of raw materials for the manufacturing of pottery as a means to understand localized knowledge of environmental adaptation during immigration.

Keywords: Rebun Island, petrographic analysis, Epi-Jōmon culture, Epi-Jōmon pottery, procurement and preparation of raw materials

4262-An Actual Example of Social Change in the Northern Japanese Archipelago in the Final Phase of the Jomon Period

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Abstract: Grave No. 18 at the Usu-Moshiri site in Date City, Hokkaido, is an example of multi-corpse group burial and multiple burial, where the bones of 11 humans in the final Jomon period (around 500 cal BC) were unearthed from an earthen pit grave. The human bones were such that their skulls were placed in a line on the south and north sides of a circular earthen pit grave, and at the front of the skulls, bones of extremities were placed with their long axes aligned, with bones of other parts placed on top of them. The anatomical positional relationships are not maintained, and it is clear that they were rearranged. The jawbones of two pairs of skulls were switched, indicating that they were placed at the same time after they had been fully skeletonized. The bones of the 11 humans are mainly those of young men, five of them with signs of wounds made by a blunt, thick blade, and three with signs of healing of a round, shallow depressed fracture. Nuclear DNA analysis showed that they include brothers. The above-mentioned grave is an example of social change, indicating that there may have been battles between groups in a hunting-gathering society in the northern region in the period when agricultural culture began to be accepted in the Japanese archipelago.

Keywords: Jomon Period, Multi-corpse group burial, Multiple burial, Injured human bones, Social change

4302-Real research into Neolithic artifacts at Göbekli Tepe, Karahan Tepe, and my findings as an artist.

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Abstract: Last two years I have been drawing and painting the art objects from Göbekli Tepe and Karahan Tepe through doing it I come to realise new findings and I would like to present those at the neolithic congress to public. My research will continue till end of September 2024 by then there will be more work to show and interpret at congress.

Keywords: drawing, painting, real research

4643-Investigation of coprolites from settlements of 6-3 thousand BC by X-ray tomography

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Abstract: The work is devoted to the X-ray tomographic study of coprolites from the settlements of Sertey II (North-West of Russia, 4-3 thousand BC) (20 AD) and Rakushechny Yar (Lower Podonye, middle of 6 thousand BC) (1 AD). It is part of the study of the features of the Neolithic communities economy, inhabited by The Russian plain. More than 600 coprolites were found at Serteya II, and 1 coprolite was found at Rakushechny Yar. The coprolites were presumably left by dogs. It is shown that in the studied coprolites a series of macrostages are found, mainly the remains of fish of different preservation, single bones of other fauna. The remains of fish are represented by teeth, vertebrae, scales, fragments of skull bones. Computer study of the scan results made it possible to reconstruct individual bones and teeth for further identification of fish species. At the preliminary stage, oral and pharyngeal teeth were identified, which indicates the presence of pike, catfish, etc. in the diet. Further research will clarify the specific features of the diet and the affiliation of these coprolites. The authors acknowledge Saint Petersburg State University for a research project 42.39.809.2017 and RSF 22-18-00086

Keywords: x-ray tomography, coprolites, Neolithic, Serteya II

4684-Survival through the 4.2 ka event by Jomon hunter-gatherers with adapted management and use of plant resources detected at the Denotame site in central Japan

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Abstract: The impact of the 4.2 ka event on the subsistence of Jomon hunter-gatherers was studied at the Denotame site in central Japan with pollen, plant macrofossils, and wooden remains. From 6250 cal BP of the middle phase of the early Jomon period to 3750 ca BP of the late Jomon period, deciduous forests dominated by *Quercus* continued to exist on the upland. In the lowland or at its edges existed *Alnus* stands at 6250–5900 cal BP, *Juglans* stands at 6100–3750 cal BP, and *Aesculus* stands at 4500–3750 cal BP. While maintaining settlements and making pottery from 5300 to 3600 cal BP, Jomon people artificially managed stands of *Castanea crenata* and *Toxicodendron vernicifluum* and used their resources and *Juglans* fruits through these periods and *Aesculus* fruits in later periods. Ample occurrences of other plants from artificial remains indicated use of plants with edible fruits such as *Morus*, *Quercus*, *Phellodendron amurense*, *Actinidia*, *Vitis*, *Rubus*, and *Broussonetia*, and those with other uses such as *Styrax*, *Sapindus mukorossi*, and *Sambucus racemosa*. Contrary to many instances of social disturbance through the 4.2 ka event in the Asian continent, the event did not affect the life of Jomon hunter-gatherers at the Denotame site. The stable temperature of the warm Kuroshio current during this period probably supported the stable environment and the undisturbed life of the Jomon people in central Japan.

Keywords: 4.2 ka event, Japan, Jomon period, management, plant resources

5009-Revisiting Genetic Insights into the Neolithic Transition in Peninsular Italy: Lessons from New Methods and a Growing Dataset of Ancient Genomes Across the Mediterranean

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Abstract: The neolithic transition on the Italian Peninsula has been studied extensively using archaeological, paleoecological and isotopic approaches, but paleogenomic studies of this important region remain sparse. This is especially notable in comparison to neighboring regions, such as Sardinia, the Adriatic and the Aegean. This project revisits the published ancient genomes spanning this transition in Italy (from Fu et al 2016 and Antonio, Gao, Moots, et al 2019), in the context of an abundance of ancient genomic data spanning the Mediterranean that has been published since these original studies came out. Coupled with new analytical approaches, this enables us to further examine the genetic changes that accompanied the Neolithic transition in peninsular Italy. We revisit the model of an incoming ancestry component best characterized by a combination of ancestries from the Anatolian Neolithic site of Barcın and the Iranian Neolithic site of Ganj Dareh and explore other possibilities for modeling these ancestries, including admixture from populations associated with Mesolithic cultures. Additionally, dietary isotopic analyses conducted on these same individuals allow us to integrate our findings with existing research on changes in dietary patterns in Italy during the Neolithic.

Keywords: ancient dna, italy, dietary isotopes, archaeogenetics

5018-Unpublished research in the Democratic Republic of Congo and Central Africa

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Abstract: Unpublished research in the Democratic Republic of Congo and Central Africa Angelo Vintaloro U.I.S.P.P. Member of the Metal Age Commission Only in the last few years has the Democratic Republic of the Congo achieved a peaceful stabilization, which allows scholars to be able to visit it, in its most internal aspects, highlighting many data, unpublished and explosive, which direct the scientific world to review its dynamics, referring to the origin and evolution of man. Today we can say that the "Cradle of Life" expands towards the west, touching the entire Congo River up to the Atlantic Ocean. The Neolithic arrives with the first great migration of the Bantu in the 2nd millennium BC, which also brought Megalithism. The Neolithic was stable for a long period, as the subsequent phase of the Iron Age, in which the Bantu were specialists, was significantly delayed, due to the natural barrier of the Congolese forests. Many types of artefacts are also comparable to the Toumbien Culture, which developed from the Gulf of Guinea to the Congo passing through Gabon. The Congolese provinces where the finds were found are: Kinshasa, Katanga, Nord-Kivu, Kasai, Bas-Congo, Equator. The discoveries are fortuitous, but confirm the presence and evolution of man in this part of Central Africa. The "Civilisations Préhistoriques à caractère non forestière" is divided into: Le Proto-Stillbayen, Le Stillbayen. The Magosien, probably not native but who arrived, through emigration groups, from other areas. Rock art is very present in Bas-Congo, in the Province of Matadi.

Keywords: congo, neolithic, kinshasa, matadi, Katanga

5040-Review of the PPN-PN Transition at the North Mesopotamia Based on Sequential Radiocarbon Dating of Sediments

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Abstract: In the Near East, the transition from the Pre-Pottery Neolithic to the Pottery Neolithic period was marked by concurrent and multifaceted economic, social, and symbolic transformations. This pivotal transition is known to have occurred in the 7th millennium BC, yet the precise chronology remains elusive due to gaps in the archaeological records between sites and within the stratigraphy of the occupation layers. This presentation provides a result of radiocarbon dating obtained from charcoal, carbonized seeds, and animal remains from sequential layers transitioning from the PPN to PN, with some sites in northern Mesopotamia, a primary focus on the Jarmo site. To review the chronological framework regarding the PPN-PN transition, we aligned the radiocarbon dates of the materials with each successive occupation layer with archaeologically verified transformations—including the cessation of traditional characteristics and the emergence of novel artifacts—. By the result, we ascertain the chronological advancement of this transition, referred to as the Second Neolithization, with an absolute dating scale.

Keywords: Pottery Neolithic, North Mesopotamia, Transition, Radiocarbon date, Pre-Pottery Neolithic

5129-Modern approaches to Neolithic Cult Sites in the Southern Trans-Urals

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Abstract: The territory of the Southern Trans-Urals is rich in treasures of stone tools. Among these treasures, the treasures in the Belaya River basin stand out. These are the Zatonkaya site and the Chishminskaya II site. The localization of the treasures is associated with the first terraces of oxbow rivers. However, archaeological excavations carried out in these territories have revealed both a variety of types of stone tools (arrowheads, spears, grindstones, etc.) and a variety of minerals from which they were made (jasper, flint, sandstone, etc.). During the excavations, the large area of stone artifacts was discovered. All this testifies to the multi-temporal nature of the archaeological materials found. These factors suggest that the found accumulations of stone materials are not treasures or workshops. Paleosoil studies carried out at the sites where Neolithic treasures were discovered showed a very low level of gross phosphorus and a small number of phytoliths. This makes it possible to connect the found accumulations of the stone tools on the banks of oxbow lakes with Neolithic Cult Sites. The ritual discarding of individual stone tools makes it possible to link “treasures” with Neolithic Cult Sites.

Keywords: Neolithic Cult Sites, Southern Trans-Urals

5261-Small Finds from A Neolithic Feature: Possible Interpretations

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³1 Decembrie 1918 University, Alba Iulia

Abstract: Small finds, unless found in a special context or made of a rare material are often treated marginally and presented briefly at the end of excavation reports in the “Others” category. During recent research (2022) enterprised in the sub-mountainous area of the Carpathian Mountains in Romania (site Gageni 2) for the construction of a highway, over 150 features were excavated and documented. Most of them could be attributed to later periods (Iron Age, post-Roman and Early Medieval), but two of them belonged to the Neolithic period, namely to the Boian culture, Giulesti phase. One of these two features was of considerable size (approximately 5 x 4 m at the identification level and 1.2 m in depth) and provided a rich ceramic material, numerous animal bones, lithic artefacts and small items, made mostly of burned clay, rarely encountered in literature: clay unperforated beads, clay “bracelets”, a possible cork. Without any direct analogy found inside the same cultural environment, we will try to indicate possible analogies and interpretations for these particular items.

Keywords: Boian culture, small finds, clay beads, clay bracelets, cork

5300-The Neolithic Landscape of Northeastern Europe as an Indicator of the Increasing Complexity of the Hunter-gatherer Economy

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Abstract: The results of a comprehensive archaeological and palaeogeographical studies in the Vychegda River basin are presented. The study aims to demonstrate the increasing complexity of the Neolithic cultures in terms of the development of riverine landscapes. For this idea, we compared the patterns of geomorphology and topography of Mesolithic (IX – VII millennia B.C., Early Holocene) and Neolithic (period of pottery distribution and use, VI – IV millennia B.C., Middle Holocene) sites. As a result, we have identified preferences in the choice of sites for residence, habitation and flint working by the Meso- and Neolithic populations of the region. In addition to traditional archaeological methods, we performed palaeochannel studies within the river valley, radiocarbon and OSL dating, palynological and palaeobotanical analyses. The results are as follows: 1) We have identified the main palaeogeographical events of the Late Glacial and Holocene in northeastern Europe that influenced the formation of landscapes occupied by people; 2) We made an archaeo-geomorphological map of the Vychegda River valley; 3) We have chronologically correlated the archaeological and palaeogeographical events; 4) We determined typical and unique landscape and topographic situations, in which different types of archaeological sites were identified; typical situations were classified; 5) Comparative analysis of Mesolithic and Neolithic data. Archaeological data and interpretation of the results were obtained under the theme of research work supported by the Ministry of Science and Higher Education of the Russian Federation, No. GR 122040800169-1; palaeogeographic reconstructions were made with financial support from the Russian Science Foundation, grant 22-17-00259.

Keywords: Archaeology, Mobile foragers, Palaeogeography, Vychegda River Basin

5743-The periodization,origins and cultural interactions of the Tanshishan culture in the Minjiang River basin

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Abstract: The Tanshishan Culture,distributed in the middle and lower reaches of the Minjiang River,dating back approximately 5000-4300 years BP,is an important Neolithic archaeological culture in the southeast China.Since the discovery of the Tanshishan site in 1954,there has been studied for nearly 70 years.However,issues such as cultural periodization,origins,and interactions with the surrounding cultures,which are based on archaeological stratigraphy and typology,still lack clear consensus.This artical,taking currently discovered Tanshishan cultural remains as a foundation,relies on stratigraphy and typology to analyze the evolution patterns and combinations of pottery unearthed from multiple sites.It divides this culture into three periods and four stages,and recognizes that there should be the possibility of sub-type within the culture.Subsequently,under this premise,it discusses its cultural origins and the inherited relationship with the Huangguashan culture from a longitudinal perspective,and finally,centering on the Tanshishan culture,it interprets its cultural interactions in the western,southern,and northern directions from a horizontal perspective.

Keywords: Tanshishan Culture, Periodization, Origins, Cultural interactions

5953-Tools for processing vegetation of hunters and fishermen of the Gissar culture (experimental and use-wear analysis)

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Abstract: The development and spread of agriculture during the Neolithic in Central Asia continue to be the most discussed topic despite the long history of study and extensive literature. At the same time, the issues of using plant materials by hunters and fishermen are the least developed. In this regard, the experimental and use-wear studies of materials from the sites of the Gissar Neolithic culture (Southern Tajikistan, VI millennium BC) are of great interest. Some of the Gissar sites are multi-layered settlements, but most are open sites with varying degrees of preservation of cultural layers. Experimental and use-wear studies of tool complexes from the settlements of Tutkaul and Sai-Sayed have shown that, despite the absence of typical agricultural tools (sickle inserts, ground stones), there are single examples of tools for cutting vegetation (grass, reeds). One of these, made of a pebble flake, was discovered at Gulikandoz, a workshop for the production of flint tools. The small number of tools of this type is explained by the objective difficulty of their traceological determination. However, they are presented not only at permanent settlements, but also at a specialized workshop, which demonstrate the economic relevance of such artefacts. Experimental work on cutting grass confirmed the traceological determination of the studied tools. These data indicate the practice of using plant raw materials by people of non-agricultural Neolithic cultures of Central Asia. This is new information for revealing the peculiarities of human adaptation to the natural environment in different regions of the ancient ecumene.

Keywords: Use-wear, Gissar culture, Gulikandoz, Traceology

6003-Shahran Site, Revealing Sociocultural Developments in the Late Neolithic of the South Caspian Sea Region

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Abstract: Unlike the southern Alborz Highlands range, its north has been less noticed due to forests known as the Hyrcanian Forests. Archaeological studies in the Qazvin High Plain in south Alborz show a sociocultural gap between the Late Neolithic and the Early Chalcolithic in the area. Shahran is located within a key potential corridor west of the Alborz Highlands. Sefidroud Valley holds significance as the sole natural passage between the northern and southern sectors. This corridor connects the high area with steppe cover to the Hyrcanian forests and it is a suitable platform for agriculture. The absolute dating shows that the site belongs to the Late Neolithic. The chipped stone assemblage indicates a certain affinity with the Neolithic of the Caucasus. The lithic features suggest an agricultural subsistence strategy that is confirmed by the regional landscape. Faunal remains, encompassing both domesticated and wild species, allude to animal husbandry and hunting alongside cultivation. Concomitantly, the presence of simple and unadorned ceramics, ground stones and circular dwelling places elucidate the way they are inhabited. Fragments of fired straw-clay bearing reed impressions provide valuable evidence for reconstructing their habitations. The findings of the site show the temporary camp of its inhabitants. This evidence can indicate the lifestyle changes or the importance of some subsistence strategies for Late Neolithic residents of the area, not the gap.

Keywords: Shahran Site, Alborz Highlands, Late Neolithic, Subsistence strategy change, Temporary camp

6011-A Pre-Pottery Neolithic Site in Upper Tigris: Bone Assemblages of Gusir Höyük

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Abstract: New research, which reflects the early stages of the Neolithic period and the transition to sedentary life in the Upper Tigris Basin, has provided detailed information about this period. One of the earliest settlements in this region is Gusir Höyük. The settlement consists of the partially damaged PPNB (8430-8270 cal BC) and PPNA (9700-8800 cal BC) levels, which reflect the first stages of the transition to sedentary life. In addition to the architectural changes associated with sedentary life, technology and subsistence strategies also changed. The bone assemblages of Gusir Höyük offer a wide range of possibilities for morphological, metrical, and technological evaluation. The characteristics of the tools in the settlement prove the existence of activities such as basketry, weaving, leatherworking, textile, hunting, and architectural technology. The variety of ornaments draws attention to personal preferences and objects that indicate individual expression. All these factors contribute to the understanding of the people in the early stages of the Neolithic period in the light of the bone assemblages from Gusir Höyük.

Keywords: Southeastern Anatolia, Gusir Höyük, Bone Tools, Bone Ornaments, PPNA-PPNB

6175-The results of Neolithic period research conducted in the Western region of Azerbaijan

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Abstract: In 1953-1956, archaeologist Mammadali Huseynov involved the world-important Damjili cave camp, located in the territory of the Avey State historical-cultural reserve, in the territory of the “Avey” State Historical and Cultural Reserve, in the Gazakh region of Azerbaijan. Damjili cave camp is an area with great potential for researching the sequence from the Paleolithic to the Middle Ages in Azerbaijan. Since 2016, Japanese and Azerbaijani archaeologists began joint research activities in the same area. The aim of this research project was to reveal the settlements of the late Mesolithic period and the layers of the transition from the Mesolithic to the Neolithic in the area. Excavations in the Damjili cave since 2016 have revealed a striking cultural sequence that dates from the Middle Paleolithic and covers all periods. Excavations in 2017-2018 years showed that the area's chronology covers the Mesolithic and Neolithic periods, and the material and cultural samples found during these periods confirm the formation of food production and regional economies. The ceramic-granite complexes found in deeper layers belong to the Mesolithic period. These observations allow for a clear understanding of the Mesolithic-Neolithic transition of the Damjili sequence, and let us told that which will significantly contribute to the substitution of these layers for the first time, in one of the region of Azerbaijan. Among the archaeological monuments found around the town of Jeyranchol, Jandargol and Soyugbulak, where the Keshikchidagh caves complex is located in the Aghstafa region, there are settlements from the Neolithic period where work tools were discovered.

Keywords: Damjili cave aghstafa gazakh research

6258-Non-masticatory striations on human teeth from the British Neolithic: evidence of post-mortem treatment of the dead?

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Abstract: Non-masticatory striations on human teeth are a form of cultural dental alteration recorded throughout the Pleistocene, most particularly on anterior teeth. These scratches are interpreted as the result of the use of the mouth as a ‘third hand’, produced by the cutting edge of a tool damaging the enamel. While this type of dental alteration appears to be rare within Holocene assemblages, it has been recorded occasionally for the Neolithic. Recent work suggests that some of the striations observed on human teeth, most particularly on posterior teeth, might result from funerary practices or cannibalism rather than from in-life activities, as accidental damage to the posterior dentition is not expected when using the mouth as a ‘third hand’. In this study, we explore this hypothesis through the analysis of non-masticatory striations observed on human teeth from five British Neolithic sites, using focus-variation microscopy to assess the micro-morphometric characteristics of these dental alterations. Striations were recorded across all of our samples, mostly on canines and incisors, but also on premolars and molars in two assemblages, including in a megalithic assemblage where cut-marks were recorded on a human temporal bone. We suggest that some of the striations observed might relate to post-mortem treatment of the bodies, especially when located on the posterior dentition and when exhibiting micro-morphometric characteristics similar to cut-marks. Although cut-marks on teeth are rarely studied, our results open interesting avenues for future research to further our understanding of complex funerary practices, such as those often associated with Neolithic megalithic structures.

Keywords: Dental wear, Cultural behaviour, Funerary practices, Microscopy, Secondary burial

6558-The origin of social inequalities in Northern Italy: clues from ancient genomes

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Abstract: Uncovering the dynamics promoting the onset and perpetration of social inequalities in prehistoric societies is a major challenge. We now have the opportunity to exploit archaeogenomic data to describe, with unprecedented resolution, past population structure and processes and to shed light on sociocultural dynamics (e.g., the lineage-based transmission of social status and wealth) which are the basis of the onset of inequalities. Two major population dynamics within the last 10,000 years impacted the genomic composition of Europeans: the Neolithic expansion and the Bronze Age migration from the Steppe; despite the importance of these events, our genetic understanding is mainly built upon pan-European sampling strategies, resulting in limited knowledge about the impact of these migrations at the level of single societies. In this project, we propose a high-resolution multidisciplinary study of three burial sites in Northeast Italy from the Neolithic, Eneolithic, and Bronze Age periods to infer the social and genetic structure and their possible change in this time transect. We will sequence whole genomes of 110 individuals to provide a detailed reconstruction of biological relatedness that, combined with a deep resolution chronology, the fine assessment of grave goods and burial practice, individual mobility and dietary resources access provided by stable isotopes analysis, will give us information about the presence of inequality between the members of each burial site. The results of this study will help us to shed light on the onset of social inequality in Northern Italy, and on the cultural and biological mechanisms that promoted its development.

Keywords: social structure, population genetics, archaeogenetics, kinship analysis, Neolithic-Eneolithic-Bronze age transition

6832-The Early Copper Age in the Forest Zone of Eastern Europe Based on the Study of Archeological Sites in the Republic of Karelia

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Abstract: The beginning of the Copper Age in the territory of the Republic of Karelia is primarily considered as the era when the first copper tools were developed and used while the production and use of the stone tools continued. This definition (N.N. Gurina), emphasizes the utilization of copper and the absence of characteristic wide usage of copper-age tools as the fundamental criteria for the archaeological periodization. The initial copper tools were discovered at archeological sites with rhombus-ornamented ceramics. These archeological sites chronologically align with the transitional phase from the Neolithic to the Eneolithic. Within the Republic of Karelia, there are 19 archeological sites where copper artifacts have been identified. Eight of them also contained rhomb-pit ware. All these archeological sites are situated along the coast of Lake Onego. The transitional period from the Neolithic to the Early Copper Age in the Republic of Karelia is characterized by the use of both comb-pit and rhomb-pit ceramics. The exact development of these ceramic styles remains unclear. It is essential to acknowledge that the processes associated with the Neolithic phenomenon continued to unfold during this period. Archeological sites with comb-pit ceramics are classified as Neolithic due to absence of copper objects in these sites located on the modern territory of the Republic of Karelia. However, according to radiocarbon-based examination, archeological sites with comb-pit and rhomb-pit ceramics existed concurrently to some extent. The emergence of copper appears to reflect a broader trend towards utilizing diverse material resources, which is a key characteristic of the Neolithic process.

Keywords: Early Copper Age, Forest Zone of Eastern Europe, Neolithic process

6857-Architectural Development Processes of the Pre-Pottery Neolithic A Period in Upper Mesopotamia

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Abstract: The onset of optimal environmental conditions in the Holocene Period was one of the driving forces behind the transition of human communities to a settled lifestyle. As the need for shelter increased, the simple shelters built by the hunter-gatherer communities of the Paleolithic were replaced by structures of different forms in the Neolithic. Factors such as the changing needs of the communities, environmental conditions, construction material resources and technical knowledge account for the diversity of this change in this first phase of building truly permanent structures. This process, observed in various forms in different regions and settlements over time, provides a rich source of data and makes it possible to observe the processual relationship within this development. This case, which is quite impressive in terms of architectural history, presents in a very rich and diverse way the preferences, problems, solutions, and the resulting trial-and-error system in the building construction process over a wide geographical area.

Keywords: neolithic, architecture, ppna, northern mesopotamia, history of architecture

6866-Salt exploitation and spatial dynamics of Neolithic communities during the Early Neolithic of Eastern Romania

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Abstract: Neolithic communities in Romania developed around available natural resources, with salt being given a significant importance. The Eastern Carpathians geology is abundant in salt sources, with salt springs and outcrops being intensely exploited by early communities. Important Early Neolithic archaeological sites are documented close to some of these springs and were assigned to Starčevo-Criș culture. The culture flourished around the Carpathian Arch and the Northern Black Sea during the Neolithic, bringing with it technological advancements in agriculture and ceramics from Anatolia. The artifacts found on sites and the direct association of these communities with the salt springs show that some groups were boiling, concentrating and recrystallizing salt in situ. Once the process completed, salt was probably transported to other places or even traded. The most extensive salt exploitation known until present overlaps with Neamț Depression and surrounding areas, particularly important being the springs from Lunca - Poiana Slatinei, Oglinzi – Slătior, Oglinzi – Băi and Țolici – Hălăbutoaia. Collectively, our data suggest that Neolithic exploitation of salt springs had a regional importance and has influenced over time the spatial dynamics of the sedentary populations in the Carpathian area.

Keywords: salt exploitation, Neolithic, Eastern Carpathians, salt springs, Starčevo-Criș culture

6950-Megalithic and Non-Megalithic Tombs of Beira Alta (Central-Northern Portugal): An Overview on Research History, Past Cultural Changes and Ongoing Protection Policies

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Abstract: Several written sources mention megaliths in the Beira Alta region since the 16th century, being referred to as ‘pagan altars’ or ‘antas’ (their popular name in Portuguese). The first scientific study dates back to 1868 with continuing research beginning in the 1890s. The 20th century saw the surveying and excavation of dozens of monuments. Today there are 350-400 known megaliths in the region. The oldest ones date back to the 5th-4th millennia BC transition (Middle Neolithic), with the presence of schematic and sub-naturalistic art (painted and engraved) being a particular feature. These were likely built by communities with a segmentary social organisation that expanded farming practices to the whole region. In the 3rd millennium BC—namely in the Bell Beaker period—the reuse of large Neolithic dolmens or, more rarely, the construction of small non-megalithic tombs takes place. However, a threefold, dramatic transformation would take place at the end of the 2nd millennium BC (Late Bronze Age): the advent of stratified societies; the replacement of inhumation by incineration funerary practices; and the construction of small mounds, of which almost 500 are known (often adjacent to the large, older dolmens). Today, policies are being implemented in the region to rehabilitate and valorise dolmens, to open them to the public, and to draw up measures to protect and record this heritage, with special attention paid to the fragile paintings that are still preserved.

Keywords: Megaliths, Beira Alta, Portugal, Archaeological Research, Heritage Protection

7041-Banahilk (Northern Mesopotamia): A Border Site or a Crossing Point at the End of the Halaf Period?

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Abstract: Banahilk (Soran, Iraq) provides valuable insights to understand Late Neolithic communities through settlement patterns, trade networks, and resource management strategies. The site, settled in the Zagros mountains, offers a glimpse into the lives of early agricultural communities and their interactions with neighbouring regions. At Banahilk, archaeological excavations taken up in 2018, have revealed notable aspects of the site is its role in regional trade networks during the Neolithic period. Archaeological evidence suggests that Banahilk was involved in long-distance trade, exchanging goods such as obsidian, pottery, and agricultural products with neighbouring communities. Obsidian, a volcanic glass prized for its sharpness, was particularly significant as it was not naturally available in the region. The presence of obsidian artifacts at Banahilk indicates that the community engaged in trade with distant sources, possibly located in central Anatolia or other regions rich in volcanic activity. Trade at Banahilk likely played a crucial role in the economic and social dynamics of the community. The exchange of goods allowed for the acquisition of resources not locally available, facilitating the development of specialized crafts, social differentiation, and the accumulation of wealth. This presentation will deal with the presence of exotic items at Banahilk reflects the interconnectedness of Neolithic societies and the establishment of trade networks spanning vast distances. In addition to its role in trade, Banahilk offers insights into resource management strategies employed by ancient communities. The site's proximity to fertile land and water sources suggests that agriculture was the primary economic activity. However, archaeological evidence indicates that the inhabitants of Banahilk practiced a diversified subsistence strategy, incorporating hunting and herding into their livelihoods. This diversified approach to resource exploitation likely contributed to the resilience of the community in the face of environmental fluctuations and challenges.

Keywords: Zagros, Soran-Iraq, Late Neolithic

7284-Megalithic monumentality in the southwest of the Iberian Peninsula: genesis and architectural, landscape and social transformations in the El Pozuelo complex (Andalusia, Spain)

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Abstract: The first dolmens in the southwest of the Iberian Peninsula appeared at the beginning of the 4th millennium BC in connection with the emergence of funerary collectivism during the Final Neolithic. In the following centuries, a high diversity of funerary megaliths dedicated to collective burials was found, highlighting the existence of large monuments with long biographies, which functioned as landmarks that shaped the landscapes and agglutinated the memory of the ancestors. The case of the El Pozuelo complex is evidence of a complex sequence of monuments, with a succession of different models of monuments from the beginning of the 4th millennium to the beginning of the 2nd millennium: Neolithic dolmens (single, elongated and multiple chambers), which were transformed during the Copper Age, and terraced enclosures with circular platforms from the Early Bronze Age. The long durability of the megalithic site and the continuous architectural remodelling were due to different social intentions and uses of the megaliths, causing a progressive transformation of the surrounding landscape, an increasing spatial impact and a greater visual perceptibility of the monumental space. The genesis of monumentality and the various processes of social re-appropriation of ancestral space reflect the different social patterns and models, the processes of architectural specialisation and the complexity of collective practices around the sphere of death and rituals. These changes can be correlated with a social sequence in which social cohesion is contrasted with increasing social differentiation.

Keywords: Megalithism, Dolmen, Terraced enclosure, Landscape transformations, Social cohesion/differentiation

7341-Holes in Pots. Perforated Ceramic Fragments from the Hamangia Neolithic Cemetery at Cernavoda, Romania

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Abstract: Pottery is not an unusual encounter in a Neolithic cemetery. Quite often, vessels are deposited in a grave, near the deceased, to hold solid or liquid offerings. In our case, a certain area of the Neolithic funerary site is characterized by an abundance of ceramic fragments, part of which were recorded to have one or two holes in them. The sherds came from variously sized and differently shaped vessels. The perforations were done either from the interior side of the sherd or from the exterior side of it. Most of the times the perforations were located in the upper part of the vessel, below the rim. We will analyze the type of perforation, the spatial dispersal of these fragments within the site, but also the possible cause or purpose for the encountered perforations. In addition, we will try to interpret the presence of these pottery fragments inside a known funerary context.

Keywords: pottery, holes, funerary site, functionality

7565-Build to impress or to use? The case of Alentejo megalithism (Portugal)

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Abstract: This work aims to present the Megaliths found in the Alentejo (Portugal) and to reflect on how they influenced Neolithic societies. The work carried out on hundreds of megalithic structures allows us to see that their construction must have begun with the smallest and simplest tombs, which evolved into the most complex monuments, with large chambers and corridors (where hundreds of people were buried), of which we have countless examples scattered throughout the Alentejo. This architectural complexity reached its peak in the second half of the 4th millennium and throughout the 3rd millennium BC, when we know that in southern Portugal a wide variety of architectures and funerary typologies coexisted, some built with stone, others carved out of rock, or using natural caves... We know that this choice was based on the sources of locally available materials, which determined the construction techniques and materials. But their construction, more or less imposing, also served to impress and differentiate people or social groups. The houses of the dead are spaces that are lived in and visited regularly, but with differences. This shows that mentalities and ritual and/or religious behaviour are very different from what is assumed.

Keywords: Megalithism; Architecture; Neolithic; Alentejo; Portugal

7615-To Preserve What Have Been Hunted Hide It! Ancient Stone Caches of The Far Northeast of Eurasia.

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Abstract: Throughout the history of mankind hunters have used stone caches which are storage facilities for hunting prey that were built of stone or dug into a stone substrate. These structures are dating back to both historical and prehistoric times and widely represented in the Arctic. The earliest of such structures can be Neolithic or even older. They are evidence of deferred consumption, and signs of modification and cultivation of 'wild' landscapes. Cashes mainly remain unnoticed by archaeologists because due to functional specificity they are located far beyond the settlements and intentionally hidden from prying eyes. Caches have been and continue to be an important element of culture of Far North nomadic hunters and therefore require special research. A number of these objects have been identified and properly documented in the last decade during field studies in Chukotka. The obtained data allow us to propose primary classification of caches, partly based on ethnographic evidence. Additionally issues of the chronology of the caches can be discussed with the inclusion of new data.

Keywords: Stone caches, Chukotka, Neolithic, nomadic hunters, Northeast of Eurasia

7927-Klishyna 3 “Lower Terras” – a new site of Narva culture in Northern Belarus

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Abstract: The site Klishyna 3 “Lower Terras” is located on the northern part of Belarus (Krupki district, Minsk region, Dzvina river basin). It was discovered by the authors in 2022. The settlement is located on the eastern part of the island in the middle of the lake Sialiava. In hypsometric terms, this area rises 1–1.5 m at the current water level. During the 2022–2023 the site was investigated on an area of 27 m². Artifacts were encountered up to a depth of 0.4 m. The identified materials are represented by pottery and flint artifacts. Individual finds made from other types of stone have also been recorded. Of note is a bead made from the remains of the stem of a fossilized sea lily (Crinoidea). The flint processing technology was based on the use of local flint raw materials. The splitting technique was focused on the exploitation of prismatic cores to obtain regular blades. At the same time, the materials of the site present a bipolar splitting technique. Pottery is represented by vessels with traces of scratching on the outer and inner surfaces. The fabric includes shells and organic temper. The ornament consisted of horizontal rows of combs and small round hollows in the upper part of the vessel. Based on dating from the settlements of the Narva culture on the territory of Belarus (Zacennie, Asaviec 4), the materials of the Klishyna 3 “Lower Terras” site should be dated within a broad chronological framework to the early Neolithic.

Keywords: Early Neolithic, Narva culture, flint materials, pottery, Northern Belarus

8374-ERC READ project – Revealing earliest animal domestication in the Fertile Crescent: presentation, aim and research objectives

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Abstract: Animal domestication is a key topic in Neolithic archaeological research since the early 1960s. The earliest steps of this phenomenon are, still today, very difficult to achieve. Traditional zooarchaeological analyses used to date domestication rely on detecting the appearance of genetically-driven morphological changes in animals. These morphological markers, however, if they occur at all, only appear after the process is well underway, after hundreds, if not thousands, of years, making it difficult to study them. The READ project builds an alternative approach to detect early evidences of sheep and goat management. The project investigates the historical life-traits of the animals with a high-resolution time analysis by performing biogeochemical analyses on fossil teeth. This will allow reconstructing the three clue mechanisms that were pivotal in the lead up to domestication: the control of the animals' reproductive cycles, the induced changes to their feeding habits and the interruption of migratory-seasonal movements; putting together a reference dataset from wild relatives available in museum collections and current living populations found in breeding centres. Our aim is unravel the current unresolved paradigms on the origin of animal domesticates not relying on how the animals changed but rather what the human societies did to change the animals.

Keywords: Animal domestication, sheep and goat, stable isotopes, ERC Consolidator project, 2024-2028

8380-Human (*H. sapiens* L.) Settlement in the Caucasus

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Abstract: Modern humans emerged in Africa around 100-200 kya, with some individuals leaving the continent around 70 kya. The human tribe split 50 kya, likely near the Black Sea. One group migrated southward, ultimately colonizing South Asia, Southeast Asia, and Australia via the “Southern Route.” Currently, About 50 ethnic groups inhabit the Caucasus, with three prominent ones in the South Caucasus: Georgians, Armenians, Azerbaijanis. Additionally, there are two Caucasian (North-West, North-East) language families. The Georgian language belongs to one of the seven Eurasian superfamily. According to our hypothesis, Proto-Eurasian speakers may have resided 15 kya in southern Arabia. Soon after, the proto-Dravidians separated from the proto-Eurasian speakers and migrated to India via the coastal route. Proto-Kartvelian speakers might have originated here and later moved to northern Mesopotamia. They likely lived in this region for an extended period. The domestication period of Einkorn, Emmer, and Timopheevii wheats (10-7 kya) coincides with the location and construction date of Gobekli Tepe. As our hypothesis suggests that the proto-Kartvelians took part both in the domestication of wheat and in the construction of Gobekli Tepe. The modern human settlement in the Caucasus began in the Stone Age, concluding in the Bronze Age. The population entered the Western Caucasus from the southwest, crossing the Caucasus Range. Descendants reside in the North Caucasus, while Abkhaz live in the South Caucasus from the Gali region to the Psou River. Nakh-Dagestans entered the East Caucasus, initially residing in present-day Eastern Caucasus. Kartverian tribes arrived later, compelling Nakh-Dagestans to move northward.

Keywords: *H. sapiens* L, Caucasians, Y-chromosome, wheat, migration

8647-Preliminary insight on Pre-Pottery Neolithic site (Jebel Arqa) in Hisma Basin, Southern Jordan: View from revisit surface survey

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Abstract: Jebel Arqa located in Hisma Basin in the arid zone of Southern Jordan, the site was recorded in (1992) (Berna,1997; Angelotti and Berna, 2000), based on the analysis of the material culture of the site (lithic tools, structural remains) the suggestion drawn that the site represent a MPPNB amazonite workshop (Fabiano et.al, 2004). Revisit Surface exploration of the site was undertaken during September 2022 (the fieldwork relating the researcher PhD topic), noteworthy that the site was affected illegal excavation in eastern part, therefore both quantitative (systematic) and qualitative (random) surface survey approaches were employed, the aims were to define the exact site's extension, as well as investigate the distribution of the material culture on the surface of Jebel Arqa. The conducted surface survey confirmed the extent of the site which extended beyond the center to the peripheries which passed from the ca. 2000m² in the Angelotti and Berna survey (2000) m² to the present (26.844) m² based on the distribution of the artifacts on the surface. preliminary typo-technological analysis of the lithic assemblages' accordant with the previous fieldwork in 1992, the lithic characteristics points to PPNB, most of the finds represent microlithic tools (blade-based on burin), scrapers, projectile points, in addition to drilling tools. Therefore, with this paper the discussion will be drawn based on typo-technological and possibility of functional analysis to get more details in terms of socio-economic aspects and the function of the site.

Keywords: PPNB, Jebel Arqa, Arid Zone, Southern Jordan, Lithic Analysis

8719-Correspondence between the components of the weaving technique and use of baskets during the Jomon period in Japan

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Abstract: The Jomon period is regarded as Neolithic with a hunter-gatherer society without agriculture and pastoralism. Recent archaeobotanical findings have, however, revealed that, as settlement progressed, plants were managed and cultivated. Besides pollen and seed remains so far studied, the production of baskets has provided insights into plant management. We examined the morphology, techniques, and material plants of woven baskets excavated from more than 50 Jomon sites ranging from ca. 8000 to 2700 cal BP in Japan. We identified material plants of the baskets, using the resin-embedded sectioning technique. At the oldest site with woven baskets of the initial Jomon period at ca. 8000 cal BP, Jomon people already used most of the weaving techniques that are still being used in present Japan. At present woven baskets are recovered from more than 100 sites of the Jomon period, and we found that five regions differing in weaving techniques and material plants existed in the Japanese archipelago. Studies at several sites with more than 20 woven baskets showed a close correlation between the thickness, width, spacing of the material plants, and weaving techniques. Experimental reconstruction of Jomon woven baskets revealed that material plants suitable for weaving cannot be obtained without critically considering their growth form and collecting seasons and that plant resources were probably managed around settlements to secure suitable materials for the basket manufacture. In spite of agriculture begun in mainland China and the Korean peninsula, the Jomon people continued a sophisticated management and use of plant resources around their settlements.

Keywords: Baskets, Jomon, Japan, Material plants

9483-New insights in the Neolithic-Chalcolithic of Eastern Romania – a biomarker based paleoclimate reconstruction of Răucești site

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Abstract: Neolithic and Chalcolithic sites are numerous in North East Romania, predominantly assigned to Cucuteni - Trypillia culture. These communities were usually quite large and with a rich cultural repertoire, but little is known about the environmental conditions during their development. Here we analyze biomarker data from Răucești site (Târgu Neamț county) in order to assess the climatic conditions and vegetation contribution in the area between ~ 3950 – 3400 BC. Our data indicate a terrestrial source of n-alkanes and general warm conditions during the site deposition, with mean annual temperatures between ~12 and 15 °C, much higher than the present-day average of ~ 8.2 °C. Samples collected from the top surface of the archaeological layer indicate a drastic drop in temperature to 9 °C at the end of the human occupation on the site. The large shift in temperature from warmer to colder indicates a direct link between environmental conditions and the human presence on the site, suggesting the collapse/abandonment of the site at the onset of colder temperatures. The end of the occupation around the same time interval (~ 3400 BC) in the entire Eastern Europe suggests that this is a large-scale event, with consequences over the entire culture.

Keywords: biomarkers, temperature, Romania, Cucuteni - Trypillia culture collapse

9705-Neolithization of in the Forest-Steppe Zone of Western Siberia

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Abstract: A new wave of discussions about the process of neolithization in Western Siberia arose as the fact of an even greater antiquity of the tradition of making flat-bottomed utensils was established. The Early Neolithic complexes of the Mergen archaeological microdistrict, located in the Ishim River basin, occupy one of the key places in the study and understanding of the Neolithization process that took place in the forest-steppe zone of Western Siberia. As a result of the analysis of the initial data characterizing house-building, pottery, stone and bone production of the Mergen population of the early Neolithic, belonging to the mitochondrial haplogroup U2e3 (I1960), its role in the formation of the Neolithic era in the region was determined. It has been traced that in the 7th millennium BC. carriers of two pottery traditions coexisted, producing dishes with flat and round bottoms. This is a key point for understanding the process of neolithization of the forest-steppe zone of the Trans-Urals and Western Siberia.

Keywords: Western Siberia, early Neolithic, pottery traditions, the Mergen archaeological microdistrict

9904-Evidence of early domestic sheep in the Pyrenees: using ZooMS analyses to track first neolithic occupations in mountain areas of the Western Mediterranean

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Abstract: In the Iberian Peninsula, the occupation of mountain areas by the first farming communities is still poorly understood. In the Pyrenees, one of the main mountain ranges of northern Iberia, the archaeological sites linked to these occupations are scarce, and, to date, the archaeological data available is limited. In addition, the presence of sheep –a reliable evidence of farming communities wherever wild sheep species are absent –is difficult to assess since bone assemblages available are also limited. Recently, a new site located in Eastern Pyrenees has been excavated (Bauma dels Fadrins, Queralbs) where potential Early Neolithic occupations have been documented. Caprine bone remains are abundant, but the identification of domesticates is challenging due to bone fragmentation and similarities with other species, especially wild goat and chamois. Here, we present preliminary data from a new study where a wide set of bone samples from this site has been selected for ZooMS analyses. The study aims to identify the presence of domestic sheep linked to these occupations, and to provide reliable radiocarbon dates of first farming communities for this area. The potential herd composition at the species level is also investigated. The first results point to the earliest evidence of domestic sheep in the eastern areas of the Pyrenees.

Keywords: Iberian Peninsula, Mountain areas, Sheep, ZooMS, Radiocarbon date

9939-The path to Neolithization at al-Khiday site, Central Sudan

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Abstract: Al-Khiday is a complex site located in central Sudan, on the left bank of the White Nile. It has been occupied since around 12000 BCE by a community of fisher-gatherer-hunters who, in the 5th millennium BCE, adopted a mixed production economy that included domestic animals with exploitation of indigenous plants, and possibly domestic plants but continued fishing and hunting. The path to this transformation may have come directly from the hunter-gatherer population. There is evidence that this population had a fairly sedentary lifestyle, which may have led to the adoption of practices that reduced the need to move. Grinding stones are a good proxy for tracing these changes. To reconstruct the dynamics of the subsistence system at the site, a microbotanical analysis of the grindstones was carried out, as they are overwhelmingly present in all phases recorded at the site and are a good proxy for tracing these changes. This contribution presents the results of the phytolith and starch analysis of these tools, together with the analysis of the wear patterns through the study of the high-resolution casts. The results of this study, combined with the data from previous studies (isotopes, calculus analysis, pottery residues), contribute to a better characterization of the transition period of the site.

Keywords: Al-Khiday, lifestyle, ground stone tools, micro-remains, Neolithization

9965-The beginning of the Neolithic in southeastern Belarus: current state and problems of study

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Abstract: The territory of southeastern Belarus occupies the eastern part of Polesie (Gomel region and south part of Mogilev region). Three large water arteries flow through this area - the Dnieper, Sozh, Pripyat - which contributed to the penetration of the population in different periods of history. A repeated study of archaeological materials from the region's sites using modern methods allowed us to take a new look at the problem of the beginning of the Neolithic in this area. Pottery is of primary importance in understanding cultural processes in a given territory because it is an indicator of the beginning of the Neolithic. As a result of the work, new cultural phenomena in the region were identified (the Strumel-Gastyatin type). The appearance and manufacturing technology of vessels of the Strumel-Gastyatin type indicate a connection with the Bug-Dniester culture. The presence of such pottery in settlements may indicate the penetration of pottery traditions from the south to the north along the Dnieper, from the "southern" pottery center that developed in the southwestern region of Eastern Europe—in the area of the Bug-Dniester culture. The Dnieper served as the route for the penetration of the ceramics-making tradition into the region. The absolute dates available today allow us to say that the appearance of the first pottery on the territory of southeastern Belarus dates back to the 6th millennium BC. It is currently not possible to trace the process of neolithisation in more detail on the territory of southeastern Belarus.

Keywords: Early Neolithic, southeastern Belarus, pottery, Strumel-Gastyatin type