日本人類学会進化人類学分科会

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次回シンポジウム

第 46 回シンポジウム　予定（第 75 回日本人類学会大会一般シンポジウムとの共催）

「ミャンマーの後期中新世ホミノイド上腕骨化石の形態解析」

日時：2021 年 10 月 10 日（日）午前

場所：Zoom によるオンライン開催（第 75 回日本人類学会大会内）

オーガナイザー：高井　正成（京都大学霊長類研究所）

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概要

ミャンマー中部の後期中新世初頭の地層から見つかったホミノイドの上腕骨遠位端化石と近位端化石の形態解析を行った。特に大型の遠位端化石について、相同モデルを使用して行った現生大型類人猿との比較解析の結果を報告する。

＜分科会から次回シンポジウムに関しての連絡＞

コロナの影響により、昨年に引き続き、今年秋の第 75 回日本人類学会大会では分科会シンポジウムは募集されませんでしたが、一般シンポジウムを分科会シンポジウムと共催にすることは認められたため、上記の一般シンポジウムとの共催というかたちで第 46 回進化人類学分科会シンポジウムを予定しています。このような形式になりますので、例年とは少し異なり、当日、リアルタイムでのシンポジウム参加は大会登録者に限られ、大会に参加しない分科会会員には、大会終了後、シンポジウムの講演部分のみを録画・編集したものを期間限定（1 週間）で公開することになる見込みです（公開についての詳細は後日連絡）。今回は大会自体がオンライン開催であるため当日の参加登録はなく、リアルタイムでのシンポジウム参加をご希望の方は、2021 年 9 月 13 日（月）17 時までに大会参加登録を済ませておく必要がありますので、ご注意ください（大会参加登録についての詳細は、第 75 回日本人類学会大会 HP を参照：https://www.kuba.co.jp/anthropology75/）。なお、例年、人類学会大会での分科会シンポジウム終了後に分科会総会を開いていますが、現状を考慮し、大会終了後にメール総会というかたちにしたいと考えております。

第 45 回シンポジウム（共催:融合チーム研究プログラム[SPIRITS] 京都大学）

“Turkey−Japan exchange 2020: featuring the paleoanthropological excavations in Turkey and recent works from Japan”

2021 年 2 月 15 日 ZOOM によるオンライン開催

趣旨説明

トルコ共和国(アナトリア半島)では、ユーラシア最古級の化石類人猿からホモ・サピエンスまで幅広い年代をカバーする遺物が産出し、各地で精力的に発掘調査が行われている。京大隊は主に中新世類人猿と中期更新世以降のホモ属をターゲットとして発掘調査を計画し、予備的な調査を開始していた。2020 年度にも、日本側研究者はトルコへ渡航しての予備調査への参加、また、トルコ側研究者を日本に招聘してのディスカッションを予定していた。しかし COVID-19 の影響のため、ともに実行できなかった。幸いにも、2020 年度もトルコ国内の発掘調査は実行されたため、その成果に加え日本側研究者の近年の研究成果を共有することで、今後の共同研究のさらなる発展の礎としたいと考えた。本シンポジウムでは、トルコ側からは特に旧石器時代の遺跡の発掘調査の成果を報告してもらう。オンライン開催の利点を生かし、トルコ国内の人類学的研究の最新情報を広く共有する機会としたい。

プログラム(日本時間)

16:00-16:20 Opening Remarks/Recent work on anthropoid inner ear and our aims in Turkey
Naoki MORIMOTO (Kyoto University)

16:20-16:40 An introduction to morphometric mapping: its application to hominoid molars
Wataru MORITA (National Museum of Nature and Science,Tokyo)

16:40-17:00 Preliminary results of the Middle Paleolithic excavation at Inkaya Cave, Çanakkale, Turkey
İsmail ÖZER (Ankara University)

17:00-17:10 Coffee break

17:10-17:30 Middle Paleolithic and Early Upper Paleolithic occupations at Üçağızlı I and Üçağızlı II caves, Hatay, Turkey
İsmail BAYKARA (Gaziantep University)

17:30-17:50 Zooarchaeological evaluations in Tatarlı Höyük during the Hellenistic Period Derya SİLİBOLATLAZ BAYKARA (Gaziantep University)

17:50-18:00 Comment (including QA)
Masato NAKATSUKASA (Kyoto University)

Recent work on anthropoid inner ear and our aims in Turkey

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Background

Due to the outbreak of COVID-19, face-to-face academic collaboration could not be carried out in 2020. This symposium, "Turkey−Japan exchange 2020", was planned to bridge the gap between Japanese and Turkish teams. While the fieldwork was largely limited for Japanese researchers, Turkish teams still managed to conduct the research in Turkey in the 2020 season.

Anatolia covers a wide range of fossil records of apes and humans, and it is a crossroad of Eurasia and Africa. Anatolia is thus of particular relevance for studying human evolution and history. One of the hot topics of biological anthropology in recent years is the finding of Denisovans (Reich et al., 2010), which rewrote the family tree of humans. Although we know Denisovans currently only as a genetic entity, the finding of Denisovans made questions on human evolution even more interesting: What did the LCA (last common ancestor) of modern humans, Neanderthals, and Denisovans look like? Where did the LCA evolve? How did the human populations interact with each other? The fossil evidence from Middle and Late Pleistocene (MP and LP) is essential to answer these questions. For example, I and coauthors recently showed that the bony labyrinthine morphology shows a pattern of chronological sequence of hominin evolution that could be associated with cranial and/or brain morphology (Morimoto et al., 2020).

Fig. 1 Findings of archaic *Homo* (Middle Pleistocene hominins) and Turkey. Findings from Turkey will be of special relevance for interpreting the variation and dispersal patterns of archaic *Homo* populations

Middle Pleistocene

The Middle Pleistocene hominins are known from Africa and Eurasia and are often referred to as archaic *Homo*. While MP hominins are sometimes lumped as *H. heidelbergensis*, they could be divided into two taxa; *H. rhodesiensis* and *H. heidelbergensis,* for African and European findings, respectively (Buck and Stringer, 2014; Rightmire, 1998). In the latter classification, *H. rhodesiensis* is viewed as the ancestor of modern humans, while *H. heidelbergensis* is viewed as a common ancestor of Denisovans and Neanderthals. In addition to the taxonomic question, the origin of the last common ancestor of modern humans, Neanderthals, and Denisovans is also an important question. While African origin hypothesis is regarded as a more parsimonious hypothesis, Eurasian or perhaps Afro-Eurasian origins cannot be excluded. The paucity of the MP hominin fossils, especially from well-dated sites, is a major obstacle to answer these questions. Finding from Anatolia, which is located geographically in the middle of Africa and Eurasia, will thus be essential to interpret the variation in MP hominins (Fig. 1). Furthermore, Anatolia is also crucial in the archeological context, e.g., about the dispersal of Acheulian technology (Jöris, 2014). Since

Anatolia could have been a dispersal route already of *Homo erectus* (Kappelman et al., 2008), Anatolia has a great potential to contribute to our understanding of human evolution during MP.

Late Pleistocene

The data about evolutionary events during LP are ever-increasing in various contexts. The growing data of paleogenomics now give us a complex history of genetic interaction between the human populations during LP (Lalueza-Fox and P. Gilbert, 2011). The interbreeding of modern humans and Neanderthals was also inferred from morphological data (e.g., a recent report of tooth morphology in Compton et al., 2021). New lithic findings in the Levant coupled with recent advances in dating methods contribute to a debate on dispersal patterns of the advanced lithic technology (e.g., Kadowaki et al., 2015; Mellars, 2006). As in MP, Anatolia has a great potential to combine lithic and skeletal morphological data in understanding the dispersal from and into Africa and about between-population interactions of modern humans, Neanderthals, and Denisovans. A final piece to the picture would be the ancient DNA. Potential integration of the ancient DNA could give further insights into the evolution of lithic and skeletal features in LP *Homo*.

References

Buck LT, and Stringer CB. 2014. *Homo heidelbergensis*. Curr Biol 24(6):R214-215.

Compton T, Skinner MM, Humphrey L, Pope M, Bates M, Davies TW, Parfitt SA, Plummer WP, Scott B, Shaw A et al. . 2021. The morphology of the Late Pleistocene hominin remains from the site of La Cotte de St Brelade, Jersey (Channel Islands). Journal of Human Evolution 152:102939.

Jöris O. 2014. Early Palaeolithic Europe. In: Renfrew C, and Bahn P, editors. The Cambridge World Prehistory. Cambridge: Cambridge University Press. p 1703-1746.

Kadowaki S, Omori T, and Nishiaki Y. 2015. Variability in Early Ahmarian lithic technology and its implications for the model of a Levantine origin of the Protoaurignacian. Journal of Human Evolution 82:67-87.

Kappelman J, Alçiçek MC, Kazancı N, Schultz M, Özkul M, and Şen Ş. 2008. First *Homo erectus* from Turkey and implications for migrations into temperate Eurasia. American Journal of Physical Anthropology 135(1):110-116.

Lalueza-Fox C, and P. Gilbert MT. 2011. Paleogenomics of archaic hominins. Current Biology 21(24):R1002-R1009.

Mellars P. 2006. Archeology and the dispersal of modern humans in Europe: Deconstructing the “Aurignacian”. Evolutionary Anthropology: Issues, News, and Reviews 15(5):167-182.

Morimoto N, Kunimatsu Y, Nakatsukasa M, Ponce de León MS, Zollikofer CPE, Ishida H, Sasaki T, and Suwa G. 2020. Variation of bony labyrinthine morphology in Mio−Plio−Pleistocene and modern anthropoids. American Journal of Physical Anthropology 173(2):276-292.

Reich D, Green RE, Kircher M, Krause J, Patterson N, Durand EY, Viola B, Briggs AW, Stenzel U, Johnson PLF et al. . 2010. Genetic history of an archaic hominin group from Denisova Cave in Siberia. Nature 468(7327):1053-1060.

Rightmire GP. 1998. Human evolution in the Middle Pleistocene: The role of *Homo heidelbergensis*. Evolutionary Anthropology: Issues, News, and Reviews 6(6):218-227.

An introduction to morphometric mapping: its application to hominoid molars

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Morphometric mapping

Teeth often constitute a major part of fossil and archaeological human skeletal collections since the tooth crown is covered by enamel which is the hardest substance in the body. Almost all vertebrates have teeth, and their morphologies are distinct and reflect phylogeny and functional or dietary adaptation(Hunter and Jernvall, 1995; Jernvall and Thesleff, 2012). The recent development of μCT and reconstruction of 3D model techniques allow us to visualize inner structure and provide a more precise assessment of tooth morphology(Macchiarelli et al., 2006). However, there has been a methodological limitation about how to evaluate dental morphology. For example, scoring certain dental characters cannot necessarily cover entire crown features. Conventional quantitative methodologies such as linear measurement of crown or cusp diameter are not adequate to evaluate the complex dental morphology. Geometric morphometrics is a powerful tool to quantify morphological structures. But it requires homology of dental characters between the specimens, and it is not necessarily the case. To overcome these obstacles, we developed a landmark-free approach, morphometric mapping. This method was first devised to analyze long bone shaft(Morimoto et al., 2011; Zollikofer and Ponce de León, 2001), and modified it to fit tooth crown morphology(Morita et al., 2016). The 3D models are parameterized with several morphometric variables: surface curvature, height, radius, and vertex normal that represents the direction of the minimal area as a unit vector in three dimensions. Each map is converted with Fourier transformation for low-pass filtering and finally analyzed by multivariate analysis, such as Principal Component Analysis (PCA) (Fig. 1).

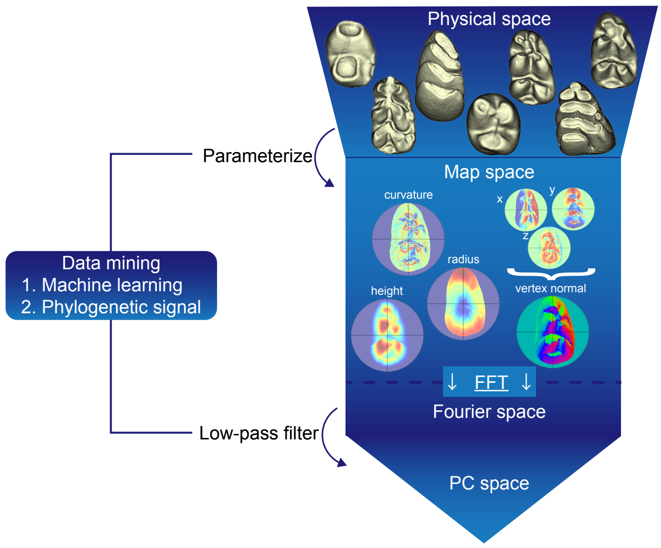

Fig. 1 Outline of procedures for morphometric mapping with data mining

Metameric variation and dental reduction in genus *Homo*

Recently, we analyzed the metameric variation of upper molars in extant hominoids using morphometric mapping(Morita et al., 2020). Metameric variation is, so-called inter-molar variation, and the way of shape-changing from mesial first molar to distal third molar can be different between species. Results show that all the extant hominoids share a common degradation pattern from mesial to distal at a single molar level and inter-molar level. Humans show the typical shape change of hypocone reduction. We suppose that this is caused by the spatiotemporal factor, such as lack of space to form the fourth cusp in a jaw or no time left during odontogenesis.

In the evolutional context, this tendency of dental reduction in human lineage became apparent after the first out of Africa by genus *Homo* around two million years ago(Martinón-Torres et al., 2007). Anatolia is the best place to explore evolutionary change in genus *Homo* since it is the crossroad between Africa and Eurasia and between West and East Eurasia. Arguably, it would be the center of their habitat. Any findings in the Middle to Late Pleistocene from Anatolia will be of great relevance for the evolutionary change of hominin teeth.

Data mining for taxonomic identification and phylogenetic analysis

Figure 1 visualizes the outline of morphometric mapping, including two data mining strategies: the first one is machine learning; the second data mining criterion is based on the phylogenetic signal. The former method would be quite useful in the context of paleoanthropology. For example, appropriate variables to classify Neanderthals and modern humans can be selected by machine learning from reference samples, and we can verify the belonging of target fossils. Several sites belong to the transitional period between Neanderthals and modern humans in Turkey(Baykara et al., 2015; Kuhn et al., 2009). The taxonomic identification of hominin teeth would fulfill a central role in understanding the early history of modern human dispersal.

References

Baykara, İ., Mentzer, S.M., Stiner, M.C., Asmerom, Y., Güleç, E.S., Kuhn, S.L., 2015. The Middle Paleolithic occupations of Üçağızlı II Cave (Hatay, Turkey): Geoarcheological and archeological perspectives. Journal of Archaeological Science: Reports 4, 409-426.

Hunter, J.P., Jernvall, J., 1995. The hypocone as a key innovation in mammalian evolution. Proceedings of the National Academy of Sciences 92, 10718-10722.

Jernvall, J., Thesleff, I., 2012. Tooth shape formation and tooth renewal: evolving with the same signals. Development 139, 3487-3497.

Kuhn, S.L., Stiner, M.C., Güleç, E., Özer, I., Yılmaz, H., Baykara, I., Açıkkol, A., Goldberg, P., Molina, K.M., Ünay, E., Suata-Alpaslan, F., 2009. The early Upper Paleolithic occupations at Üçağızlı Cave (Hatay, Turkey). Journal of Human Evolution 56, 87-113.

Macchiarelli, R., Bondioli, L., Debenath, A., Mazurier, A., Tournepiche, J.F., Birch, W., Dean, M.C., 2006. How Neanderthal molar teeth grew. Nature 444, 748-751.

Martinón-Torres, M., Bermúdez de Castro, J.M., Gómez-Robles, A., Arsuaga, J.L., Carbonell, E., Lordkipanidze, D., Manzi, G., Margvelashvili, A., 2007. Dental evidence on the hominin dispersals during the Pleistocene. Proceedings of the National Academy of Sciences of the United States of America 104, 13279-13282.

Morimoto, N., Ponce de Leon, M.S., Zollikofer, C.P., 2011. Exploring femoral diaphyseal shape variation in wild and captive chimpanzees by means of morphometric mapping: a test of Wolff's law. Anatomical Record 294, 589-609.

Morita, W., Morimoto, N., Kono, R.T., Suwa, G., 2020. Metameric variation of upper molars in hominoids and its implications for the diversification of molar morphogenesis. Journal of Human Evolution 138, 102706.

Morita, W., Morimoto, N., Ohshima, H., 2016. Exploring metameric variation in human molars: a morphological study using morphometric mapping. Journal of Anatomy 229, 343-355.

Zollikofer, C.P.E., Ponce de León, M.S., 2001. Computer-assisted morphometry of hominoid fossils: the role of morphometric maps, in: Koufos, G.D., Bonis, L.d., Andrews, P. (Eds.), Hominoid Evolution and Climatic Change in Europe: Phylogeny of the Neogene Hominoid Primates of Eurasia. Cambridge University Press, Cambridge, pp. 50-59.

Preliminary results of the Middle Paleolithic excavation at Inkaya Cave, Çanakkale, Turkey

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Background

Systematic research on Paleolithic archeology in Turkey began in the nineteen fifties. Many Paleolithic sites were discovered in the following years. Excavations in some of these localities have been initiated (such as Yarımburgaz, Merdivenli, Tıkalı and İncili Caves) and continue (Karain, Üçağızlı, Kızılin and Direkli Caves). Paleolithic localities are generally located in the south of Anatolia in Turkey. But there are very few studies in the Western Anatolia. To discover the Pleistocene period human activities in Western Anatolia, we started surveys in Muğla and Çanakkale provinces in 2012. At the same time, fossils of the Miocene period were also investigated in this research. Many Turkish and Japanese researchers took part in the survey and excavation research. Although we found many Miocene localities in our surveys in Muğla Province between 2012 to 2013, unfortunately we could not find any remains regarding the Pleistocene period in Muğla survey.

Muğla and Çanakkale Survey

Çanakkale survey research was started the following year and conducted between 2014 to 2019. Çanakkale is a very rich place in terms of the Pleistocene period. During the survey, 60 Paleolithic localities were found in Çanakkale. All localities are founded on areas with flintstone raw material resources. 38 of the localities are in Çan District. Çan stone, a kind of flint, consists of rhyolitic tuffs, which are pyroclastic products of Oligocene volcanic of Biga Peninsula, which have widespread outcrops around Çan-Etili. This region is very rich in hot water resources in Çanakkale, which also shows that it was preferred by Paleolithic people during the glacial periods due to its proximity to hot springs. We discovered almost all localities in these places during surveys. Most of these workshops area or open air sites are dated to the Middle Paleolithic Period. However, the sites of the Lower, Upper, and Mesolithic periods were also identified.

İnkaya Excavation

During the 2016 survey, a cave was found in the Çan district located in the Asian part of Çanakkale. The Inkaya cave is 55 km away from Çanakkale city center and Aegean Sea, and its height above sea level is 235 m. (Fig. 1) (Özer et al. 2020a; Özer et al. 2020b). Inkaya Cave contains thousands of lithic artifacts that are the remains of human settlements in the Paleolithic. In 2017, under the presidency of the Troy Museum, we started excavations in İnkaya Cave. The excavations have been going on for four years. Test pits were dug in the north, east, south, west and inside in the cave (Fig. 2). All remains are recorded according to the GIS coordinate system.
The rhythm of human activities prevails in the upper part of the Inkaya stratigraphic sedimentology. Layer A contains the dust layer on the surface soil and is completely eroded in some areas. The primary geogenic component throughout the sequence is the reddish tone under this layer. Layer B is approximately sixty to eighty cm. Layer C is isolated in terms of culture finds and contains iron oxide. The lowest layer is the tuff layer accumulated as a result of volcanism in the Miocene period and it is also bedrock of the cave. According to the OSL dating results, the sediments in the north gave the date of approximately 22580 ± 2850 years. It is estimated that the

region from which a dating sample was taken mixture over time. It is planned to take a dating sample from other parts of the cave next year.

Inkaya Cave lithic assemblages have been evaluated technologically and typologically. The classification of retouched tools is defined according to Bordes (1961) and Hours (1974). The raw material used in the cave is flint. All of the chipped stones were made of local Miocene-aged flint. Although thousands of flintstone tools were found during the excavations, no organic material has yet been found. A total of 3644 chipped stones have been identified in the excavations in the İnkaya Cave. Inkaya Cave chipped stone tools mainly consist of flakes and blades. The majority of flakes have flat platforms and predominantly parallel dorsal scars. Blades, which constitute the second artifacts group of the industry, include flat profile, feathered terminations, linear platforms, predominantly parallel dorsal scars with parallel removals. Single platform cores with parallel removals and sub-prismatic blade cores are majority of the core assemblages in the cave. The limited number of Levallois pieces within the community shows that the Middle Paleolithic period took place in this area. However, a detailed analysis of all these chipped stones has not been completed yet.

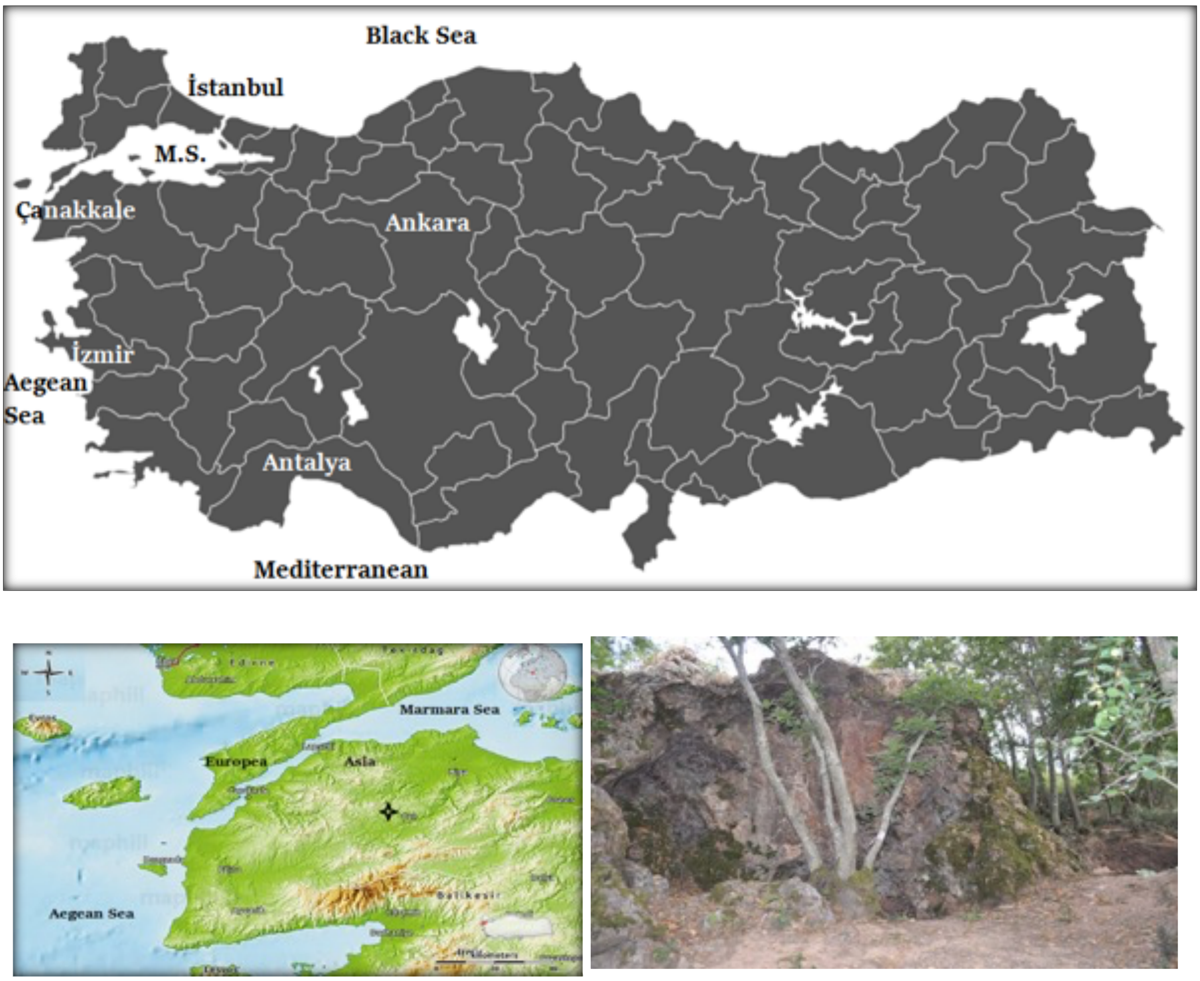

Fig. 1 Çanakkale Province and location of İnkaya Cave

Fig. 2 North part of excavation area

We know that due to the effects of climatic fluctuations in the late Pleistocene, Neanderthals spread over a wide area from Europe to the Middle East. It is known that Anatolia and the Balkans had a land connection and genetic relation during this period. At the same time, our knowledge of the spread of modern humans around the world changes every day due to discovery. Of these studies in Turkey, will make new contributions to world science is clear. With the possible discovery of fossil human remains in İnkaya, we will be able to understand which human species used this area.

References

Bordes, F. 1961. Typologie du Paléolithique Ancient et moyen, CNRS, Paris.

Hours, F. 1974. Remarques sur l'utilisation de listes-types pour létude de Paléolithique supérieur et de l'Epipaléolithique du Levant, Paléorient, 2: 3–18.

Özer İ, Sağır, M, Baykara, İ., Özer, BK, Dinçer, B, Morimoto, N, Morita, W, Şahin, S, Eren, E, Gülhan, Ö, and Özdemir, A, 2020a. 2017 ve 2018 yılı Muğla ve Çanakkale illeri yüzey araştırması, 37. Araştırma Sonuçları Toplantısı, 2: 355-373 (in Turkish).

Özer İ, Atmaca, A, Sağır, M, Baykara, İ., Dinçer, B, Özer, BK, Şahin, S, Tükel, M, Eren, E, Gülhan, Ö, and Özdemir, A, 2020b. 2018 yılı İnkaya Kazısı, 41. Kazı Sonuçları Toplantısı, 2: 603-618 (in Turkish).

Middle Palaeolithic and Early Upper Palaeolithic occupations at Üçağızlı II and Üçağızlı II Caves, Hatay, Turkey

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The Hatay Province is located at south of Turkey and the northern end of the Levantine coastal corridor. Project in Hatay is important to our understanding of the Levantine Middle and Early Upper Palaeolithic, Upper Palaeolithic and Mousterian in Turkey and potential exchanges of populations between Anatolia and the Levant during the late Pleistocene (Kuhn et al., 2009; Mentzer, 2011; Baykara et al., 2015). We have already known several caves around in this shoreline but only six of them, Kanal, Merdivenli, Tıkalı, Üçağızlı I, Üçağızlı II, and Üçağızlı III Caves, including Palaeolithic assemblages. First studied in Hatay province started around middle of the 1950, in Samandağ, Çevlik area (Fig. 1). Researcher from Ankara University excavated three Palaeolithic sites in Çevlik area; Tıkalı and Merdivenli Caves belong to the Middle Palaeolithic, while Kanal Cave is related with the Early Upper Palaeolithic. After this research, researchers were focusing in the other side of the Samandağ shoreline, Meydan village area around the end of the 1980s. A French researcher, A.M. Deroche, excavated Üçağızlı I Cave in two field seasons (Kuhn et al., 2009). After that Üçağızlı I excavation started again beginning of 2000 by E. Güleç from Ankara University, Mary. C. Stiner and S. Kuhn from Arizona University. Üçağızlı I cave excavation is still ongoing and new systematically excavation has been beginning in Üçağızlı II by İ. Baykara from Gaziantep University in 2020.

Üçağızlı II Cave contains an exclusively richer Middle Palaeolithic level. The site is collapsed at some time and intact sediments in the site is small, but density of materials is very high. The six stratigraphic sequence in the Üçağızlı II is dominated by human activities within the cave. Uranium series dates provide rough chronological constraints for the occupations of Üçağızlı II. Uranium samples were collected from a flowstone formed directly on top and bottom of rock along the eastern wall of the collapsed chamber A. The upper layers were dated to 75,287 +/− 461 and bottom layers dated to 42,091 +/− 1689 years BP (Mentzer, 2011). The faunal materials recovered from the 2005 and 2007 excavations were analysed by M. Stiner. The major species identified in the Üçağızlı II ungulate assemblage include Mesopotamian fallow deer, wild goat, pig, red deer, roe deer and wild cattle. Tool marks indicate that all species were consumed or butchered by the site occupants. Stiner found that small game types in Üçağızlı II were limited to shellfish and tortoises, with only rare use of small mammals. At least, 21,000 lithic artifacts were collected from excavation at Üçağızlı II. Almost all artifacts recovered were manufactured from flint. The stone artifacts in Üçağızlı II are all dominantly Mousterian in character and resemble the "Tabun C type" Levantine Mousterian assemblages (Baykara et al., 2015).

Üçağızlı I Cave layers typically contain stone tools, bone or antler implements, shell ornaments, food debris in the forms of broken bones, hearth features, and ash concentrations. The Upper Palaeolithic deposits in Üçağızlı Cave signify the temporal interval between 41,000 and 29,000 uncalibrated radiocarbon years BP. The faunas are dominated by ungulate remains, which expresses to seasonal large game hunting. The site is home to two major cultural assemblages. The earliest layers date from the Early Upper Palaeolithic period (Initial Upper Paleolithic), while the second closely resembles the Ahmarian complex found in the Levant (Kuhn et al., 2009).

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References

Baykara İ., Mentzer S.M. Stiner M.C., Asmerom Y., Savaş-Güleç E., Kuhn S.L. (2015). The Middle Paleolithic Occupations of Üçağızlı II Cave (Hatay, Turkey): Geoarcheological And Archeological Perspectives. Journal of Archaeological Science: Reports, 4:409-426.

Kuhn S.L., Stiner M.C., Güleç E., Özer İ., Yılmaz H., Baykara İ., Açıkkol-Yıldırım A., Goldberg P., Martınez M.K., Engin Ü., Suata-Alpaslan F. (2009). The Early Upper Paleolithic Occupations at Üçağızlı Cave (Hatay, Turkey). Journal of Human Evolution, 87(56): 87-113.

Mentzer S.M. (2011) Macro- and micro-Scale Geoarchaeology of Üçağızlı Caves I and II, Hatay, Turkey. Doctoral Dissertation. University of Arizona.

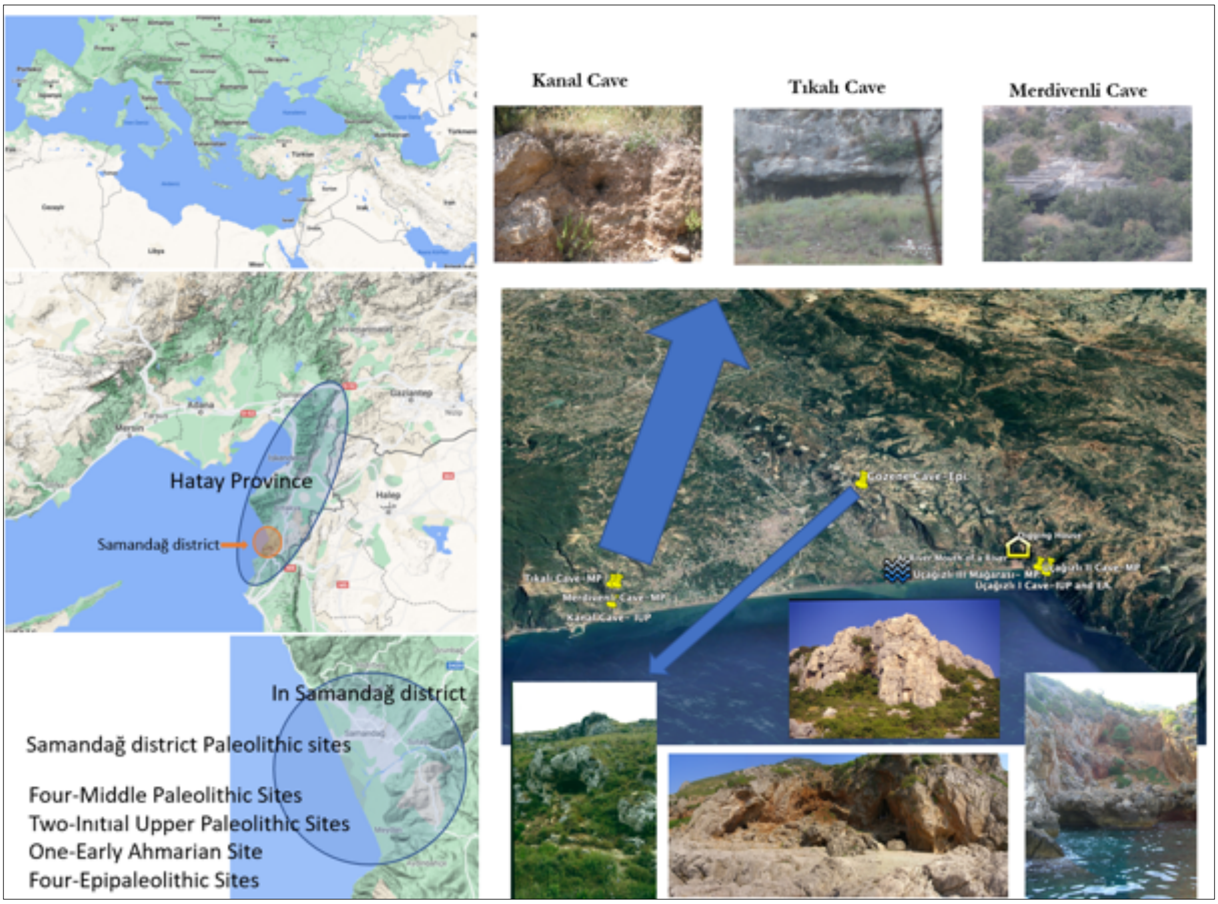

Fig. 1 Hatay province includes several caves in its coastal area. Those caves are dated to Late Pleistocene in Samandağ district, such as Meydan area on the right, Çevlik area on the left right side of the figure

Zooarchaeological evaluations in Tatarlı Höyük during the Hellenistic Period

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Tatarlı Höyük is located on the Ceyhan plain of Adana, one of the strategic positions of Cilicia which connects coastal and northern Syrian and Levantine routes to inner central Anatolia. Cilicia played a very important role in the history of civilizations, with its extensive arable lands and its position as a bridge between Anatolia, Mesopotamia and the Eastern Mediterranean, connecting these areas by land, sea and rivers. On the fertile plain of Ceyhan, Tatarlı Höyük rises as a 37 m mound that extends 370 x 230 m on a basalt outcrop and the largest ancient settlement in this area. To the north of the mound was a swamp and round its base are seven springs, so the area is well-watered. Seven fresh springs were the result of geologic formations. Due to this geological formation, there are many water springs around the Höyük and this area is one of the biggest water basins in the Eastern Cilicia. Based on information gathered from Hittite documents as well as topographical, archaeological, and philological evidence, Tatarlı Höyük has been proposed as the ancient site Lawazantiya. Today, the mound is regarded as one of the most likely locations of Lawazantiya.

The excavations in Tatarlı have brought to light many rooms of Building A located in Sector I, in the eastern area of the Citadel (Fig. 1). This important building was established in the Middle Bronze Age and was used throughout various phases of the Late Bronze Age and the Iron Age. It is clear that the building was altered and repaired at many times; and some rooms were filled in or converted to rubbish pits in the Hellenistic period. The evidence indicates that the building had a sacred character and it was an open-air sanctuary during the early Late Bronze Age. There is also evidence of various defensive systems.

A large number of bones and bone fragments were recovered from Hellenistic periods. It is seen that fauna is dominated by domestic animals: sheep, goat, cattle and pig. Wild taxa also exist including many species like deer, red foxes and hyena though in low numbers. Very few bones with any sign of butchery marks were identified in the assemblage. Very low percentage of assemblage exhibited evidence of being exposed to heat to some degree. It would indicate that burning was not a significant attritional agent. Cut marks were also observed in very low numbers. The available skeletal elements are grouped by skeletal regions and is presented in the graph. All the skeletal elements were represented at the different ratio. The evaluation of age distribution based on eruption and wear of mandibular teeth demonstrates an emphasis on the culling of adult-old animals which exceeded their optimal meat size than the young individuals. The slaughtering of young lambs less than six months of age is postulated as a result of milk exploitation, while the considerable number of sheep between six months till the second year of age suggests the exploitation of these animals for meat. The use of these animals to provide milk or wool, after they exceeded their optimal meat age. During the Hellenistic Period, it is thought that Höyük was located in the hinterland of a rich workshop production center of the ancient city of

Kastabala-Hierapolis. The most important industrial production was in textile. Many loom weights are found in the archaeological evidence of textile production. Thus, it is not wrong to say that wool is primary production from sheep and goats.

As a result, the animal bones of the Tatarlı Höyük in the Hellenistic Period showed that domestic animals had an active role in economy. It is understood that sheep and goats are mainly used to obtain secondary products such as wool and milk production. It has been understood that cattle were used for traction and secondary products. It is able to demonstrate that pigs were raised freely in the forested area around Tatarlı Höyük and that young pigs were slaughtered regularly. Horses are evidence of trade, and the cut marks on their bones indicate that horses were occasionally part of inhabitants' diet. According to archaeological findings, Tatarlı Höyük had always been a sacred site from 2nd millennium BC, through Iron Age and Hellenistic Period. It is believed that some animals like dogs, red fox, and deer were sacrificed to the cult of Zeus Olybris.

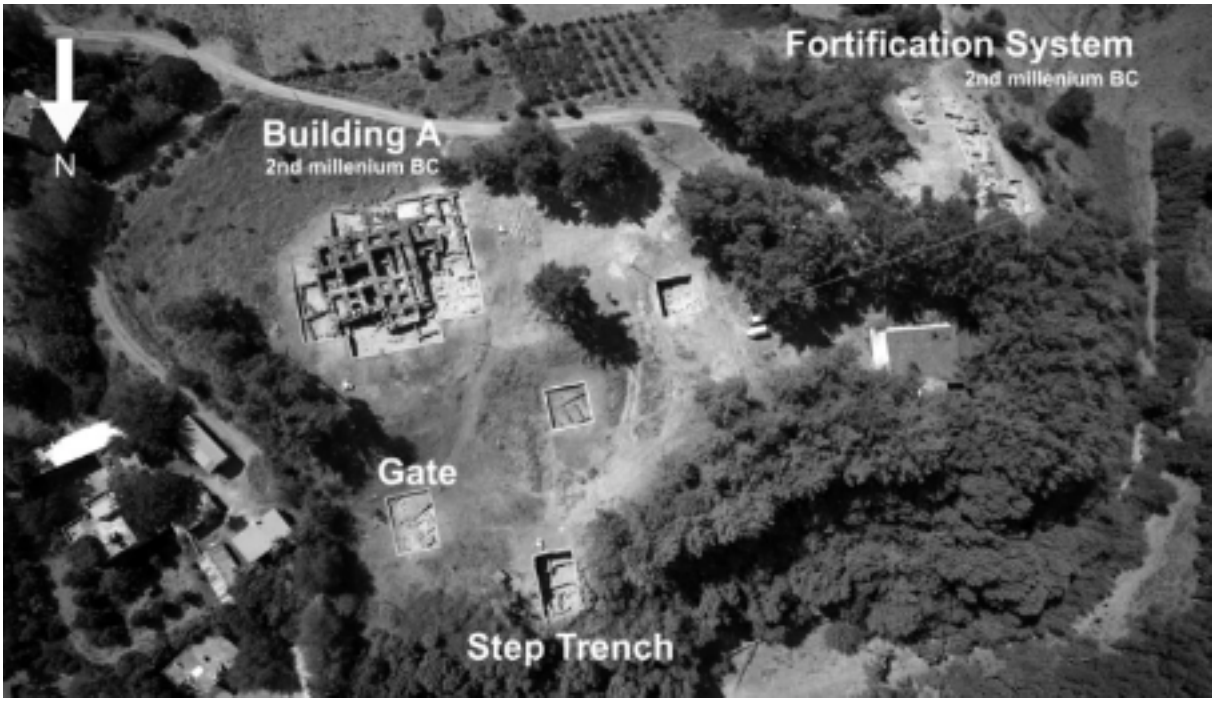

Fig. 1 Aerial view of the citadel (Girginer – Collon, 2014, 62)

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