International Congress of Speleology
Congrès International de Spéléologie
Internationaler Kongress für Speläologie
Congreso Internacional de Espeleologia
Congresso Internationale di Speleologia
Международный Срелеологический Конгресс

FIELD TRIP GUIDE

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Prehistoric remains in Hungary

10th INTERNATIONAL CONGRESS OF SPELEOLOGY
BUDAPEST - HUNGARY
1989 UIS

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PREHISTORIC REMAINS IN HUNGARY

(Field-trip guide)

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1989

C O N T E N T

INTRODUCTION

Caves played an extraordinary role in the research work for the exploration of prehistory in Hungary.

Systematic Prehistoric Age exploration began with the excavation of cave sites in 1906 and in essence the same trend in research prolonged until the 1960s. The open-air excavation sites mainly in travertine and loess sites are - with regard to number - far behind those in caves, and the aim of the excavations in caves was almost without exception the exploration of the Palaeolithic- and Mesolithic remnants of Hungary. The finds of later epochs from caves only added some knowledge to the picture gained from the open-air settlements described in terms of archeological cultures.

In our cases there is a special question to be answered: how should be interpreted the settlements of the Neolithic- and still younger cultures in the mountainous areas, caves.

It applies to almost all the historic eras that the areas west and east of the Danube River exhibit essential differences regarding the origin, geographical connections, economy and the material remnants which remained for today's investigations.

To this - with differences in prehistoric eras - comes also the fact that the two above mentioned areas are explored to different extents.

From the sixty explored cave Palaeolithic archeological sites for instance the most important ones are found in the Northern Mountain Range. At the same time in the Transdanubian Mountain Range at Tata and Vértesszőlős - where the partly also cave-associated travertine Palaeolithic excavations sites are - have been, from the beginning of archeological excavations, in the spot-light of international interest.

In our present Guide the route and the sites to be visited are presented on a map displaying the spots numbered in a sequence according to which we will follow them. All the other illustrations referred to - such as Figures an Photo-plates - can be easily found by just using the decimal numbering which is in accordance with the Guide.

NORTHERN MOUNTAIN RANGE - BÜKK MOUNTAINS

1.1 Miskolc city

The town is the birthplace of palaeoarcheology in Hungary and the third city regarding population number, also having a very rich historical past.

1.2 Miskolc - Avas Hill

Above the city at an elevation of 234 m a.s.l. a long, broad-crested flat hill, built up of Miocene volcanic tuff and agglomerate, the Avas Hill, is found.

From the look-out tower, which was constructed close to the summit, to the west one can see the Bükk Mountains, karstic ranges rich in caves; to the east The Cserehát Hills and the Zemplén Mountains, well known for its obsidian occurrences, are within sight.

At the foot of the Avas Hill, close to the bank of the Szinva stream originating from the Bükk Mountains, at the end of the last century: the first Palaeolithic artifacts of Hungary, the famous "Bársonyház flint axes", were discovered.

On the Avas the hydro- and limno-quarzite veins were produced by post--volcanic activity and the material became a very important row-material source of the stone-age tribes settled in the caves of the surroundings.

Between 1928 and 1932 Jenő Hillebrand excavated a chert quarry, which was most probably in use back to the Neolithic period, near the look-out tower. And then, in 1988 - just above the Herman Ottó Museum - we had the opportunity to excavate part of a Mousterian chert quarry.

1.3 Miskolc-Bársonyház

In 1891 a lawyer's house was being built when from the foundations pit (depth 2.5 to 3 m) close to the Szinva stream two nicely made stone axes ("pics") were found and later two further Palaeoliths came to light. The finds were given in 1892 to the famous Hungarian polyhistor Ottó Herman who recognised in them the first evidence of the existence of the "diluvial man".

The leading geologists, however, had doubts about the Palaeolithic age of the finds, and Herman needed 15 years of fight until at last in 1906 two geologists of the Geological Institute of Hungary received the task: to come to a decision in the discussion on the implements and to start with the excavation of the caves of the Bükk - according to the suggestions of Herman.

2.1 Hámor - Kecskelyuk Cave

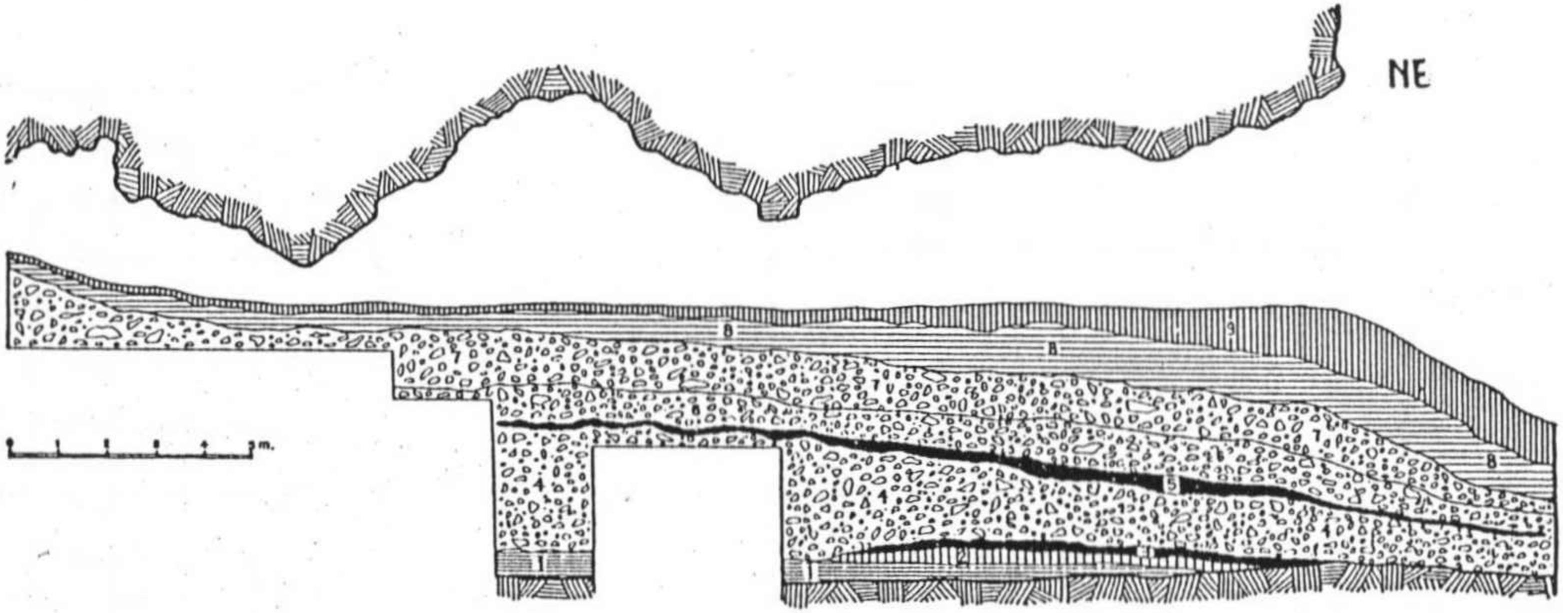
Thus the opportunity was grasped by Ottokár Kadić geologist and archeologist of Hungary - having visited the largest caves of the Miskolc area in the Bükk - carried out sounding excavations in three caves in the area of Hámor. He began the work in the low-lying Kecskelyuk Cave with a stream and could not find the traces of the Palaeolithic man; at the first attempt that was the case also in the nearby Büdöspest Cave.

2.2 Hámor - Büdöspest Cave

After the first successful attempt, from 1913 Kadić worked in the cave until 1927 and during the excavation from two archeological levels (layers 3 and 5) he could find thousands of chips and stone artefacts, identified by him Hillebradt and Mária Mottl as "late Solutréan".

László Vértes considered the excavated material as the forerunners of the Early-szeletian. Miklós Gábor - to the contrary - had abandoned these age hypotheses on the base of C^{14} data; from the upper culture-layer he got > 37 000 years B.P., which is younger than the Early-szeletian > 41 700 years B.P. C^{14} and he also confirmed the age by implement typological considerations.

In our opinion the industry of the cave is a special form of Charentien - related to the upper culture of the Subalyuk Cave. The 3rd and 5th strate may be of the same age as the 10th and 12th strata of the Subalyuk and their age can be parallelled to the Ognon II-III interstadial oscillations - that is about 65 000 to 70 000 years B.P.



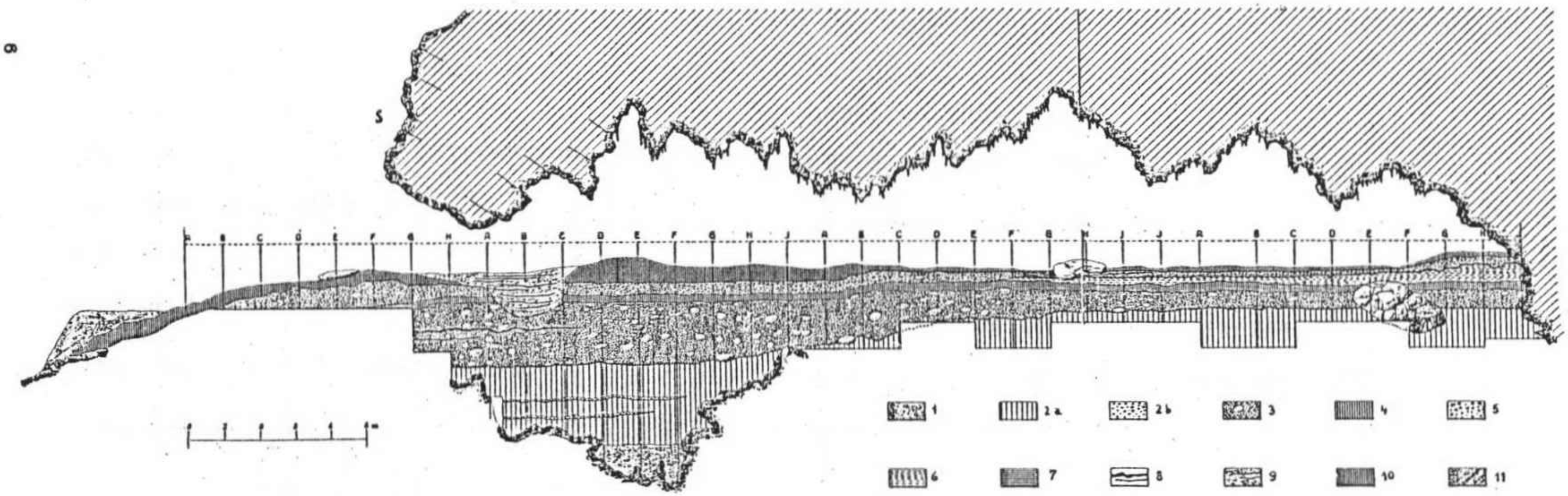
2.2. Büdöspest Cave

The layer of the cave /after KADIĆ/

1. Reddish yellow cave clay
2. Gray cave clay
3. Dark gray cave clay
4. Light gray cave clay with limestone debris
5. Dark gray cave clay
6. Greenish gray cave clay with limestone debris
7. Reddish brown cave clay with limestone debris
8. Brown Holocene layer
9. Black Holocene layer

3. Lower cultural layer

5. Upper cultural layer



2.3. Szeleta Cave

The layers of the cave /after KADIĆ/

1. Stream deposit

2.a. Dark brown cave clay

2.b. Brown layers with limestone debris

3. Light brown cave clay

4. Dark gray cave clay

5. Light gray cave clay

6. Reddish brown cave clay

7. Fill of prehistoric pit

8. Pleistocene ovens

9. Holocene ovens

10. Holocene humous layer, guano and calcareous tufa

11. Spoil heap

2. The layer with Moustérien finds

3. The layer with the Early Szeletian finds

4. Transitional layer

5-6. Layers of the Developed Szeletian

2.3 Hámor - Szeleta cave

In the eponym site of the internationally well-known Szeletian culture excavation by Kadić began on the 14th of November 1906. He was the first to publish a monograph on the cave in 1915.

The explorers identified nine strata in the deep - up to 12 m - cave fills. Among these the strate from 3 to 6 did contain the finds of the Szeletian.

In the 2nd layer the traces of Mousterian culture were found - under not yet revealed conditions. It is followed by a major unconformity the Early-szeletian of the 3rd stratum. This level is characterised by rather coarse, irregular leaf-shaped tools and scrapers and also some Mousterian peaks plus other Middle-Palaeolithic types of artifacts.

As for the age of the horizon, the already mentioned > 41 700 year B.P.C^{14} is given. Gábori regards the Early Szeletian as a Middle-Palaeolithic industry and together with Árpád Ringer he brings it into connection with the Bábonyian described from the Bükk Mountains in 1983.

Within this Micoquian character industry from the last interglacial and Early Weichsel glacial epoch the forerunners of the Bükk-Szeletian do appear.

Earlier Vértes tried to find the origins of the Bükk Mousterian, the archetypes of the Szeletian. But from these the real precedents of the bifacial tools are missing.

The 4th layer of the Szeleta Cave the so-called transitional horizon within which already the Mature, Szeletian laurel-leaf shaped points of Upper-Palaeolithic type do appear - together with Gravettian pics and scrapers.

The next - 5th and 6th strate - had yielded the classic Mature Szeletian, which way previously (Kadić, Hillebrand and Mottl) brought into connection with the Solutréan of France.

For the Mature Szeletian one C^{14} dating is available: 32 500 ± 420 years B.P.

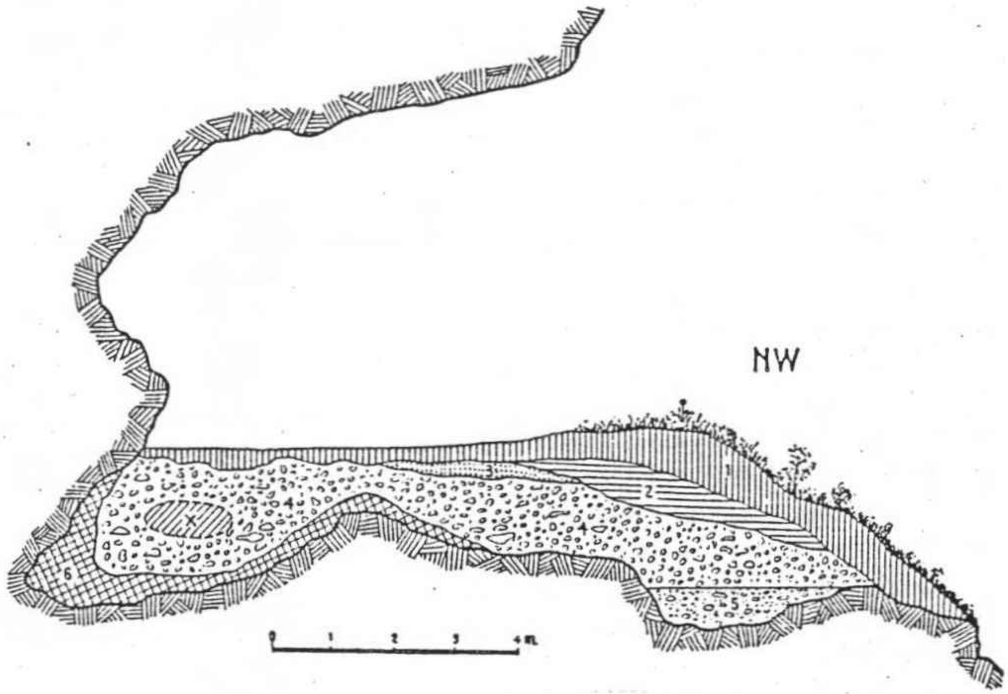
On the basis of C^{14} dates, lithostratigraphic - palaeozooligican and typochronological data the beginning of the Early Szeletian in the Szeleta Cave might be dated in before the Hengelo interstadiar, and the closing of the Mature Szeletian's 6th stratum at the end of the Arcy-Stillfried B interstadial.

In our opinion the transitional period between the "early" and "mature" horizons is continuous. It is a pity that the real "face" of the Early Szeletian is hardly known - because of the very strong cryoturbation of the 3rd stratum. The palaeolithes are almost without exception of the cryoturbation "concasse" retouche type - that is strongly indented and broken specimens.

2.4 Hámor - Puskaporos and Herman Niches

We agree with the earlier opinion which asserted the youngest period of the Bükk-szeletian is represented by the find-material of these two rock-niches. The exploration thereof was carried out by Kadić in 1910 to 1917.

The contours and the retouche of the leaf-formed tools of the niches are in very many respects close to these of the Solutréan in France. On the basis of palaeoontological and lithostratigraphical data the age of the Solutroid-



2.4. Puskaporos Rock Shelter

The layers of the cave /after KADIĆ/

1. Black Holocene layer
2. Brown Holocene layer
3. Yellow cave clay
4. Yellow layer with limestone debris
5. Stream deposit
6. Weathered cave floor

4. The layer of the Developed Szeletian

x Clay lense with Paleolithic artefacts

-Szeletian material of the two sites can be estimated as around the cold maximum of the last glacial - that is 20 000 to 18 000 years B.P.

3.1 Diósgyőr - Tapolca Cave

Andor Saád carried out excavations in the cave in 1932. The finds were determined by him according to the terminology of this time as Solutréen and Magdalenien. Vértes described an Early and a Mature szeletian and also Cave Gravettian from the cave. The attention of both of them was misled by the oldest find, which was excavated by Magdolna Hellebrandt in 1973, and could be determined in a very clear stratigraphical situation in the entrance part of the cave. During our own excavations in 1988 the strata of the cave could also be found in a distance of 18 metres, just opposite the entrance of the cave. Among these the lowest stratum, which was deposited onto the common terrace of the Szinva and Szent-György streams - of periglacial origin - contained the oldest, Taubachien-type, finds of the cave. In our opinion it may be dated about 110 000 years B.P. relying on terrace-morfological, litho- and palaeopedostratigraphical plus palaeontological evidence i.e. the first cooling-down stage which followed the Eemien optimum.

As regarding the implements Clactonian and Levalloisian debitage and denticulations are characteristic. The tools were often prepared out of blades or blade-like chips. Among the types Upper Palaeolithic elements, scrapers, chisels and bors, are not uncommon.

Beyond the character of the whole industry also the reddishbrown porphyrite used as material shows an equality to the Taubach.

The surprise of the 1988 excavations was a stone-pack, extending only to a small area, and being probably oval in shape. For it flat porphyrite pebbles were selected. The purpose is not yet known.

4.1 Répáshuta - Balla Cave

Excavation of the cave was carried out by Hillebrand from 1909 to 1913. From the lowermost interglacial age stratum of it might have been come the two "Faustkeilblatts", which - according to their row-material and elaboration - may belong to the Bábonyian.

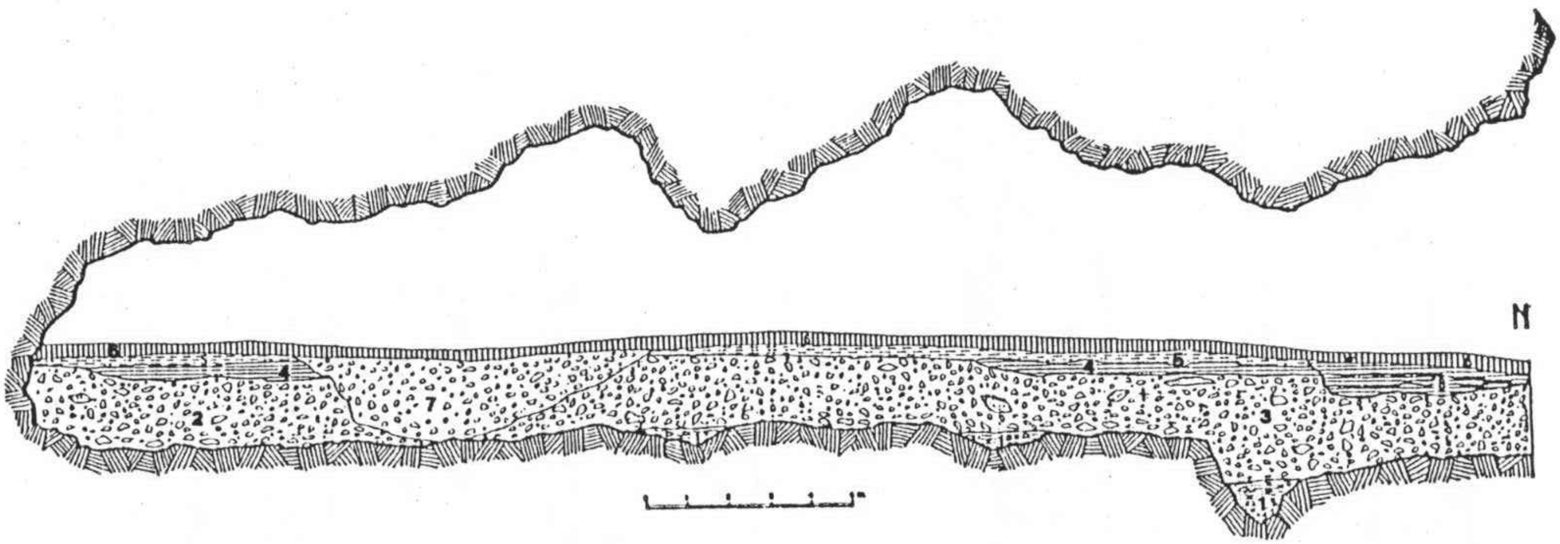
The finds of the 2nd stratum of the cave in our opinion - represent the oldest period of the Bükk Szeletian, which is determined as close to the Subalyuk fauna-period and can be parallelled to the cold oscillation between 55 000 and 50 000 years B.P.

A characteristic feature of this collection of finds is the fact, that no chips as a byproduct of stone tools making were found in the Szeletian layer; that may indicate that the cave was used as a temporary shelter of the Szeletian bear-hunters.

The 3rd stratum was formed already after the "epoch of the Ursus Spaeleus" - the cave-bear, according to the C^{14} data at approximately 20 000 years B.P. From it the finds of the Gravettian culture and the remnants of the skeleton of a child were excavated.

4.2 Répáshuta - Pongorlyuk Cave

The exploration was carried out by us in 1982 to 1986. Above the older



4.1. Balla Cave

The layer of the cave /after Hillebrand/

1. Reddish yellow plastic cave clay

2. Greenish gray cave clay with limestone debris

3. Light yellow layer with limestone debris

4. Yellowish gray layer with limestone precipitation

5-8. Holocene layers

1. The layer of the Early Szeletian

3. The layer of the Gravettian

\+ Human finds

Middle Pleistocene strate - with a strong unconformity - starting from the end of the Weichsel glacial and in a more-or-less continuous sequence has developed. In its Late-Glacial strate the finds of the so-called Cave Gravettien or Pilisszántó culture were found,and in the distinct Holocene sequence the traces of Late Neolithic-Copper Age and Late Bronze Age settlement could be found.

5.1 Szilvásvárad - Istállóskő Cave

While Hámor and Lillafüred are the jewels of the East-Bükk, in terms of tourism - the Szalajka Valley in Szilvásvárad is the centre of the Western part of the Mountains.

Along the stream a confortable walk is leading to the Museum of Forestry, the wild-game park and the Salmon Lake, from which narrow path is winding up to the Istállóskő Cave the entrance of which is at an elevation of 535 m asl.

This is the most typical and at the same time richest site producing the Aurignacien I and II cultures in Hungary. First Hillegrand made exçavations in it in 1912, and later - several times - Kadić, Mottle, Saád and Vértes carried out excavations in the fill material.

The total depth of the fill is only 2.5 m. From its Holocene strata rich Bükkian Neolithic culture find-material came to the surface, and in the two underlying layers the remnants of the Aurignacian.

The traces of settlement concentrated around the fireplace. According to the archaeozoological research work of István Vörös groups of 4 to 25 persons lived there.

The upper layer of culture belongs - according to Vértes - to the Aurignacian II, characterised by Olschewa-type bone pics, villow-lear shaped blade--pics, a few scrapers and large amounts of Mousterian scrapers plus pics. The age of the layer 30 900 ± 600 c^{14} years B.P.

The lower Aurignacian I layer of culture is by 9 or 14 years older.Typical are the split-base bone pics and generalized blade-tools.

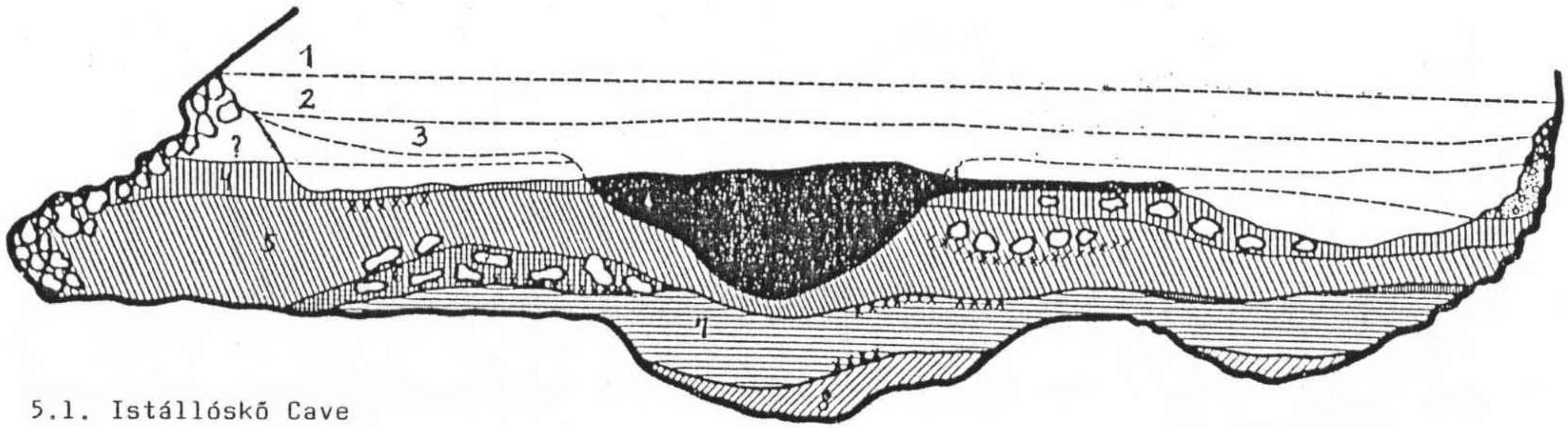
It is an interesting palaeoethnographical feature that in both of the Aurignacians a Szeletian-type leaf-shaped implement was found. The contemporaneity of the two complexes of cultures are indicated also by the split-base pic found in the Szeleta Cave's early horizon and some Bükk-Aurignacian I type stone tools.

The blades having a blunt back-side and the similar appearance of the Gravettian pics shows the openness of the Bük-Szeletian and Bükk Aurignacian II with regard to adopting Upper Palaeolithic elements. In the last years opinions concerning the rangeing-in of the two Istállóskő techno-typoclomplexes diverge. Janus - and Stephan K. Kozłowski identify the industry of the lower stratum with Bachokirian. On the other hand Joachim Hahn accepts Aurignacian.

An extraordinary find of the cave is the flute with three holes prepared from the femur of a young cave-bear, and the three complete skulls of cave-bear found in the back-side of the cave, in a rock-cleft - which is according to Vértes a cultic skull-deposit.

6.1 Cserépfalu - Subalyuk Cave

In 1932 János Dancza-, and later-on Kadić explored fully the total sequ-



5.1. Istállóskő Cave

The layers of the cave /after VÉRTES/

1. Probable original surface of fill
2. Black Holocene layer
3. Gray Holocene layer
4. Yellowish brown cave clay with little limestone debris
5. Dark brown cave clay with limestone debris
6. Grayish cave clay with limestone debris
7. Light brown cave clay with fine limestone debris
8. Weathered rock floor

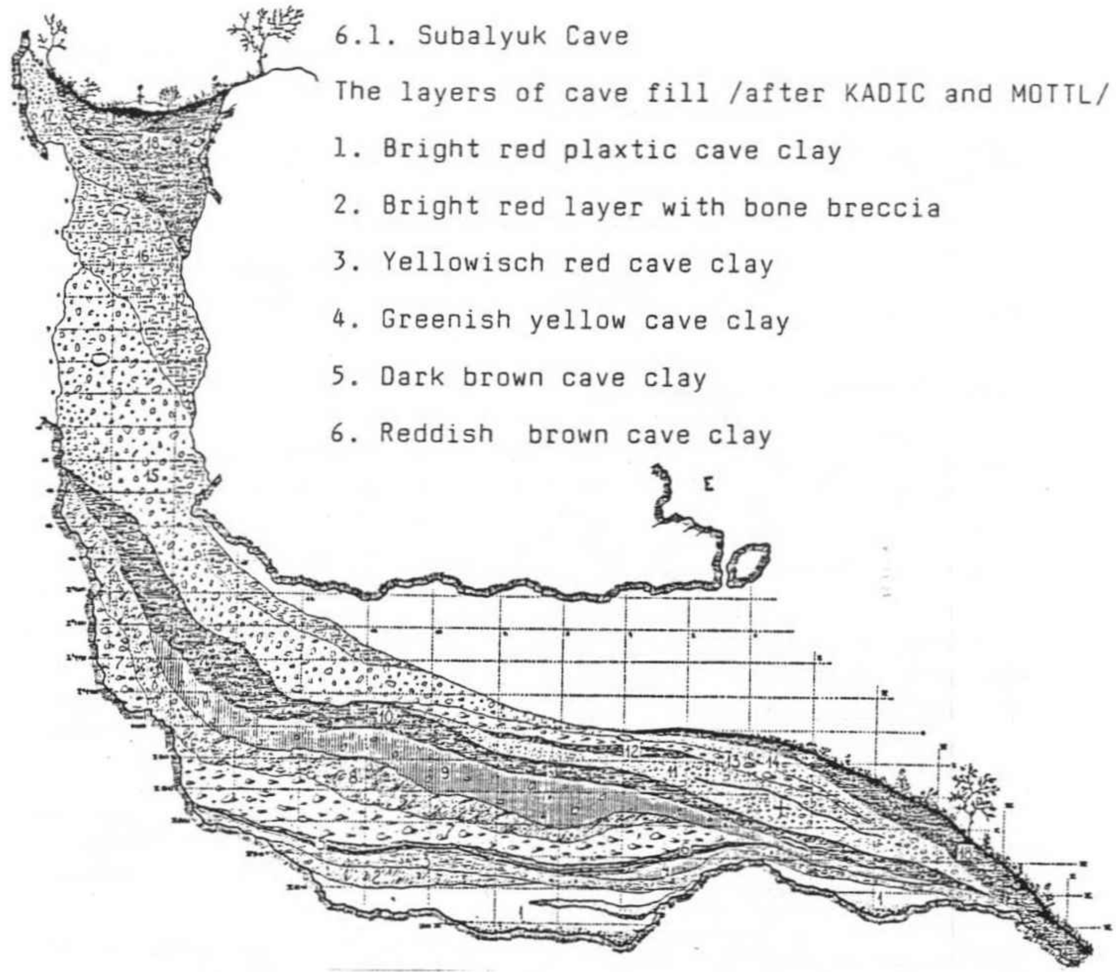
5. The layer of Aurignacien II

6-7. Layers of Aurignacien I

6.1. Subalyuk Cave

The layers of cave fill /after KADIC and MOTTL/

1. Bright red plaxtic cave clay
2. Bright red layer with bone breccia
3. Yellowisch red cave clay
4. Greenish yellow cave clay
5. Dark brown cave clay
6. Reddish brown cave clay



7. Greenish gray cave clay with limestone debris
8. Yellowish brown cave clay with limestone debris
9. Greenish yellow cave clay with limestone debris

10 and 12. Dark gray cave clay with limestone debris

11 and 14. Light brown cave clay with limestone debris

15. Greenish gray cave clay with limestone debris
16. Dark gray loose cave clay with limestone debris
17. Cave clay with calcareous tufa and limestone debris
18. Black Holocene layer with limestone debris

1-6. Lower cultural layer complex

10-14. Upper cultural layer complex

+ Human finds

ence in the cave, which was formerly open through a natural opening produced by the collapsing of part of the ceiling. Within the fill of the cave two Mousterien techno-typocomolexes could be identified. The lower one: "Hochmousterian" in strata 1 to 6; and the upper "Spätmousterian" in a more typical form in layers 9 to 14.

Vértes tried to find in both of the Mousterians the precursors of the Bükk-Szeletian. Gábori determined both layers of the cave as: "Mousterien tipique". Janus and Stephen K. Kozlowski think it is most probably to have Charetian ranking-in in one place, regarding the archaeological material of the cave.

Just recently our knowledge became richer by a new interpretation achievements related to the Subalyuk Cave.

We think the most acceptable definition is: "Mousterian typique d'Europe--Centrale de debitage levallois et riche en racloirs" and in accordance with Mottl we think the nearest analogies are seen in the Grotte du Prince (Cave) - that is Strata D and E. We also try to find the precedents - together with the industry of Tata - in the Mediterranean area.

This culture - specialised in the hunting of wild goat,during the epochs of Emiliani 5e to 5a, that is in the last intraglacial in a broad sense - might have lived in the Bükk Mountains. Typical of the tool forms are Levallois- and Mousterian pics, and further-on double- and so-called déjeté scrapers. Some types - as Vértes recognised it - seem to point toward a later Aurignacian.

The upper- - that is the bear-hunter culture - of the Subalyuk Cave settled within the cave during the Emiliani 4 epoch, namely the first cooling maximum of "cold Würm".

Within this Ferrassoidic type industry the scrapers, but mainly the cross--edged types dominate. As a whole it has a more primitive character than the lower techno- typo-complex. The debitage is not a typical Levallois, but the number of blades is large.

Regarding the dating of the upper 9 to 14 strate - being the stratotype of the so-called Subalyuk faunistic period - are of importance the double interstadial oscillations represented by the 10th and 12th layers, respectively by soil-sediments, which might be parallelled to the Ognon II and III temperate climatic phases.

Thus the age of the Ferrassoid-type character industry might be about 75 000 to 50 000 yeary B.P.

In the foreground of the cave, in the 11th stratum, in a layer of a fireplace the skeleton-parts of two persons - supposedly buried - of an adulg woman and a child (female) were found. The anthropological finds belong to the classical Neanderthal human type.

7.1 Miskolc-Herman Ottó Museum

In Miskolc the Borsod-Miskolc Museum was founded in 1898, which has later--on adopted the name of Ottó Herman a scientists and politician with long-lasting achievements in several branches of science.

The temporary exhibition of the Museum gives an account on the most important relations of the Palaeolithic research works in Borsod-Abauj-Zemplén County.

8.1 Baradla cave

One of the largest caves of Europe is found in the Aggtelek Karst region - which is very rich in caves. The shortest Domica-cave branch is reaching into the neighbouring Czechoslovakia.

It is of special archaeological and science historical interest that one of the first Hungarian archaeologists, Jenő Nyári, led the first cave excavations here.

Nyári could also explore Pleistocene layers in the Denevérág and Csontház halls of the cave (Bat-branch and Bones-hall or Ossuray).

But the bones of the cave-bear were intermingled with Neolithic ceramics and the remnants of domesticated animals. Thus the Palaeolithic age of the finds has not got acceptance by the researchers of foreign countries. And by this fact - just remember the date: 1891 - the birth of Hungarian prehistoric man exploration was set back for another decade.

Later József Korek conducted up-to-data archaeological excavations in the cave of Baradla. During the course of the research work it turned out, that mainly the Neolithic Bükk cultures' man and late Bronze age man settled for longer periods in the cave.

The land-cultivating, cattle-breeding Bükkian culture was named after the Bükk Mountains. In the international prehistoric research - besides the Bükk--Szeletian, its beautifully chipped speare points - the very thin-walled, by lime and red paint filled in incision ornamented ceramics are well-known and found in large numbers mainly in the caves of the Bükk Mountains.

The man of the Bükk culture dwelt in the open already familiar houses rather away from the openings of caves.

In the caves of NNE Hungary - beyond the fore-mentioned ones - the late Bronz-age - early Iron-age "Kietian" culture is represented by frequent settlements.

Formerly scientists explained the presence of cave-settlements of cultures by the withdrawal of the population, escaping from much stronger ethnic groups. We think in this case it is simply a well-organised, complex-economy culture, being most probably livestock-breeding settlements in the mountainous area.

The Neolithic Bükk culture - in possession of the flint resources of NNE Hungary, and having a rather extended trade with their ceramic products - can hardy be regarded as being isolated. The same applies to the late Bronz-age - early Iron-age "Kietian" culture - which during the splendid epoch of bronze manufacturing has built very large earth-walled fortresses (e.g. in recent Szilvásvárad) and being in the possession the open-air pits producing copper and iron ore outcrops.

BÜKK MOUNTAINS

9.1 Eger Town

The centre of the western Bükk is the largest, patina-stained city, Eger. From its history the most outstanding era was the epoch of the Turkish occupation. The resolute defenders of the Eger Castle could, by their heroism, for a long time hinder the expansion of the Ottoman Empire in Europe.

Besides the Tokaj and Balaton wines the Eger Bull's Blood is one of the famous wines of Hungary.

VISEGRÁD MOUNTAINS

10.1 Visegrád

The second centre of tourism - after the Lake Balaton - is the Danube Bend. The Castle of Visegrád - an outstanding representative of renaissance in Hungary - is dominating the landscape.

A little in the distance: Esztergom was for a period the centre of the developing state of Hungary during the medieval ages - and at the same time the birthplace of our first king, Stephen I.

TRANSDANUBIAN MOUNTAIN RANGE - GERECSE MOUNTAINS

11.1 Jankovich Cave

This is the eponym (and most important) site of the newly denominated Jankovichian - the former Transdanubian-Szeletian, called leaf-shaped tool culture.

The culture having settled in about a dozen of Transdanubian caves was re-evaluated by Veronika Gábori-Csánk.

Jankovichian is - in regards of its typology and origin - different form the Bükk-Szeletian.

This Middle-Palaeolithic industry is connected to the Upper Danube Region's Micoquian. The leaf-shaped tools of it are still rather pic analogues. The Bockstein, Pradnik and Volgograd type blades clearly represent its distant connections.

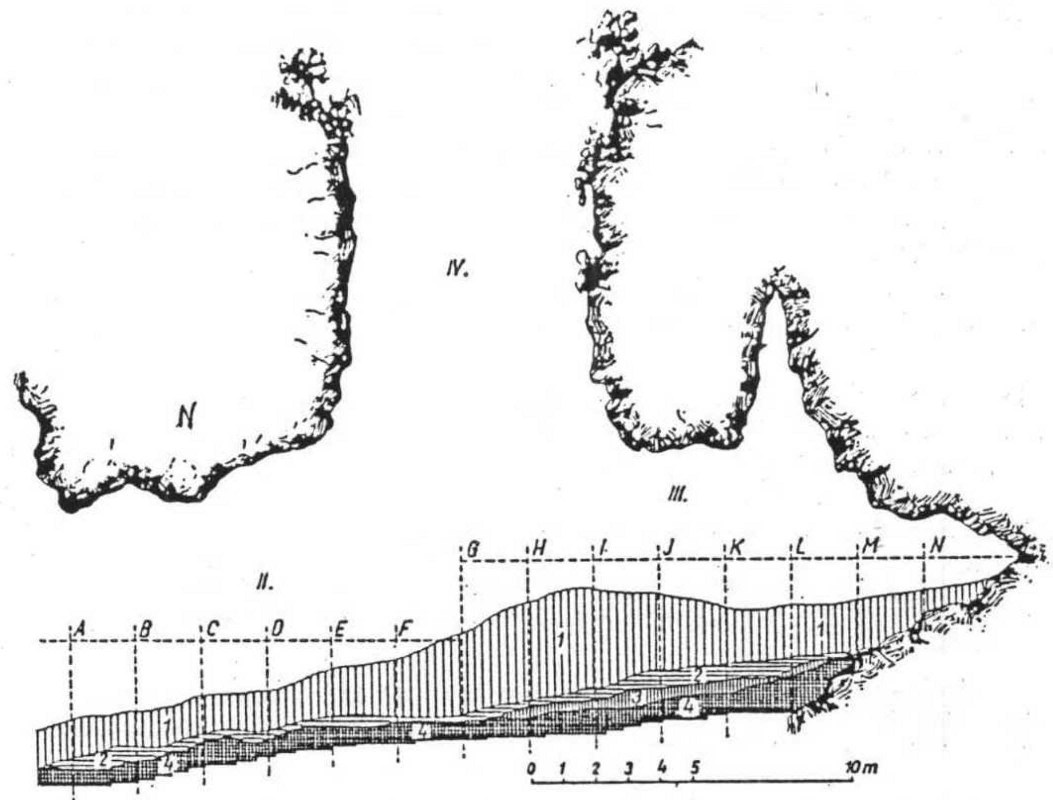
A closer relative may be the Bábonyian of the Bükk, with which it is partly contemporary. But on the other hand its "débitage" and characteristic retouche technique also makes it different, besides other features.

Jankovich cave was excavated by Hillebrand between 1913 to 1925. The multiple-settled culture's finds came to light from behind the large vertical shaft of the ruin-cave from a 6 m thick deposit in a hollow.

Under the vertical natural shaft in the cave the typical finds of the Pilisszántó culture have been excavated.

12.1 Tata - Calvary Hill

In the Tata-Kálváriadomb in a travertine quarry from sandy-loess being situated within thick freshwater-banks: the famous prehistoric site was ex-



9.1. Jankovich Cave

The layers of the cave /after HILLEBRAND/

1. Brown Holocene layer
2. Yellowish cave clay
3. Greenish cave clay
4. Waste; yellow plastic cave clay

2. The layer of the Pilisszántóian culture

   The finds of the Jankovichian culture were recovered from 6 m red cave clay in the back chamber of the cave.

cavated by Tivadar Kormos, in 1909. To the contrary of certain opinions, the site - further excavated by Vértes, the very rich find-material being published in a monograph - is not situated within a travertine cave, instead in a pool built by cascading waters (so called tetarata).

The mammoth-hunting Late Palaeolithic "Tata-industry" is both in regards of débitage, and typological connections close to the Pontinian in Italy, and has - in our opinion - wandered to the Hungarian site during the last interglacial.

Gábori, Gábori-Csánk and Viola T. Dobos hold the opinion that the "Tata--industry" may be closest related to the SE-European Charentian found also in the vicinity, at Érd.

The site: was dated by Th/U at 98 000 ± 101 000 ± 10 000 years B.P.: i.e. within the most up-to-date oxygen-isotope chronological system the equivalent of Emiliani's 5d or 5b cool period.

13.1 Vértesszöllős - Prehistoric Open-air Museum

The excavation of the oldest inhabitants of Europe was fermented by the explorations of the site, led by László Vértes in 1963 to 1968, the year of his death.

Since a monographic study of the site is still in print we would like to quote from the diary of the archaeologist, who died tragically, the statements on the finds:

"The industry of the site is connected to very far analogies: to the S- and SEern parts of Asia, that is Choukutign- and Sohan cultures, to the well--developed Kafuan (=Oldowan) cultures and also to the re-valued Cloctonien industry in the most W-Europe. In Central Europe only the following sites do offer comparable industries: the stratigraphically rather uncertain Achenheim, the Oberhessen (Münzenberg - without any additional data) and the other also non-specified age Roumanian from Slatina".

The site being rich in settling phenomena, containing also human rests and having more layers is >350 000 to 325 000 ± $\overset{\infty}{6}0$ 000, 227 000 $^{+\,56\,000}_{-\,37\,000}$ years B.P. by recent datings.

CHRONOSTRATIGRAPHY - PALAEOECOLOGY

At the end of the Guide we would like to say something about the archaeological chronostratigraphic - ecological questions of the Hungarian Upper Pleistocene. Except for Vértesszölős, all the presented archaeological sites belong to the last interglacial and the last glacial epochs. Holocene questions are not concerned.

Our chronological system is in accordance with the most up-to-date oxygen isotopic time-scale.

During the 5e and 5a era by Emiliani the Mediterranean-submediterranean elements dis spread out in recent Hungary (Celtis australis, Vitis, Juglans etc.).

Parallel to these, such southern fauna-elements did appear like fallow deer (Dama dama), turtle (Testudo greca) and others. Climate was alternating form warm-temperate to cool-temperate.

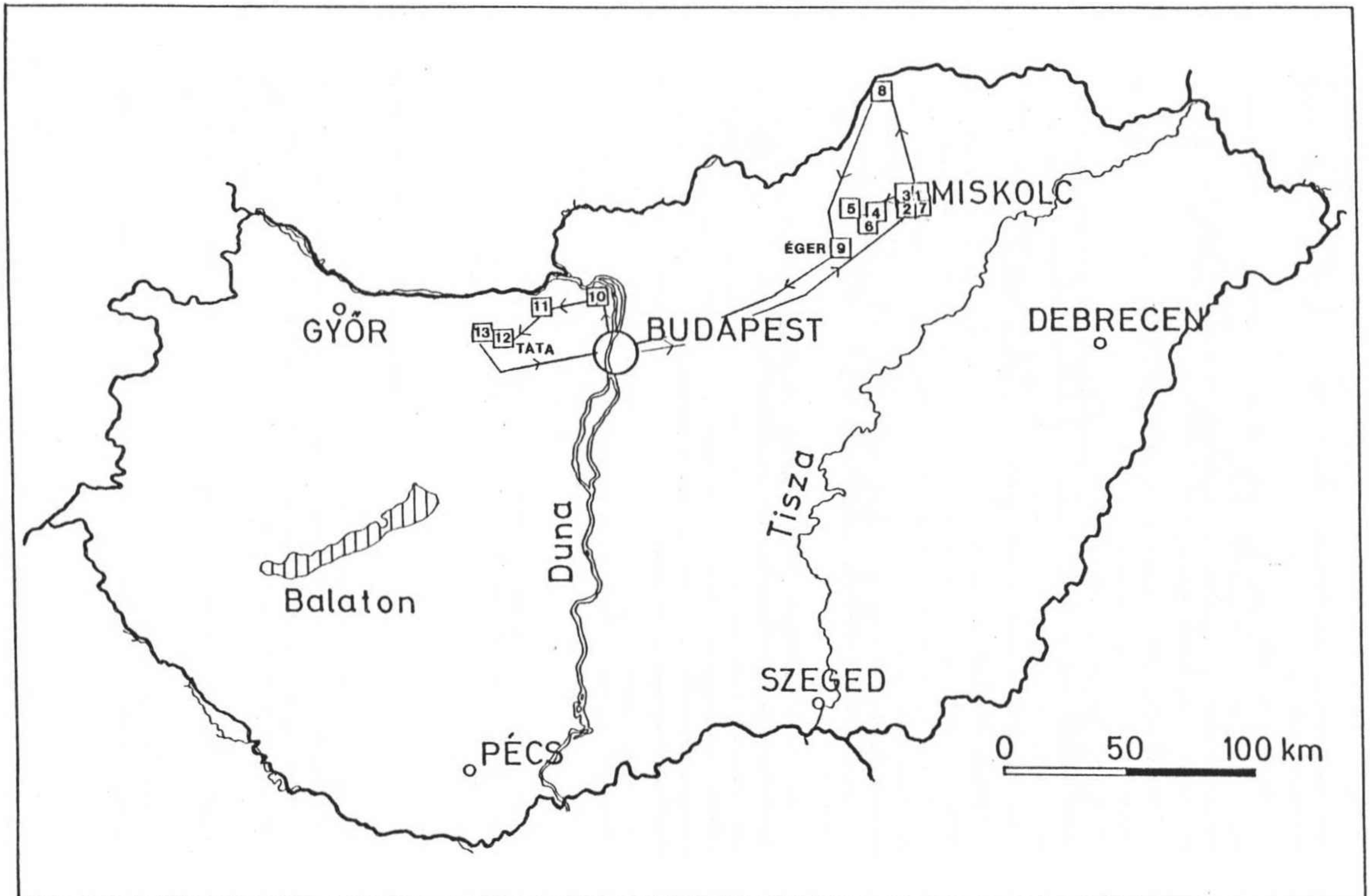
Probably together with these flora and fauna-elements: of southern Mediterranean origin may be the older Mousterian of the Subalyuk Cave in the Bükk Mountains, the "Tata industry" in Transdanubia and most probably the South-east-European Charantian of Érd.

On the other hand a local, Central-European origin is seen in the Bükk by Bábonyian and Taubachian.

Within the Emiliani 4 period the cold-indicating Larix-Picea and Pinus cembra, respectively Dicrostan torquatus and Microtus gregalis appear in great number. At the same time - about 75 000 years B.P. - the former Palaleolothic cultures disappear or only survive in a changed status.

Mainly cave-bear hunting cultures appear and flourish during Emiliani 3 period - or expressed in another form: to the end of the Middle Weichsel - that is about until the years of 26 000 B.P. Such are: the younger Ferrassoid Mousterien industry of the Subalyuk Cave in the Bükk Mts., the Bükk-Szeletian, the Bükk-Aurignacian I and II; respectively the Transdanubian Jankovichian. These cultures show affinities to the direction of nearly equal geographical latitudes.

Towards the end of the last glacial the characteristic ecological sign of the Emiliani 2 are the cryophile and xerophile arctic and subarctic flora and fauna-elements. After the retreat of the cave-bear and the mammoth: reindeer- and horse-hunting upper Palaeolithic cultures would appear in the present Hungary (Gravettian, Pilisszántoian), arriving mainly from the north, north-west and east, north-east to the area.



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