BULLETIN

OF THE

American School of Prehistoric Research

IN AFFILIATION WITH THE

ARCHAEOLOGICAL INSTITUTE OF AMERICA

Founded 1921; Incorporated under the laws of the District of Columbia, 1926.

NUMBER FIVE MARCH 1929

TRUSTEES AND OFFICERS

REPORTS

ACCOMPANYING PAPERS

Edited by George Grant MacCurdy, Director

OFFICE OF THE SCHOOL
PEABODY MUSEUM, NEW HAVEN, CONN.

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REPORT BY THE DIRECTOR ON THE WORK OF THE EIGHTH SEASON

To the Trustees of the American School of Prehistoric Research:

The Eighth Summer Session of the American School of Prehistoric Research opened in London on July 2d. The program provided for a stay of ten days in southern England before taking up work on the continent. These were spent in a study of the various prehistoric and related collections in the London museums as well as those in Cambridge, Ipswich, Norwich and Cromer. The excursions covered important sites in Wiltshire, Suffolk and Norfolk.

On the way from London to Paris a stop was made at Amiens in order to study the sections of the sand and gravel pits in the valley terraces at St. Acheul, Cagny, and Montières. After a short stay in Paris to study the museum collections, the party went direct to the leased Paleolithic rock shelter near St. Léon-sur-Vézère (Dordogne), where digging was carried on until the end of August. In addition to visiting the local museums and stations of the Vézère valley, excursions were made to Lot, to northern Spain, and to the Pyrenees.

The School was especially fortunate in having Professor Obermaier as a guide at Altamira, and the Abbé Carballo at Castillo. Good fortune also accompanied us to the Pyrenees, for the cavern of Trois-Frères at Montesquieu-Avantes (Ariège), which had been closed for some years even to Count Begouen, had just been opened again to students of prehistory. We were accompanied not only by Count Begouen and his son Louis, but also by the Abbé Breuil, who at the time was making copies of the mural art. The Abbé Breuil found during the month of August engravings at Trois-Frères, the existence of which had not been hitherto suspected.

The digging at St. Léon resulted in the finding of many relics of the Old Stone Age at three levels as in the four preceding seasons. The outstanding discoveries of the season were the two remarkably beautiful and perfect tools of rock crystal both found in the lower Mousterian level—the work of Neandertal man.

During the term, twenty-six conferences were given by the Director, while twenty-two specialists gave twenty-seven conferences. Those who favored the School in this manner were: Reginald A. Smith, Professor Miles C. Burkitt, Col. Haiter, Mr. Hopwood, Sir Arthur Keith, Professor T. Wingate Todd, Mr. Henry S. Wellcome, Dr. L. W. G. Malcolm, J. Reid

Moir, Guy Maynard, Fred Snare, J. E. Sainty, A. C. Savin, Francis H. Barclay (England); Abbé H. Breuil, D. Peyrony, Count Begouen, Louis Begouen (France); Professor Hugo Obermaier, Abbé Jesus Carballo (Spain); and finally two of the students: Professor E. B. Renaud of the University of Denver and Miss Helen Roberts of Yale University.

Prehistoric monuments and sites were visited to the number of thirty-two; work was done in twenty-one museums; and eighteen days were devoted to digging at St. Léon-sur-Vézère. Before leaving St. Léon, the Director spent two days in showing the prehistoric stations and museums of the Vézère valley to Professor Kirtley F. Mather of Harvard University and his party of nine students of geology.

After the formal closing of the term, three of the students, accompanied by the Director and Mrs. MacCurdy, attended the meeting of the British Association for the Advancement of Science at Glasgow. Two of the students remained on the other side and are at present pursuing their prehistoric studies—one at Oxford and the other in Paris. Another student of the School, Mr. Robert A. Franks, Jr., of Harvard University, was one of the School's two representatives on the scientific staff of the expedition in Iraq, in October, November and the early part of December.

The Iraq expedition was the joint undertaking of the Percy Sladen Fund (British) and the American School of Prehistoric Research. The scientific staff included Miss Dorothy A. E. Garrod and Mrs. Neil Baynes representing the Percy Sladen Fund, and Mr. Franks and Mr. Francis Turville-Petre representing the School. Miss Garrod was in charge of the party, which entered the field early in October and returned to Bagdad the second week in December. The area explored was the region of Sulaimani, about 160 miles northeast of Bagdad.

Many Paleolithic caves and rock shelters were located; one was wholly and another partly excavated. The former, a small cave at Larzi, proved to be exceedingly rich in remains belonging to the Aurignacian Epoch (Paleolithic), the principal types being exactly comparable with those from Aurignacian stations in the Danube valley, lower Austria, and south central France. Another interesting feature is that at the top of the deposit this typically Aurignacian culture grades off into the microlithic Tardenoisian (Mesolithic). In other words, remains of what would be the two intervening epochs in western Europe, namely: the Solutrean and Magdalenian, are lacking. The industry from Larzi does not seem to have anything in common with the Capsian industry of northern Africa.

The expedition excavated in part a great cave at Hazar Merd, known locally as *Arshkot-i-Tarik* or "Dark Cave." This they found to contain a typical Mousterian industry belonging to the epoch immediately preced-

ing the Aurignacian. Above the Mousterian level there were a few scattered implements of the Larzi, i.e., Aurignacian, type and at the top of the section an abundance of pottery was found.

It would seem, therefore, that both the Mousterian and the Aurignacian cultures form a zone stretching across both Europe and Asia. Whether the prehistoric current which carried these cultures moved from west to east, or the reverse, is a problem which may be solved through further exploration, and this the American School of Prehistoric Research stands ready to do. A full report of the first Iraq Expedition including the work done at the Larzi and Hazar Merd caves will appear in the next Bulletin of our School.*

The School will coöperate with the British School of Archæology at Jerusalem in excavating a cave near Athlit on the seaward side of Mount Carmel, Palestine, in March, April and May, 1929. This cave was discovered by quarriers in connection with work on the new harbor improvement at Haifa. A representative of the Department of Antiquities made soundings with unexpected results. In addition to a very abundant flint industry, he obtained a series of bone objects entirely new for this part of the world. The most important pieces are a kind of *bâton de commandement* carved from the shoulder blade of a deer and a carving in the round of a bull calf (or perhaps a young deer) on the end of a long bone of some large animal. Apparently three periods are represented in the Mount Carmel station: Paleolithic, Mesolithic, and Byzantine. Professor Harriet M. Allyn of Vassar College, a former student of the School and Dean-elect of Mount Holyoke College, will represent the American School of Prehistoric Research at the excavations on Mt. Carmel.

The Iraq expedition and the coöperation of our School with the British School of Archaeology at Jerusalem for work in Palestine mark the beginning of a period of expansion in the work of the American School, which is highly encouraging to its supporters. Expansion in still another direction is seen in the fact that during the academic year 1928-29, the facilities offered by the School at its headquarters in New Haven have been utilized by research students.

Since the last annual report was published, two of the original members of the Board of Trustees of the School have died—one in office and the other some six weeks after retiring. The Hon. Robert Lansing was still a member of the Board when he died on October 30, 1928. Canon J.

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* The equipment of the joint expedition is at present in the care of Capt. Sheppard, Police Department, Sulaimani. We are much endebted to the Iraq Government for providing free and efficient police escort while field work was being carried on.

Townsend Russell, whose place on the Board was taken by his son on January 1, 1929, died February 18th. To both of the deceased, the School acknowledges a deep debt of gratitude.

As was the case last year, the Director's Report is accompanied by that of Mr. James T. Russell, Jr., a Fellow of the School.* Following this are the three papers read as part of a symposium on Old-World prehistory at a joint meeting of the American Anthropological Association and Section H of the American Association for the Advancement of Science held in New York, December 29, 1928. One of these is by the Director, the other two by former students† of the School.

A twenty-five page Bulletin (No. 4) containing the Report of the Director and a paper by Mr. James T. Russell, Jr., on *A Summer of Prehistoric Research in the "Pays Civraisien"* was issued in March, 1928.

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* Now also a Trustee.

† V. J. Fewkes, University of Pa., and Robert W. Ehrich, Harvard University.

BULLETINS WANTED

Bulletins No. 1 and 2 are now out of print. A number of requests have come in for copies of these Bulletins. Those who have copies of 1 and 2 and do not care to keep them permanently would do the School a favor by returning the Bulletins in question to Dr. George Grant MacCurdy, Peabody Museum, New Haven, Conn.

REPORT ON FIELD WORK IN FRANCE, SEASON OF 1928

By J. Townsend Russell, Jr. (U. S. National Museum)

I began my season's work on July 18 and continued intermittently until September 16. It consisted of only two weeks' actual excavation and three prospecting trips into the North of the department of Vienne and the departments of Deux Sêvres and Sarthe.

Before beginning my report I should like to express my thanks to M. le Comte de Ferré for the kind permission he freely gave me to excavate on his property of "Bars" and also to my good friend M. le Dr. Mériguet of Gençay for the assistance he rendered me on every hand.

THE TUMULUS OF BOISTERNE

The first piece of excavation undertaken was on a circular mound known as the tumulus of Boisterne and situated in the department of Vienne, 5 kilometers north of the town of Gençay and scarcely 15 meters from the road between Gençay and Poitiers. The only reference I could find to this site was in the "Mémoires des Antiquaires de l'Ouest," 1862, p. 165. Here it is simply mentioned as a tumulus having a median depression.

This appeared to be a very promising site consisting of a mound 21 meters in diameter, 3 meters high and approximately circular. A trench running 14 meters into the structure as well as cuts to east and west from its center revealed the composition to be several levels of clayey earth mixed with cinders, iron ore, bits of tile and pottery, and, towards the center, occasional blocks of limestone. These levels were undisturbed throughout save in the uppermost, where there appeared a slight depression at the center probably caused by superficial digging.

There were no indications as to the purpose of the mound. I found in the surrounding field an abundance of the same tile and pottery that it contained. As this was all of post Gallo-Roman age I turned over the results to an expert on Medieval Archeology.

THE TWO DOLMENS OF BARS

This site is situated on the farm of Bars, Commune of St. Martin l'Ars, department of Vienne. It is composed of two dolmens located 30 m. from one another. I designate the westerly dolmen as No. 1 and the easterly as No. 2.

Up to the winter of 1927, both structures retained a large part of their original limestone rubble tumuli having their table stones and the tops of some of their supports exposed. But, to occupy the idle time of the winter months, the owner had his farmer completely disengage dolmen No. 1, breaking the stone from its tumulus into road-building material. Thus No. 1 was completely exposed, and the interior of No. 2 accessible by means of a hole under the table stone.

I found both structures to have been ransacked, No. 2 so thoroughly that it yielded hardly a splinter of bone, while from No. 1 I collected a small quantity of human bones, three foot bones of the ox, and a bushel of potsherds. From the last I was able partially to reconstruct a cup. A local proprietor called at my diggings and showed me a beautiful polished ax which he had found when a boy under dolmen No. 1. There was no trace of metal in either site.

THE PAST, PRESENT, AND FUTURE OF OLD-WORLD PREHISTORY

By George Grant MacCurdy

In a discussion of prehistory certain problems and questions come to the fore. What is the length of the prehistoric era, how has it been determined, in which part or parts of the world is it the longest, what are its sub-divisions, how have they been determined, and what are their geographic limitations? These are only some of the queries, while the problems solved and unsolved are legion.

Prehistory is a subject of three dimensions—two geographic and one geologic. From the latter we gain some idea as to the length of time that has elapsed since man first appeared on the earth; from the former, we hope to learn something of the distribution of cultures over the face of the earth; lastly the geographic and geologic data combined should make it possible to determine approximately where man's first appearance occurred.

The evidence thus far gleaned points to the Old World as the stage on which the first acts of the human drama were played. Let us examine for a moment the stage. It was ample in size; the greater part of the land-mass lies north of the equator and in the hemisphere which suffered least from the recurring advances of the ice during the Glacial Period, thus leaving to man a more ample stage for the great drama of physical and cultural evolution than he would have had in the western hemisphere.

There is every reason to assume that the cradle of the human race was not only somewhere in the Old World but also north of the equator. Was it in that part now known as Europe? It is probably too early to answer that question definitively. We are however in a better position to discuss the prehistory of Europe than that of any other section of the Old World because more work has been done there than anywhere else.

Prehistory is unthinkable without a chronology, but its chronology is of a sort to which the finer units of the time scale—such as days, months, and even years—are not applicable. Its chronology is measured by year units to be sure, but used in mass rather than singly; and when figures in terms of years are given, they must be considered as approximations.

Prehistoric chronology has a triple foundation: geologic, paleontologic, and cultural. Hence the terminology is not unlike that employed by the geologist. The finer divisions of prehistoric time however have been determined through a study of cultural remains, the products of man's

brain and hand, rather than of fossil remains of animals including man. The reasons for this are two: 1) cultural remains are more abundant, and 2) cultural changes have taken place more rapidly, are more easily observable and form a more delicate method of measuring.

The combined evidence gleaned from stratigraphic, paleontologic, and archeologic sources leads to the conclusion that the stem from which the human stock sprang may be traced down into the period immediately preceding the Pleistocene, known as the Tertiary. After three months of field work in Europe during the summer of 1903, I returned to America fully convinced that our forerunners had lived in Europe at least as far back as the Pliocene. I made a report to that effect before Section H of this Association in December, 1903. At that time, there were few who had the hardihood to share this view with me. In the twenty-five years which have elapsed since then, I have passed from the ranks of the radicals to those of the conservatives without having had to change my views materially.

What have been the results of nearly 100 years of systematic study in the field of European prehistory, what of the present, what of the future? If the first step in establishing a system of prehistoric chronology was taken by Thomsen (in 1836), the second step was the division of the Stone Age into two periods by Sir John Lubbock: Paleolithic and Neolithic. Then followed the notable work of Gabriel de Mortillet, who in 1869* divided the Paleolithic into four epochs in order of sequence as follows: Mousterian, Solutrean, Aurignacian, and Magdalenian. In 1872† de Mortillet made fundamental changes in his system by dropping out the Aurignacian (which should have been kept but placed before the Solutrean instead of after) and by creating a new epoch to precede the Mousterian. His revised table—Acheulian, Mousterian, Solutrean and Magdalenian—underwent further revision, first when he created two new epochs: the Chellean to precede the Acheulian and the Tourassian (later superseded by Piette's Azilian) to follow the Magdalenian, secondly in 1906 when Breuil rehabilitated the Aurignacian, placing it before the Solutrean.

Even before Piette published (1895) his report of an industry found at Mas d'Azil throwing light on the so-called hiatus between the Paleolithic and the Neolithic, to which industry he gave the name Azilian, Edmond Vieille had already (1890) published his account of a microlithic industry from Fère-en-Tardenois. To this microlithic type of culture, G. de Mortillet later gave the name Tardenoisian. Thus between the Azilian of Piette and the Tardenoisian of de Mortillet the hiatus was in fair way to

* Materiaux pour l'Histoire de l'Homme, vol. V, p. 172.
† C. R., Congrès Intern. d'Anthrop. et d'Archéol. Préhs., Brussels.

suffer a complete eclipse, which came in 1905 when Sarauw published his report on the Maglemose station at Mullerup (Zealand), Denmark.

The subdivisions of the Old Stone Age as at present constituted measure up to the requirements of our knowledge of the European field well enough to form a common basis on which to build in the future. All the epochs are represented over considerable areas of Europe; some are lacking in certain parts. The order of sequence however whether unbroken or broken is always and everywhere consistent. The cultures of some epochs are much more widespread than those of others. As a rule the more widespread the culture the longer the epoch, the Chellean, Acheulian, Mousterian and Aurignacian being examples which are extensive in space and time. The Solutrean especially and, to a certain degree, the Magdalenian, are less extensive.

New light on the Solutrean has been added by the recent discoveries of Dr. Henri Martin in the *Vallée du Roc* (Charente). He has found there a remarkable frieze, in high relief on stone, of animal figures including man. The pieces were found face down on a deposit of Solutrean age and were covered by two more superimposed deposits, also Solutrean. These and other examples of cave art found on the same site, together with the two sculptured blocks found by Peyrony at the *Fourneau du Diable* (Dordogne) no longer leave any doubt as to the artistic ability of the Solutrean branch of the Cro-Magnon family. And this is not all—Dr. Martin also found three skeletons which had been buried on a Solutrean deposit but not so completely dated by superposed deposits as were the examples of cave art. Among the skeletons there were a few bones of the reindeer, also chipped flints which obviously belong to the upper Paleolithic. The presence of a piece of crude pottery was also noted. The anatomical characters of the skeletons however place them without any doubt in the Cro-Magnon group. Their resemblance to the skeleton from Raymonden at Chancelade (Dordogne) is remarkably close. Martin would refer them to the final stage of the Solutrean or beginning of the Magdalenian. A special hall in the museum of national antiquities at St. Germain named in honor of Henri Martin and containing collections installed by him from Le Roc as well as La Quina was formally opened last August.

Can the European terminology be applied to contemporary cultures outside Europe? The answer to this would seem to depend in part at least on the degree of recognizable kinship. It is true that in Europe itself different names are given to contemporary and related cultures. Passemard for example would apply the term Chalossean to the Pre-Chellean industry recently discovered at Chalosse in the valley of the Adour

(Landes). Rellini suggests that the term Grimaldian be applied to the upper Paleolithic of Italy. In like manner the name Asturian has been applied to a Protoneolithic industry found in northern Spain, and Maglemosean to the Mesolithic in Denmark. On the other hand the term Tardenoisian originally given to the microlithic phase of the Mesolithic Period seems to hold the field over the whole of Europe. Obermaier goes so far as to suggest that the term Mesolithic be superseded by the term *Epipaleolithic*. His reason is that the final phase of the Capsian, that the Azilian, the Tardenoisian and Maglemosean all are merely the posthumous descendants of the Paleolithic. This tendency to apply local names in a generic sense to local phases of a culture, which has not the same local limits, and to which a common name has already been given and is in general use, if carried too far is apt to lead to confusion rather than clarity.

When however our researches take us into the neighboring continents of Africa and Asia there is more excuse for yielding to the temptation to coin new terms for a similar and contemporary culture. Thus in northern Africa the Capsian industry is practically the equivalent of the Aurignacian, if not of Europe as a whole, at least those parts which lie south of the Alps and the Cantabrian mountains.

The question as to whether we shall add to Paleolithic terminology by coining new names derived from Asiatic sites is already up for decision. The British-American expedition to Iraq has just completed the excavation of a small cave at Larzi in the region of Sulaimani, northeast of Bagdad, in which the industry is typically Aurignacian and in point of age is certainly Paleolithic. Shall we coin a new name for this industry—*Sulaimanian* or *Iraquian*—or shall we refer it simply to the Aurignacian? The latter alternative would seem to me to be the wiser.

According to Miss Dorothy A. E. Garrod, leader of the joint expedition, the relic-bearing deposit is just outside the shallow cave in a terrace. The industrial remains have marked central European affinities, duplicating the Aurignacian types from the Danube valley in Austria and in south central France: flint blades with notches along the opposite margins, conical scrapers and shouldered points of the Willendorf type, small gravers like those found at Noailles (Corrèze), and blades similar to those from La Gravette (Dordogne)

Another striking feature of the section at Larzi is that at the top the Aurignacian grades off into a Tardenoisian industry, the typical implement of the series being the trapezoid microlith exactly comparable with the earliest Tardenoisian of England. In the absence of evidence to the contrary, the Aurignacian seems to have persisted in Sulaimani until Tardenoisian times.

Miss Garrod's party, representing the Percy Sladen Fund (British) and the American School of Prehistoric Research, partially excavated a great cave at Hazar Merd, known as the Dark Cave (*Arshkot-i-Tarik*), also in Sulaimani, and obtained a collection of typical Mousterian implements. To date therefore there is no need to invent new names for old cultures in Iraq. A great Mousterian as well as Aurignacian culture zone stretches across the northern hemisphere of the Old World from east to west. Whether the prehistoric currents carrying these cultures flowed from the east toward the west or the reverse is one of the problems which the future may solve.

There should also be mentioned the discoveries made last spring by Miss Garrod, assisted by two former students of the American School of Prehistoric Research, in the cave of Shukbah near Jerusalem. Two archeological levels, both rich, were encountered.. The lower contained a Mousterian industry similar to that recently found in the Galilee caves by Turville-Petre; some scattered skeletal fragments of Neandertal man were also found. The upper level yielded a microlithic industry, presumably Tardenoisian. Work in this cave will not be resumed until March, 1930, when it will be carried on as a joint undertaking of the British School of Archæology at Jerusalem and the American School of Prehistoric Research, with Miss Garrod in charge.

The joint spring campaign of 1929 is being wholly given over to the newly discovered cave at Athlit on the seaward side of Mount Carmel in Palestine. The site came to the notice of the Department of Antiquities through the work of quarriers in connection with the new harbor improvement at Haifa. A representative was sent to the spot in November, 1928, and obtained through soundings and otherwise some remarkable results. In addition to a very abundant flint industry, a series of bone objects entirely new to this part of the world were found. The most important pieces are a kind of *bâton* carved from the shoulder blade of a deer and a figure in the round of a bull calf, or perhaps a young deer, on the end of a long bone of some large animal. Apparently three periods are represented at this cave: late Paleolithic, Mesolithic and Byzantine. The American School of Prehistoric Research is represented by Professor Harriett M. Allyn of Vassar College, a former student of the School and Dean-elect of Mount Holyoke College. Miss Garrod, representing the British School, is in charge.

While on the subject of terminology, it might be well to call attention to the importance of correlating racial with cultural types—to remember that *Homo neandertalensis* was the author of Mousterian culture, that the race of Cro-Magnon was the author of Aurignacian, Solutrean and Mag-

dalenian cultures. It would have simplified matters had the man of Neandertal been called *Homo mousteriensis* in the beginning, but he was not; so it is perhaps better to let the matter rest as it is. The terms *Homo mousteriensis* and *aurignacensis* invented by Klaatsch in 1909 have never been applied to any except the skeletal remains from the two sites in question—Le Moustier and Combe-Capelle.

So much is being said about Neandertal man that it is time those who use the term should come to an agreement as to how it should be spelled as well as pronounced. The original spelling was with an "h" although the "h" was never pronounced by the Germans. Now that the German *Reallexikon der Vorgeschichte* has set its seal of approval on a practice already in vogue among both German and non-German prehistorians, of leaving out the "h," would it not be wise for English and American authors to follow suit, thus avoiding the danger of pronouncing the last syllable "thal," with an "h" sound, instead of "tal" as it should be pronounced as well as spelled?

There are likewise a few words in the nomenclature of prehistory about which there should be agreement as to pronunciation. I refer to the three French words, Chellean, Acheulian and Cro-Magnon. In the first two, the "c" in "ch" has an "s" sound. In converting these words into English, it is proposed to retain the French sound by pronuncing the words as if they were spelled "Shellean" and "Asheulian" respectively, instead of "Tchellean" and "Atcheulian" which one sometimes hears from the lips of English-speaking persons. Then there is the word Cro-Magnon. The French pronounce the last half of this hyphenated word as if it were spelled "Manyon." There seems to be no valid reason why the English pronunciation should not be the same as the French, instead of employing the hard "g" sound.

One of the big problems in European prehistory is the correlation of human cultural and skeletal remains with the various phases of the Ice Age. Glaciologists have combined with prehistorians with the result that at least a good beginning has been made toward referring stations of the Old Stone Age to the various glacial and interglacial epochs. In brief, Breuil, who has recently given much attention to this subject, would correlate the Pre-Chellean and Chellean with the Günz-Mindel, or first Interglacial Epoch, and the Acheulian with the Mindel-Riss (second Interglacial). This would place the long warm phase of the Mousterian Epoch in the third Interglacial or Riss-Würm Epoch, and the cold Mousterian, Aurignacian, Solutrean, and Magdalenian in that which remains of the Ice Age, namely the advance, maximum, and retreat of the Würm glaciation. If Breuil is right, man began to live in caves much earlier than was

supposed; for he would refer the industry at the base of the relic-bearing deposits from the grotte de l'Observatoire in Monaco to the Pre-Chellean Epoch. Even Boule, who is ultra conservative, would class the oldest industry from the Observatoire station as Chellean.

It should not be inferred that man lived in Europe only during interglacial epochs. Even during the maximum of each of the four glaciations there was always room left for man to maintain a comfortable foothold. Breuil definitely refers the Paleolithic station of Coomb Rock in England to the Riss Glacial Epoch. For the culture of this epoch and the succeeding Riss-Würm Interglacial, he would coin a new term "Levalloisian" to be intercalated between the Acheulian and the cold Mousterian. Breuil considers the Lower Boulder Clay of England to be the product of the Mindel glaciation and the Upper Boulder Clay to be that of the Riss glaciation.

The Paleolithic and Mesolithic cultures of Europe have been more completely studied than have those of the Neolithic and the Age of Metals. This is partly due to the fact that the problem has been simpler. In spite of difficulties encountered, our knowledge of the Neolithic is yearly becoming better defined. This progress is due in large measure to the Scandinavians, the Swiss, the Slavic races, and the Germans, although credit must be given to practically every other nation for a share in it. In spite of all that has been done, there is still no well-defined chronology of the New Stone Age that will apply to anything more than restricted regions. It remains to be seen whether such a chronology and terminology can be determined that can cover satisfactorily the whole of Europe.

No one has as yet arisen to become the arbiter of Neolithic chronology; perhaps the time may not yet be ripe for such a consummation. In this field the geologist and paleontologist can be of little service to the prehistorian. Besides, the very complexity of the problems to be solved has put a damper on initiative. What is true of the Neolithic is also true of the Bronze and Iron Ages. Enough, however, is being done to prove that the problems are not insoluble. The intensive work that is now going on will prepare the way for works of a comparative nature and eventually make possible a wider correlation of the culture of one region with those of its neighbors.

In recent years, Schmidt and Reinerth of Tübingen and Paul Vouga of Neuchâtel have done much to increase our knowledge of the pile village-culture in southern Germany and Switzerland. In Czechoslovakia and Poland, the Neolithic and metal ages have come in for their due share of attention and with excellent results.

A praiseworthy attempt at a classification that might be applied to central

Europe is that of Josef Schránil of Prague. His work *Die Vorgeschichte Böhmens und Mährens* was published in 1928. His classification of the Neolithic, based on pottery types, is as follows:

Early Neolithic
- Band Ornamentation (Spiral and meander)
  - a. Early unpainted phase
  - b. Late phase (first painted pottery in Bohemia)
- Punctate Ornamentation
  - a. Early phase (Moravian painted pottery)
  - b. Late phase

Late Neolithic (*Eneolithic*)
- Jordansmühl type
- Northern type
- String Ornamentation
- Bell-beaker Culture
- Pre-Aunjetitz Culture

Schránil divides the Bronze Age into Early, Middle, and Late. The early phase is represented by the Aunjetitz culture with inhumation burials; the middle phase by the early Lausitz culture with the practice of incineration and distinctive ceramic types—especially cinerary urns with covers; the late phase by the late Lausitz, the Knoviz, and the Silesian cultures.

Schránil makes use of the generally accepted divisions of the Iron Age: Hallstatt and La Tène. The early phase of the Hallstatt Epoch is represented by the Bylan culture with incineration burials under tumuli; the late phase by both incineration and inhumation, also under tumuli. The Epoch of La Tène is divided into an early, middle, and late phase. The first is marked by Italian influence, with incineration still dominant; the second is recognized by a complete change from incineration to inhumation; the third is represented by the Stradonitz culture.

One of the hopeful signs of the times testifying to an abiding interest in the Prehistory of Europe and the Old World in general is that three institutions have recently been incorporated to do work especially in this field. I refer to the *Institut de Paléontologie Humaine* in Paris, founded in 1910 by Prince Albert I of Monaco, the *Urgeschichtliches Forschungsinstitut* founded in 1921, at Tübingen, and the American School of Prehistoric Research also founded in 1921 (incorporated in 1926). All three are needed to supplement the activities of pre-existing universities, museums, societies, etc. It is also perhaps worthy of mention in this connection that, at the meeting of the British Association for the Advancement of Science in Glasgow last September, of the thirty papers which

were read before Section H, twenty-three, or over three-fourths, were on the subject of Old-World prehistory and fifteen, or exactly half, on European prehistory.

An even better indication of the lively interest taken in European prehistory is the ever-increasing volume of the current literature, both technical and popular on the subject. Perhaps the most significant example is the *Reallexikon der Vorgeschichte* (Berlin), the first volume of which appeared in 1924 and of which the first two numbers of volume XIV have just been issued from the press. The first volume of IPEK—*Jahrbuch für Prähistorische und Ethnographische Kunst* (Leipzig) appeared in 1925; the *Vorgeschichtliches Jahrbuch* (Berlin) in 1926; and *Antiquity* (Gloucester) in 1927. Max Ebert is editor of the *Reallixikon* and the *Vorgeschichtliches Jahrbuch;* Herbert Kühn, of IPEK; and O. G. S. Crawford, of *Antiquity.* The first memoir in the series entitled *Archives de l'Institut de Paléontologie Humaine* (Paris) appeared in 1927 and since then three more memoirs of the series have been issued. A number of books on European prehistory have appeared during the past twelve months in various languages, especially English, French, and German, so that the general reader's opportunities for keeping well informed on the subject were never better.

THE PALEOLITHIC PERIOD IN CENTRAL EUROPE

By VLADIMIR J. FEWKES (University of Pennsylvania)

A geographic definition of central Europe, whether based upon natural or political boundaries, is necessarily arbitrary and does not set any spacial limitation to the various cultures represented within the region. As used in this article the term includes the countries of Bohemia, Moravia, Hungary, Slovakia and Transylvania, in the sense of their present political borders. With these the writer is most familiar through literature and field contacts.

In recent years this region has received important attention from practically all the authorities on European archeology. Its Paleolithic cultures have justly been considered quite aside from the classical sequence in France. The field presents new aspects and problems, and any attempt to fit them into the western scheme of classification involves many difficulties.

From the standpoint of Physical Anthropology this part of Europe is also very important, forming an exhaustive subject, which is not considered here. Archeology alone is briefly discussed by countries, as enumerated above.

Bohemia (5, 7, 13, 15)*

While very prolific in the remains of Neolithic and Metal age cultures, Bohemia has so far yielded only a few traces of Paleolithic occupation. It appears that in the Pleistocene period Bohemia formed a periphery to the area of which Moravia was the cultural centre.

No indication of the presence of the Lower Paleolithic has been encountered so far. The Mousterian phase, while generally denied, seems to be suggested by certain recent finds. Lithic remains of the Aurignacian industry have been ascertained in several localities. Of the Solutrean only one stone implement (typologically so classed) has been recovered. The Magdalenian culture is better represented than any Paleolithic phase, but with one single exception, it is devoid of art and, in general, it does not compare with France and Moravia. There are no traces of the Epipaleolithic. In fact a genuine hiatus seems to exist between Paleolithic and Neolithic cultures.

Future researches may bring to light more Paleolithic remains and a

* The numbers in parentheses refer to the list of literary sources, given at the end.

thorough revision of the material in the numerous museum collections may also serve to improve the true picture of the situation.

Moravia (1-7, 12, 13)

The eminent position of Moravia in European prehistory is universally recognized. Practically all scholars in the Paleolithic field have dealt with it to a greater or lesser degree, and of course, with varying success. There is, however, an urgent need for detailed first-hand information and it is earnestly hoped that Dr. Absolon, the outstanding authority on the Moravian Paleolithic, will soon publish the various monographs which he is now preparing.

With due allowance for diversity of opinion, the Paleolithic Period in Moravia may be briefly summarized as follows:

The Lower Paleolithic phase is absent. What has formerly been classed as such, has now been included by Absolon in his *Primitive Aurignacian.*

Human occupation appears to begin with the Mousterian. A thorough typological revision of this industry will be necessary before its typical characteristics are finally determined. For some of the material now labeled Mousterian may prove to be the Primitive Aurignacian. Nevertheless, it seems that the Mousterian industry is present, although Absolon is inclined to deny it altogether.

In checking up on previous work in the famous Pekarna Cave, Absolon ascertained that several places, marked as completely exploited, were really untouched. Subsequent excavations, particularly near the entrance to the cave, resulted in the discovery of an archaic Aurignacian industry in the layer, which, according to records of preceding diggings, should have yielded artifacts of Lower and Middle Paleolithic types. The cave was then thoroughly gone over, with the happy result that a new, definitely stratified phase of Upper Paleolithic industry was unquestionably ascertained. Absolon calls it Pseudo-Mousterian or Primitive Aurignacian.

Stone artifacts of this industry were found in the lowest level of layer "I" which contained full Aurignacian at the top. The two industries were not separated by any sterile deposit. (Under layer "I" lies a sterile layer "J," directly superimposed upon the rock bottom of the cave.)

The workmanship of these Primitive Aurignacian artifacts is most primitive. In some cases the specimens show traces of Mousterian technique, but the facets are always smooth and without traces of the typical Mousterian flaking. The repertory of types includes: knives, blades, pseudopoints, discs, scrapers, double scrapers, niched forms, but most important of all, crude gravers of core and blade variety. The last are

particularly interesting, because they present the oldest elements of *burins* (gravers), which are so prominent in the Aurignacian lithic industry. Many pieces are quite large and heavy, in some cases weighing as much as 2-5 pounds. Quartzite is predominantly the material used so that it serves as one of the means of classification of similar implements from unstratified deposits.

The Primitive Aurignacian is found in several stations in Moravia, as was revealed by Absolon's excavations and by checking up museum material. Analogies for this industry may be found in France and China, according to Absolon and Breuil. Absolon further believes that certain localities in Bavaria, Würtemberg and Westphalia may also come under the same classification. The full Aurignacian is well documented in Moravia by numerous stations. Particularly interesting features are the abundance of worked bone and portable art objects namely at Předmost and the huge kitchenmiddens of mammoth remains at Vistonice.

The Protosolutrean phase, so important in adjacent Hungary, is admitted by Breuil, but denied outright by Absolon.

Upper Solutrean appears sporadically, but not to any appreciable extent. The so-called Solutrean from Předmost is atypical and occasional only and does not form a cultural level.

The Magdalenian culture is well represented in Moravia and runs a close second to that in France and Spain. With the exception of cave art it compares very favorably with the west. The untiring labors of Absolon have very frequently been rewarded by the discoveries of unique industrial and art objects in Magdalenian levels.

No remains of Epipaleolithic cultures have been discovered in Moravia so far. The classical profile in the Pekarna cave, in which there exists a complete hiatus between the Magdalenian and the Neolithic levels, is well worthy of note.

Hungary (7, 8, 9)

Systematic archeological researches in the Paleolithic Period in Hungary started some 20 years ago, when the state Geological Institute inaugurated scientific studies. The existence of Paleolithic man had previously been denied, *a priori* on geological grounds, and this error may have been responsible for disregard of possibly affirmative indications of archaic human occupation. Excavations since 1906 have amply proved that Hungary is quite rich in Paleolithic archeology and the situation may be briefly summed up as follows:

The Lower Paleolithic cultures are entirely absent. While Acheulian culture seems to be indicated on typological grounds, its real existence is

quite problematic. Both Breuil and Hillebrand deny it, though they point to the technological resemblances with the western European almond-shaped *coup de poing*. These apparently Acheulian artifacts were not associated with any faunal remains and in some cases the stratification was disturbed. Hillebrand now classifies them as Solutrean, in which he is supported by Breuil.

The Mousterian phase is represented by very few finds. Its scarcity in such close proximity to Croatia and Moravia is quite surprising. So far the finds belong to the Upper Mousterian Period.

More frequent is the Aurignacian culture, but it does not compare with France. Its lithic industry contains all the main types, but the inventory is poor in comparison with the west and is insignificant in bone work.

The most important is the Protosolutrean Period. In Hungary, the typological series of the Solutrean lithic industry appear to connect directly with the Mousterian. Hence the evolutionary process is shown more comprehensively than in any other European material. On the basis of this evidence it might be permissible to argue for a great antiquity of this culture. From this viewpoint, the plausibility of Hillebrand's hypothesis that the Solutrean culture evolved in Hungary merits a careful consideration. Sporadic Aurignacian prototypes as well as true forms are present in various old Solutrean levels. These disappear in the higher phases, giving way to the typical laurel-leaf implements. The Solutrean of Hungary is well documented by successive stages of development, ranging from prototypes, through intermediary to lower, middle and upper forms.

While Magdalenian culture is present in several stations, it is rather poor in bone industry and wholly lacking in art. The entire phase appears to be uniform in its material and does not compare with the west.

No Epipaleolithic remains have been encountered so far. Hillebrand even goes so far as to dismiss its future discovery. Breuil is more cautious, however, and points to the *pusta* sand dunes as a possible source of Tardenoisian material.

Slovakia and Transylvania (5, 7, 8, 9)

Although politically outside of Hungary, these two countries do, nevertheless, form a part of the Hungarian basin and the mountain ranges, which surround it on the north and the east. The Paleolithic Period there is represented by the Mousterian, Aurignacian, Protosolutrean and Magdalenian phases. At the present time there are but a few Paleolithic stations. Future researches are expected to throw more light on the true state of affairs.

Poland (10, 11, 14)

Poland falls out of the proper central European region, but for the purpose of comparison it may be stated, that the Paleolithic cultures there include some definite Acheulian, (according to Breuil) Mousterian, Aurignacian, Protosolutrean, Magdalenian and some Epipaleolithic phases.

Conclusion

In summing up the material presented, the chronological picture and the main problems of the Paleolithic Period in the countries discussed may be stated as follows:

The Lower Paleolithic, that is the Chellean and Acheulian cultures, are uniformly absent. Whether future researches will uphold or disprove this situation, remains to be seen.

The Middle Paleolithic is fairly distributed throughout the region. Its main problems are the interrelations with the east and west and in the case of Moravia a careful differentiation from the Primitive Aurignacian.

The Primitive Aurignacian of Moravia is perhaps the most interesting issue. Apparently proving the transition from the Mousterian to the Aurignacian, it harmonizes well with the view of certain physical anthropologists, that the racial types of the early Upper Paleolithic Period in Moravia belong to the intermediary step between the Neandertals and the Aurignacians. The outstanding task is to ascertain the distribution of this Primitive Aurignacian in Europe and to correlate it with finds elsewhere.

The relation of Hungarian Protosolutrean to the west European developed Solutrean and its movement west as against the eastern advance of the Aurignacian is still uncertain. The possibility of two centres of the Solutrean cultures and their mutual connection is a matter of conjecture. Future work will make it possible either to support or reject the present hypothesis that Hungary is the place of origin of the Solutrean culture.

The Magdalenian culture is represented in all the countries discussed, but only in Moravia to a degree which compares favorably with the west. Magdalenian art objects are as relatively abundant in Moravia as in France, but so far no cave engraving, sculpture or painting has been found.

The uniform absence of the Epipaleolithic cultures supports the generally accepted hiatus in this section of Europe.

In clearing up the problems of the central European Paleolithic, the knowledge of the situation in eastern Europe will be of considerable importance. Future work in Russia should yield information on the full extent of the existence of the Lower Paleolothic there, which at the present is only slightly in evidence. The question of the origin of the Mousterian in

Ukraine and its relation to central Europe as well as the problematic Protosolutrean in Poland, when properly investigated, no doubt will prove of considerable value to the student of the central European field.

Difficulties are encountered when the western classificatory system of chronology is applied to central Europe and yet it is hardly feasible at present to attempt to change the basis of Mortillet's scheme. However, to broaden and to intensify it by means of a more precise differentiation of the material (particularly the new finds), constitutes the outstanding problem in central European archeology. Its solution will require further intensive field work, a thorough revision of the existing material as well as an analytical and comparative study throughout the Paleolithic world.

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THE NEOLITHIC PERIOD IN BOHEMIA AND ADJACENT COUNTRIES

By Robert W. Ehrich (Harvard University)

At first glance Bohemia may seem to have little to recommend it for an intensive study of the Neolithic period. As the western section of Czechoslovakia, entirely shut off by mountains and lying within the limits of the old Danubian cultures it might conceivably be passed by. A second look at the map, however, reveals this territory as the heart of the Central European drainage system and the meeting place of the Elbe with the tributaries of the Danube, Oder, and Rhine, which in early times served as important highways of cultural migration.

Its prehistoric geography is no less significant. During the Paleolithic Period the country was practically uninhabitable. A few isolated stations from the Upper Paleolithic are found, but they are rare. At the close of this period, the heavy forestation of the Atlantic Period combined with the rising of the interior rivers and lakes to keep Bohemia unpopulated. This was followed by a warm dry period in the which the region became accessible to man. In general, however, the southern portion, as it is even to-day, was less favorable to settlers than the northern because of its swampy and rocky character. There remains then, a relatively small area to the north hitherto uninhabited. It is a fertile plain sharply limited by still forested areas and knit together even more closely by the network of the Elbe headwaters—a geographical unit at the head of four great natural corridors.

Under such conditions we might expect to find a fertile field for archeological research. The region does abound in material which has happily been the object of intensive study by men, preëminent in method and system. There are, moreover, even further factors leading to the solution of archeological problems. One of these is the general interest displayed by the people. In practically every town there is a local society interested in any finds made in their district. If a site should be located there, theirs becomes a share in exploiting it. Another element, the state Institute of Archeology—headed by Dr. Karel Buchtela who is ably assisted by Dr. Böhm—supervises all such work. By this organization, with the government backing it, great strides have been made during the last few years.

It was the writer's good fortune to spend the greater part of last summer in Bohemia, with Mr. Fewkes of the University of Pennsylvania.

Through the kindness of Dr. Buchtela and Dr. Böhm and also of Professors Stocký and Schranil, of the National Museum of Prague, he was able to participate in some of the field work then being carried on, to inspect other sites of considerable importance, and to gain access to many of the local museums which play such important rôles in Bohemian archeology. He wishes to express publicly his deep appreciation to these men for their generous assistance.

From the abundant material and relatively easy digging conditions, an extremely good technique in field work and classification has arisen. Stratification is the main determining factor with a strong but lesser significance, placed upon typological sequence. Pottery because of its abundance is the chief cultural criterion, followed by burial type, physical type, ax form, etc., all of which have their own importance. By analysis of pot shape and decoration, and the other elements, and by tracing certain influences along the lines of migration, much has been ascertained as to outside contacts and relationships; even more—still needing confirmation—has been deduced.

So far the culture sequence has been pretty well blocked out and, although much work remains to be done, the situation would seem to be as follows: The Neolithic in Bohemia can be divided into two main phases; the early or true Neolithic and a later much mixed transitional period, in which influences from outside dominate and in which the first metal objects are imported. The earlier part falls as we have said in the Danubian culture. Isolated in a peripheral region, Bohemia would naturally show a tendency to diverge and show local variation. It develops independently and passes from a lower phase to a higher although the basic culture remains the same. This consists mainly of spondylus shell necklaces, shoe-last axes, and crude flint implements.

The pottery is semispherical and sometimes lightly pearlike in shape having no definite base except a slight flattening formed by its own weight during manufacture. Flat, button-like lugs are frequently added to the surface and seem to be related to the Moravian plastique. The characteristic ornamentation is a continuous incised line in a band of spiral, meander, or scroll patterns.

There is an important question to be solved. Who were these people whose remains are identified by their incised pottery? There have been many explanations. Stocký, perhaps the best authority on the subject, defines the term Danubian as a group of related cultures developing and radiating from different centers. Contrary to most authorities he separates the culture of Butmir and Vinča—designating it as Southern—from the slightly older Central European found further to the north. This Central

group is the region of the incised ware which is found in Bohemia, east in Moravia, to the southeast in Hungary as far as an indefinite line, to some extent in Austria on the south, west in Thuringia where it seems a slightly later extension, and to the north in Saxony where recent excavations at Rössen have proved that there too it is the oldest type.

Although Hoernes and Menghin considered Bohemia, Moravia, and western Poland as the original area, the local men, basing their arguments on the lack of prototypes, disagree with them without offering any satisfactory explanation. The Bohemian incised ware seems however more nearly related to the western extension than to that found to the east, suggesting on the whole a secondary centre of distribution. The north would seem to be eliminated as an entrance route because a northern influence, which would undoubtedly have been absorbed if such were the case, is not exhibited. The apparent concentration in northern Bohemia may be due to its greater fertility, or, on the other hand it may be a simulation resulting from the greater exploitation of modern surface coal mining. The east and southeast then are left. It is significant that none of the older forms of incised ware have yet been found in the southeastern centre. That Bohemia and Moravia are close to the incised centre is clear. Further than this as yet we cannot go.

The upper phase of this period exhibits a development mainly in pot type. In the early part one witnesses a retention of the round-bottomed pottery in which there soon develops a definitely flattened base. The somewhat pear-shaped forms from the end of the preceding period are more elongated and become steadily more slender; a bottle shape is also found. A tendency toward increasingly sharper profilation is also expressed. The use of a slip, which is first found in the later part of the preceding phase, is now carried further. The lugs are likely to be pointed and to protrude at an angle.

Perhaps the greatest change of all is in the type of decoration which from an incised continuous line now takes form in a stroked or punctate arrangement frequently of a herringbone style in which the predominating pattern is conventionalized by the nature of the new technique to a zigzag type. The process itself is entirely different from that of the incised ware; it is stitched ostensibly by a sharp instrument pressed against it at an angle. Bohemia is the classical home of this type which was spread throughout Central Europe.

There is still a further question of origins. While this transition was taking place, the Lengyel culture of the second Danubian period was advancing from the southeast. Sporadic finds of the sharply profilated Lengyel pitchers and pedestaled pots in Bohemia show some contact.

Meanwhile, a branch of the Lengyel reached Silesia east of Bohemia and, by contact with the stroked and Nordic cultures at Jordansmühl, developed into a definite sub type. At the close of the upper phase in Bohemia, we find an influx of Jordansmühl types.

The direction taken by the Bohemian stroke decoration seems to be a development local to the region. An ornamental type transitional between incised and stroked has, however, been found in the Šarka valley. In this instance the application of the stitching is perpendicular to the pot surface sometimes combined with incision, and even a roughing out by thumb markings. This seems to localize the centre to some extent. The problem before us then would seem to be to how great a degree was this transition affected by outside contacts and to determine more conclusively the region where the stroke pottery originated. Further exploration of the routes of diffusion may be expected to clarify this situation.

The associated culture in this region shows on the whole little change during the two phases. The hut types, general poverty of implements, now slightly flattened shoe-last axes, the scanty skeletal material—indicating two physical types, mesocephalic and dolichocephalic—all show affiliation with the Danubian cultures. Another important characteristic of these people was their keeping to the river valleys. In the upper period, however, they were more numerous resulting in a denser population in the same limited area, for they did not increase their territory.

There is a tendency now to regard the later period as part of the Neolithic. Formerly it was classed as Eneolithic, but the feeling prevalent within the region seems to be that since there was such a slight amount of metal used and that since all of this was imported, the culture itself could hardly be considered to be in a metal-using stage. In this period new elements come into play. Finding their way in and subjugating the older indigenous types, they turn Bohemia into a melting pot from which later issued a new culture formed by the blending of factors, to which the rivers and mountain gaps now gave ingress. Amber from the north, salt from the west, gold and metal objects from the south, all are found and suggest a commercial penetration.

There is moreover throughout these upper phases a steady influence from the southeast, which played a large part in the Bohemian cultures. An important problem has been raised by the recent excavations at Aradec in Jugoslavia. Older than Butmir and Vinča, it yet contains elements found in the Bohemian stroked, Lengyel-Jordansmühl complex and Nordic. As Stocký points out, however, these may never be directly traceable; for it is more than likely that they form a complex of degenerated factors which have arrived from some more distant point.

We have seen that up to this point the cultures have been those of the Agrarian Danube coming as the first Neolithic civilizations in Central Europe. From the northwest there now comes the corded ware culture from Thuringia. The pottery is characterized by a cord-impressed—and later an imitated—design at the throats of the vessels, the typical shapes of which were round-bodied and slender-necked cups, low-necked amphorae, and typical pitchers. With these people we find definite graves with contracted burial and a more elaborate grave furniture, of which tooth necklaces are a common characteristic. No culture pits or houses of these people have been found—a fact suggesting a nomadic existence. Stocký suggests that since their centre was in a salt district, these people would naturally expand by this trade and might even colonize. Fewkes further suggests the possibility of a pastoral culture. In conjunction with an original salt trade this would seem far from unlikely.

There has been some questioning as to the origin of the corded ware culture. Thuringian district in some respects would seem to be a secondary centre of distribution; several of the forms bear a southeastern relationship which is further expressed by the cannelated ware and associated plastique. How the corded complex reached Thuringia is not yet known although a northerly route is suspected.

In the meanwhile, the southeastern Danubian I culture was spreading westward. In Saxony it underwent a slight modification and became the Rössen culture, the backwash of which filtered into Bohemia, occurring sporadically at the time when the westward extension reached the Rhine.

Practically contemporaneous with the corded influx another type entered Bohemia from northern Germany. This was formed by the welding of three of the peripheral cultures, of the true Nordic: These factors are traceable by the globular amphorae to central and eastern Germany and western Poland, by collar flasks and funnel beakers to the megaliths of northwest Germany, and by the well-shaped pitchers to the Mecklenburg region.

Although the ceramic ornamentation of the Bohemian Nordic falls below that of the true Nordic, there is a greater variety of form and a sharper profilation which seems to be the result of a southeastern influence, of which perhaps the most striking elements are the large crescent handles of the Nordic pitchers, the use of lugs, and an associated plastique.

The ax forms also show a change. The old shoe-last has been dropped in favor of a compressed symmetrical form with either a thick or thin butt. We find also a development of a perforated polygonal form of hammer ax. Flint knives and polished celts are quite common, and spindle whorls, hitherto unknown in central Europe, now appear for the

first time. The presence of amber suggests a continued trade contact with the north.

The problem here presented is the determining of the extent of the southeastern influence and its analysis into components that can be further traced. In the eastern part of this area we find Nordic and Jordansmühl types more mixed—and in a few cases distinct pots from each culture have been found in the same grave.

Another possible trade relation may be indicated by the occasional find of tulip-shaped beakers and other forms of the Michelsberg or Alpine lake-dwelling type. Such objects are found very rarely and then only in isolated graves. Their exact significance is problematical although they seem to have come in by trade along the Eger River. In spite of the fact that to the west in southern Germany this type is the oldest, it can hardly be assumed from the evidence that the same is true in Bohemia. It is interesting to note that the original home of this type seems to centre in the Lyublan swamps of the Illyrian provinces. With amber finding its way through central Europe to the south and southeast, there seems to be a possibility of a divergent trickle toward the head of the Adriatic on the one hand and the Balkans on the other.

That the farmers of the early Neolithic Period kept to the river valleys is significant. The people of the corded ware, as we have seen, seem to have been largely nomadic. The Nordics, however, seem to have been a war-like, dominating people. Their culture shows little mixture, and their camps are found back from the rivers on eminences and the more easily defendable positions.

At the close of the Nordic phase a new people entered either by the way of the Rhine headwaters or the Brenner pass. These are the bell-beaker folk carrying with them small copper daggers, an extremely well-made and elaborately decorated pottery painted in red, white, and black, and consisting of bell-shaped beakers and polypod bowls. Altogether their culture is a melange of objects coming originally from southern and western Europe—the bowls, beakers, flint, arrow heads, V-perforated buttons, and bracers from the south; short daggers and awls of copper, gold leaf, amber, and bone-ring pendants from the west. They are meso-to brachycephalic, diminishing the probability of a southern origin. They are found only in isolated graves, and although they have a reasonably wide distribution, they do not seem to have lasted for a great length of time. Before long their pottery and other cultural factors were imitated by the inhabitants. At all events they seem to have been rapidly absorbed or to have passed on.

Just who they were is hard to state definitely. It seems possible that

they may have migrated or that the culture diffused northward and centered in the Rhine region, whence a secondary distribution of people influenced by the Alpine physical type may have taken place. This is far from proven, however, and future work to the west must be carried on with an eye to this. It is generally considered that these people were prospectors and traders but this has not yet been thoroughly established; from the facts in hand, however, it seems a reasonable assumption.

As the bell-beaker people disappeared a new development took place. The cultures present in Bohemia welded together to form a new type, that of Pre-Aunjetitz. Physical absorption also seems to have taken place, for one finds a pronounced tendency toward mesocephaly where before dolichocephaly was the general rule. Lengyel, Nordic, and Caliciform pottery shapes predominate, indicating the direction by which metals came into Bohemia. Lack of ornamentation is offset by a variety of form and incorporated elements. Elongated pitchers with straight or convex walls, and straight walled bowls with inverted and sharply undercut conical base, are two of the most common types. In addition a Mediterranean trade developed which became steadily more intense. Metal objects grow increasingly more abundant toward the close of the period; even the Cypriote pin, so important for dating the later periods, is now found in an early form.

The Pre-Aunjetitz culture, the last phase of the Neolithic-Eneolithic culture sequence, develops into the first Bohemian Bronze Age in which the composition is of the same elements except for the development of a metal industry. There is however a further consolidation of types. Although there is little change there is present the tone of a new era, possibly the results of freer trade. This is perhaps the truest Eneolithic period, for it is the most definitely transitional of all.

Of the problems remaining to be solved, we find that little can be unravelled until more intensive research is carried out in Bohemia and the regions surrounding it. From the first appearance of the incised ware, the situation seems well enough blocked out to serve as a starting point for the tracing of influences to their centres of origin, and for the uncovering of the Neolithic forces at work in central Europe and perhaps even beyond. Until Hungary, the Balkans, and the southeastern countries for instance, are more thoroughly explored, it is obvious that strong elements in the Bohemian culture sequence must be but vaguely known. Conversely, anything found there can probably be related to some portion of the Bohemian scale, if the radiating influences are used as chronological criteria.

Furthermore, if the Neolithic situation of Europe as a whole is to be

cleared up, it will have to be done after the methods developed by the Bohemian archeologists; and since Bohemia has already been sufficiently well studied to indicate future definite lines of research and presents in itself by the completeness of its series a convenient chronological scale, it may well be the starting point from which a general classification of the Neolithic might develop.

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