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ON
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BY
J. G. ANDERSSON.

WITH A NOTE ON THE PHYSICAL CHARACTERS
OF THE PREHISTORIC KANSU RACE

BY
DAVIDSON BLACK.

PEKING
MINISTRY OF AGRICULTURE AND COMMERCE
THE GEOLOGICAL SURVEY OF CHINA
V. K. TING AND W. H. WONG, DIRECTORS

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THE GEOLOGICAL SURVEY OF CHINA

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MEMOIRS.

SERIES A.

NUMBER 5.

PRELIMINARY REPORT ON ARCHÆOLOGICAL RESEARCH IN KANSU

BY

J. G. ANDERSSON Ph. D.

LATE DIRECTOR OF THE GEOLOGICAL SURVEY OF SWEDEN,
MINING ADVISER TO THE CHINESE GOVERNMENT AND
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OF CHINA.

With 12 plates and 10 text figures.

WITH A NOTE ON THE PHYSICAL CHARACTERS OF
THE PREHISTORIC KANSU RACE

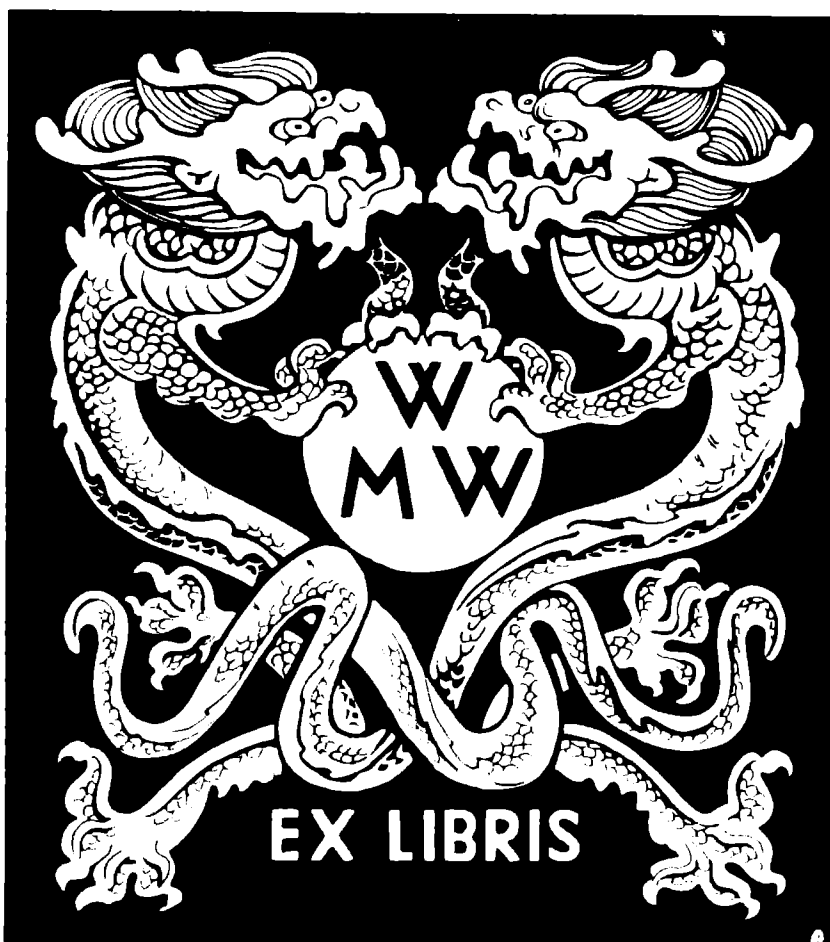
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PEKING

1925.



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The translation into Chinese of Dr. Andersson's paper has been made by Mr. S. S. Yoh of the Geological Survey staff, who has also offered most valuable collaboration in compiling data from the Chinese archaeological literature.

Plates I-IV are drawn by Mr. J. F. Na, and plate XII by Mr. P. Y. Tung.

The translation into Chinese of Dr. Black's paper has been made by Dr. Li Chi.

INTRODUCTION

Already in 1919 the Geological Survey of China took the first steps towards the unveiling of the prehistory of China, until then nearly unknown. Stone implements were discovered in different parts of N. China, and in February 1920 the present writer was able to present a brief report on such finds before the Anatomical and Anthropological Association and National Medical Association.¹⁾

In the course of our reconnaissance a large dwelling site with a rich and varied pre-metallic furniture was discovered at Yang Shao Tsun in Honan, and a systematic survey and excavation of this site was undertaken in the autumn of 1921.

In the early summer of the same year a culture deposit of approximately the same age but showing certain remarkable local features was discovered in a small cave at Sha Kuo T'un in SW Fengtien. This deposit was completely excavated, and a monographic description of the topography, stratigraphy and furniture was published in 1923.²⁾ A report on the human skeletal remains found in this cave, prepared by Dr. Davidson Black is now in press.³⁾

A preliminary review of the Fengtien and Honan finds was published under the title "An Early Chinese Culture."⁴⁾ A monographic report on the painted pottery from Yang Shao Tsun and other Honan localities by Dr. T.J. Arne has just appeared.⁵⁾

The culture described in these papers has been named *The Yang Shao Culture* from the type locality in Honan. It is characterized by a furniture which is in many ways late Neolithic in type, and no metal object has ever been found in the sites of this period during our extensive excavations. Still, there are features both of the monochrome and painted ceramics which make me believe it better to place this culture in the Eneolithic period, the transition from the true late Neolithic to the beginning of the metal ages.

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- 1) *J. G. Andersson*. Stone implements of Neolithic type in China. Anatomical Supplement to the China Medical Journal, July 1920.
 - 2) *J. G. Andersson*. The Cave Deposit at Sha Kuo T'un in Fengtien. *Palaontologia Sinica*. Ser. D. Vol. I. Fasc. I. 1923.
 - 3) *Davidson Black*. Human skeletal Remains of Sha Kuo T'un, Fengtien, and Yang Shao, Honan. *Palaontologia Sinica*. Ser. D. Vol. I. Fasc. 3.
 - 4) *J. G. Andersson*. An Early Chinese Culture. Bulletin of the Geological Survey of China. No. 5. 1923.
 - 5) *T. J. Arne*. Painted Stone Age Pottery from the Province of Honan. *Pal. Sinica*. Ser. D. Vol. I. Fasc. 2.

In the furniture of the Yang Shao culture there are features such as stone axes, pointed bone implements etc, which are of a general Neolithic type without special local color, there are furthermore artifacts such as the semilunar and rectangular knives which are so preponderant within the East Asiatic and the Esquimaux areas, that it is tempting to interpret them as a very ancient Mongoloid inheritance. Much of the monochrome pottery, as for instance the tripods Li (鬲) and Ting (鼎), the steamer Hsien (甗) and possibly others, are evidently related to and probably were the proto-types of early Chinese bronzes well known under the above mentioned names.

Lastly we have to draw attention to a most remarkable group of the Yang Shao furniture, namely the painted pottery, which in the patterns of decoration and in the technique in general, exhibits a most striking relationship to the large family of painted ceramics from the transition between the Neolithic and the beginning of the metal ages which has been made known from a very large number of localities in the Eastern Mediterranean, SW Russia and the Near East (Sicily, Tessaly, Tripolje, Susa, Anau etc.). In my preliminary publication "An Early Chinese Culture" I was not only able to compare the Yang Shao painted ware in considerable detail with Anau and to some extent also with Susa, but I was already at that time fortunate to add to my own incomplete comparisons an authoritative statement by British archaeologists headed by Mr. R. L. Hobson.

An Austrian archaeologist, Dr. L. Franz, has in a review of my papers made further very interesting comparisons between the Yang Shao culture and sites of the Near East.¹⁾ By means of comparisons with Anau and excavations made in Mesopotamia he has arrived at the first tentative determination of the age of the Yang Shao culture, a question to which we will return in much greater detail in a following chapter.

Quite recently, Dr. T. J. Arne in an elaborate monograph²⁾ on the whole material of painted pottery collected in the Yang Shao sites of Honan has made an exhaustive survey of the relationship of the Honan ceramics with those of the Near East, including several important localities such as the Zhob valley in Baluchistan and Tepe Mussian near Susa which were unknown to me when I wrote "An Early Chinese Culture".

1) *Mitteilungen der Anthropologischen Gesellschaft in Wien.* Bd. LIV. P. 79-82.

2) *Arne Loc. cit. Pal. Sinica. Ser. D. Vol. I. Fasc. 2.*

Already before the appearance of the important contributions presented by Franz and specially by Arne, the evidence of consanguinity between these prehistoric groups of ceramics from the Near and the Far East had become so convincing that we found it imperative to extend our archaeological research further west to regions where we could expect to find relics of the hypothetical connection between the sites in Honan and those of SW Asia. The topographic features of Western China and its borderlands pointed to Kansu, specially the surroundings of the provincial capital Lanchow, with its several fertile river valleys, as the most promising second stage of such a regional effort to trace the migration of cultures at the end of the Neolithic age.

The archaeological reconnaissance of a considerable part of Kansu, which I undertook during 1923 and 1924, has realized our hopes of success far beyond the boldest expectations. Not only did I meet with a surprisingly rich development of the Yang Shao culture including several dwelling sites with very fine furniture, but still more important was the discovery of extensive grave fields from which were obtained large numbers of unbroken painted funeral urns, which undoubtedly must be counted among the most splendid of Neolithic ceramics in the whole of Eurasia.

In addition to this enlarged and deepened knowledge of the Yang Shao culture we have found a site, Ch'i Chia P'ing (齊家坪), practically devoid of painted pottery but with monochrome vessels of very characteristic type and very beautiful and distinct decorations of impressed patterns. For reasons which are given below, I consider this Ch'i Chia P'ing type to be slightly older than the Yang Shao period.

On the other hand we have found a sequence of cultural stages, marked by the growing use of copper and bronze and characterized, each by a varied and well defined assembly of ceramic types which enable us to establish a number of post-Yang Shao periods, among which the Hsin Tien and the Sha Ching stages at present seem most important.

The relative age of these archaeological periods, six in number, is not in each case established beyond doubt, and the absolute ages can only be told by very vague approximations. Still it seems fairly probable that our reconnaissance has unveiled some preliminary outlines of the prehistory of Central Kansu covering one and a half to two milleniums, say from 3500 or at least 3000 to about 1700 B. C.

It is needless to say that these conclusions are preliminary. The laboratory study of the material from the 1923-24 expedition has hardly begun, and furthermore it can be foreseen that the conclusions based upon this first reconnaissance must be revised by continued field-work, for which plans are already in preparation. However, it has been found necessary to prepare a number of publications based on the material already at hand. A first preliminary report is given in this brief paper. At the same time a full description of the field observations accompanied by maps, plans and photographs, and containing also a general review of the furnitures of the different stages will in a short time be published in the *Palaeontologia Sinica*. Parallel with this preliminary review and detailed topographic description will proceed monographs on the different groups of artifacts and ceramics.

A detailed itinerary of the journey will be found together with the topographic description.

I take this occasion to express my respectful thanks to their Excellencies the Ministers of Agriculture and Commerce, the Director of Mines Mr. T. L. Lin and the Directors of the Geological Survey Dr. V. K. Ting and Dr. Wong Wen Hao who all permitted me the widest freedom of action in this purely scientific enterprise and gave their warm-hearted support.

My geological assistant Mr. P. L. Yuan occasionally took an interested part in the archaeological work and carried out the topographic survey of the Hsin Tien area.

My best thanks are also due to H. E. Lu Hung T'ao, Governor of Kansu, as well as many of his subordinates, who afforded me all facilities and protection within the province.

I am also under the deepest obligation to Rev. George Findlay Andrew of the China Inland Mission Station in Lanchow (recently appointed member of the staff of teachers of the British School, Chefoo, Shantung), to Mr. N. B. Doodha, Postal Commissioner, Lanchow, and to Dr. George E. King, Head of the Borden Memorial Hospital, Lanchow.

Mr. Andrew not only helped me most materially in locating the first large, complete funeral urns, but he also undertook during his vacation in January 1924 a very successful archaeological reconnaissance to Titao and Tsinchow and brought in April of the same year the first consignment of our collections safely to Peking.

Mr. Doodha, in addition to the most pleasant hospitality always shown to me, rendered most vital help in safeguarding the scientific results of our work. Dr. King, always untiringly helpful as our medical aid, finally arranged our return by raft in a way which secured for us with our collections a safe and pleasant homeward journey.

With deepest gratitude I wish to acknowledge the unfailing help given to me by the Swedish Research Committee, headed by H. R. H. the Crownprince of Sweden, which was formed some years ago to support my scientific work and which has financed not only the work of 1923 but also the extension over the larger part of 1924 which was decided upon at the end of the 1923 field season.

DWELLING-SITES AND BURIAL-SITES.

Before passing over to the descriptive chapters it may be well to define the two main types of sites with which we have been working, the dwelling sites and the burial places.

The former are the remains of the ancient villages. No surface indications are as a rule discernable, except fragments of pottery and other artifacts. Of house-foundations we have never found any trace, probably because the ancient people most likely built huts of the everywhere present, easily handled and easily eroded loess. Foundations of kilns, presumably used for burning pottery, have been noticed in one instance namely at Lo Han T'ang (羅漢堂) in Kuei Te Hsien (貴德縣), Yang Shao stage.

Mud-walls thrown up for defense, have been noticed only in the case of the sites of the Sha Ching stage, and the existence of the defense walls in these localities may be attributed to the fact that these village sites are situated on perfectly level ground lacking the natural protection of big ravines, which we meet almost everywhere round the sites situated on the edge of terraces in the river valleys (type: the Hui Tsui site of the Hsien Tien stage).

The remains of the ancient villages consist of more or less thick deposits of refuse, charcoal and ash from the fires together with potsherds and artifacts. A characteristic feature of the dwelling sites is that the ceramics and most of the other artifacts are nearly always broken. Only small objects, such as sewing needles, beads etc. are often found complete, evidently because they have been lost and not recovered. The bigger artifacts are often broken, and the pots in

many cases represented only by small fragments. They were well taken care of as long as they were whole, and only when broken and useless were they thrown out upon the refuse heap.

The broken condition of the ceramics in the dwelling sites stands in striking contrast to the often perfect condition of the urns which are found in the graves. When this term is used for the burials excavated by me, it must be made clear that there is never any setting of stones, no mark of remains for a coffin, but simply a skeleton associated with one or more funeral urns and eventually some objects of stone, bone and (in the case of the younger cultural stages) metal.

The burials are in most cases of the same type: the dead rests horizontally upon the back with the head turned more or less exactly to the north. In some few cases the body is in reversed position lying horizontally with the ventral side turned downwards, sometimes the head is turned westward or in other directions.

A strange and noteworthy exception from the horizontal-dorsal position are the graves at the Pan Shan area in Ning Ting Hsien (Yang Shao stage) where the bodies (at least in two cases) were laid down resting on the left side in a contracted position ("liegende Hoeker").

Another exception from the common rule are some graves in the Hsin Tien burial site (Hsin Tien stage) where the skeletons rest on their backs in a straight dorsal position which is not however always horizontal but in a number of cases with the body sloping under an angle of 20-37° from the head to the feet.

TOPOGRAPHY OF THE SITES.

From a topographic point of view the sites examined by me can be conveniently classified under the following five headings:

- 1: Sites round Kokonor.
- 2: River-valley sites.
- 3: Grave fields of Ssu Shih Ting.
- 4: Grave fields of the Pan Shan area.
- 5: Sites in the desert W of Chen Fan.

Sites round Kokonor: During our journey round this famous salt-lake we noticed fragments of prehistoric pottery in many places. In two places I located small dwelling sites, of which one at the eastern end of the lake is of special interest.

At many places along the southern side of the lake, where the topography is favourable for observations of this kind, I had noticed an abandoned shore-line situated about 3 meters above the present level of the lake. At the eastern end of Kokonor this shore-line, above which there were no higher indications of any former extension of the lake, occupied a level of six meters above the present water level. This abandoned beach forms a low but conspicuous hill-ridge, at the top of which there is a culture deposit with primitive pottery together with stone and bone implements. It goes without saying that the lake has not been higher any time since the formation of the culture stratum, and it is even fairly probable that it has during this period never been considerably lower than at present. This observation that Kokonor during the last four thousand years has been at most six meters higher than at present will certainly become a fact of importance in the discussion of the changes of climate in Central Asia.

River-valley sites. The majority of my excavations have been made in three fertile river valleys, that of the Huang Ho in the Kueite (貴德) basin, that of the Hsining Ho and that of the T'ao Ho. Apparently the ancient populations, specially of the Yang Shao and Hsin Tien stages, settled with preference in these beautiful valleys which at that time probably were largely wooded and abounding in game, at the same time as they offered the best opportunities for cattle raising and for the beginnings of agriculture.

In order to understand the location of these river valley sites it is necessary to know something about the physiographic development of these Kansu valleys. The T'ao valley, which is best known to me, may be taken as a good example (Pl. XII, fig. 2).

Originally the drainage system was located at a much higher level than the present one to judge from an ancient, now deeply dissected peneplane at about 500 meters altitude above the present level of the T'ao river. From this peneplane the vertical erosion has cut down deeper and deeper during a considerable space of time, as manifested by spurs and terraces representing a sequence of now abandoned river levels. The oldest of these terraces are not very much lower than the peneplane (one of the most conspicuous terrace levels has been marked in the section Pl. XII, fig. 2 as 'upper terrace, unexplored'). The youngest and consequently lowest of these terraces is situated only about ten meters above the present river level. It is a quite modern terrace, still unde-

formation in many places. In the Huang Ho valley round Lanchow this young ten meter terrace is also well developed, and the numerous big wooden water wheels which are seen here everywhere are for the purpose of lifting water to irrigate the fertile fields of this ten meter terrace.

Half way in altitude between the high seated old terraces and the modern ten meter terrace, is a terrace in 50-100 meters altitude above the present level of the river. This terrace is by far the most conspicuous feature of the T'ao valley. Especially on the east side of the river it can be followed continuously for tens of li, and it forms a sharp demarkation-line between two contrasting agricultural regions: below this terrace the modern river bed (including the ten meter terrace) with richly fertile irrigation land, and, at the top of this 50-100 meter terrace cliff, a vast expanse of nearly level, but now deeply dissected land where only dry farming is possible. Physiographically this terrace is so remarkably similar to the somewhat lower Ma Lan terrace which I have distinguished as one of the outstanding physiographic features in the Western hills of Peking, that I have not hesitated to designate this main terrace of the T'ao valley by the same term. Because of the great distance between the two regions it must not however be taken for granted that the Ma Lan terraces of the Peking western hills and the 50-100 meter terrace of the T'ao valley are exactly contemporaneous.

It is on the dissected edge of this Ma Lan terrace that we find most of the sites in the Huang Ho, Hsining Ho and T'ao Ho valleys. Pl. XII, fig. 1 illustrating a Hsin Tien site in the T'ao valley, shows a typical instance of this kind of ancient habitations. In addition to the sites which are situated on the edge of this Ma Lan terrace there are others located on lower terrace formations, and in Kueite Hsien some sites were found quite close down to the present river courses. From these observations we can infer that the present topography is in its main features much the same as at the time when the Yang Shao people inhabited the region about five thousand years ago. It is quite likely that some of the ravines cut in the Ma Lan terrace are at least partly of younger age and that locally even the front of the terrace has been reduced by lateral erosion of the river. But as a whole the topography is at present much the same as in Yang Shao time. In several cases, as for instance the Hui Tsui site, Pl. XII. fig. 1, it is apparent that isolated islands of the once continuous Ma Lan terrace plain were selected for those early settlements because the surrounding deep and steep-walled gullies offered excellent protection against attack.

I want to lay special stress upon this fact because in the Yang Shao Tsun area in Honan the conditions are different. Sites like Yang Shao and Pu Chao Chai were formed upon a gently undulating plain with shallow water courses, and only after the culture strata were deposited did a period of vertical erosion set in, which dissected the sites with ravines of more than 40 meters in depth.

With the new experience from Kansu I would feel inclined not to draw too far reaching conclusions from the observations at Yang Shao Tsun and Pu Chao Chai. It might happen that continued research in Honan will in other parts of the province reveal sites of Yang Shao age in topographic environments like those just recorded from Kansu.

The grave field of Ssu Shih Ting (四時定). In Tao Ho Hsien, just opposite the hsien city on the west side of the T'ao river, there is a grave field of the Hsin Tien stage which topographically offers considerable interest. Mountainous hills consisting of the Kueite red beds rise here to something like 300-400 meters above the river, and from these hills some short, steeply sloping spurs project so far that their river front is subject to continued lateral erosion by the river. Along one of these sloping spur crests we found a grave field, the higher part of which is 76 meters above the river. The place is not very easily accessible, it is bordered on the east by the river cliff, on the west by the steep mountain slope and on the north and south by steep-walled gullies. It is a position swept by wind and bathed in sunshine, and the visitor can hardly doubt that the people of the Hsin Tien stage selected this desolate spot for their burials because of the commanding view which it offers over the T'ao valley.

In this respect the Ssu Shih Ting grave field forms a transition from the typical sites at the edge of the Ma Lan terrace to the high seated mountain grave fields which will be mentioned under the following heading.

Grave fields of the Pan Shan (半山) area. On the west side of the T'ao valley in Ning Ting Hsien there is on some dominating hill tops of the dissected peneplane a group of grave fields of the Yang Shao stage (Pl. XII, fig. 2). They are all situated to the north of a deep ravine named Pa Yang Kou (八羊溝) and opening in the T'ao valley. The whole group has been named by me the Pan Shan area from the Pan Shan (半山) hill which carries one of the grave fields. Pien Chia Kou (邊家溝), another hill top with a grave field, is situated 1,750 meters E of Pan Shan, Wang Chia Kou (王家溝) is situated 2,100 m. N of Pan Shan and Wa Kuan Tsui (瓦罐嘴) 1,875 m. SW of the first mentioned central

point As already indicated, all these four grave fields are located on the tops of hills which are remnants of the old peneplane surface 400 meters above the Pa Yang Kou ravine and about 150 m above the nearby T'ao river. The Pan Shan and Pien Chia Kou grave fields are located on small hill tops, but the Wa Kuan Tsui site extends far down on the steep southwards facing slope of the Pa Yang Kou ravine.

All these ancient burial places have a very dominating location with a free view of fifty li range or more in every direction, and there can hardly be any doubt that the sites have been chosen because of their commanding position. We do not know the dwelling sites corresponding to these large grave-fields, but there is little doubt that they are to be looked for in the T'ao valley, probably on the Ma Lan terrace. If so, the dead were carried at least 15 li from their homes and to places situated about 400 meters above the village sites.

Sites in the desert W of Chenfan. Chen Fan Hsien is in the true sense of the word a large and flourishing desert oasis. A river fed from the Nan Shan slopes, not far from Liangchow flows in NE direction into the desert.

In the desert area west of Chenfan city a number of sites were found which all belong to one culture period, probably the youngest studied by me and named the Sha Ching stage after a village situated 30 li W of Chen Fan city. Three dwelling sites and two grave fields are all in an area largely covered by sand dunes which certainly are of much later date than the sites. However, as modern habitations are to be found at short distance from the sites, their occurrence in the dune area can hardly be counted as the proof of a marked change of climate after the Sha Ching time.

All the Sha Ching sites lie on absolutely level ground, and mud walls were found round all the dwelling sites of this stage.

DESCRIPTION OF THE FURNITURE OF THE KANSU CULTURAL STAGES.

Considering the fact, as best exhibited by Arne's comparative research on the painted pottery from Honan, that the early cultures studied by us offer comparatively little relationship to objects of early Chinese dynasties, but have very much in common with the Æneolithic cultures of the Near East, it has been found necessary to bring the larger part of our Kansu collections to Europe

for comparative study where full access is possible not only to libraries and museums, but also to the help and advice of the numerous European archaeologists who have already, by correspondence, contributed most materially to the progress of our archaeological research here in China.

The funds, by means of which the work in Kansu was carried out, were raised in my home country by a research Committee headed by H. R. H. the Crownprince of Sweden, as already acknowledged in the introduction to this paper. In return for this help the Chinese Government has granted to that Committee a share in the collections. For this reason the Swedish archaeological state museum has offered me the necessary facilities, and this museum, Statens Historiska Museum, Stockholm, will become my scientific headquarter for the next year or until the preparation and study of the material has been entrusted to a number of expert collaborators.

Before the collection was sent to Sweden, a representative set was selected to serve in the museum of the Geological Survey of China as illustrations of our Kansu finds, while awaiting the return from Sweden of the much fuller material, which will be available for exhibition when the whole collection has been described. The present preliminary paper will so far as the description of the furniture is concerned be based in large part upon this collection which is now on exhibit in the Museum of the Geological Survey.

The cultural stages met with in Kansu will hereafter be described in the order, which, as shown in the following chapter, is most likely that of their succession.

The Ch'i Chia stage: This stage is represented by a number of small finds, as for instance the Hsin Tien C finding place in T'ao Sha Hsien, and by a very considerable deposit, the Ch'i Chia P'ing site in Ning Ting Hsien, from which place the stage has derived its name. So far only dwelling sites of this stage have been found, and its burial furniture remains for the present unknown.

The stone implements of this stage are very much the same as those of the Yang Shao period, comprising chiefly polished stone axes and knives. There are also pointed bone instruments of different types.

The ceramics of the Ch'i Chia stage are practically all monochrome, and three main types can be distinguished.

I: Pottery of grey ware with mat-impression or impressed basket pattern resembling the surface of some vessels described by me from the Yang Shao sites of Honan (compare *An Early Chinese Culture*, Pl. XVI, fig. I & 7.).

II: Pottery of grey ware much resembling the preceding group, but collar and handles, sometime also a large part of the vessel are decorated in beautifully executed impressed pattern (Pl. V. fig. 1 & 2) of a type which very closely resembles, and might eventually be found to be related to the "Kamm-Keramik" of northern Europe and Siberia (compare for instance Ailio: Fragen der russischen Steinzeit, Zeitschrift der finnischen Altertumsgesellschaft. XXIX: 1, Figures 14 & 15).

III: A remarkable, elegantly shaped, thin-walled vase of a light greyish yellow ware (Pl. V, Fig. 3). It is a high-collared vase with smooth surface and two large handles, the whole somewhat resembling the *amphora* of the Greek and Roman antique. The specimens of this amphora-like vase which we have encountered in our excavations are comparatively small, but much larger specimens have been obtained by purchase.

The Yang Shao stage: Of this period we have met in Kansu with numerous sites, both dwelling places and grave yards.

The stone and bone furniture of these sites is on the whole so similar to that of Honan that it will suffice to call attention to certain differences in detail. A striking fact is that arrow points, which are quite common in Honan, and are there executed in several varied materials (slate, bone, mussel-shells) were exceedingly rare in Kansu.

Beads and pendants which are very rare in Honan are numerous in Kansu, and in this respect as well as in some other features there is closer relationship between the Kansu Yang Shao and the findings in the Sha Kuo T'un cave in Fengtien than with the sites in Honan.

An interesting fact is the occurrence in one of the grave fields of some cut pieces and even Yuan rings of jade of a type which we are accustomed to ascribe to Khotan in Chinese Turkestan. Apart from the light which this remarkable find seems to throw upon the trade connections of the Æneolithic inhabitants of Kansu, it is surprising that these people who, as far as we know, lacked metal, were able to cut these thin rings from such a hard stone.

In the Kansu sites we found a few specimens of a group of implements which were never encountered in Honan, namely knives of bone, provided with a cutting edge, which was produced by inserting thin flint-flakes in a groove in the edge of the implement. (Fig.1).

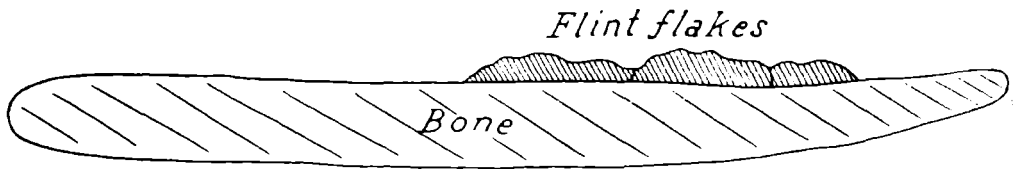


Fig. 1. Bone-knife with cutting edge formed by inserted flint-flakes. Yang Shao stage. Hsi Ning Hsien, Chu Chia Chai. Half nat. size.

第一圖：仰韶期之骨刀，其切口乃燧石薄片所嵌成，（見西寧縣朱家寨，照原式縮小二分之一）

The ceramics of the Kansu Yang Shao differ from those of Honan in that the coarse monochrome pottery is much less abundant and that tripods of the Ting and Li types are missing or at any rate exceedingly rare.

The painted pottery of the dwelling sites is very closely related to that of Honan, though the color of the ware is paler than the beautiful deep red of the pot sherds from the type locality Yang Shao Tsun. The painting is much of the same designs as on the Honan bowls etc., but a new feature is that in Kansu many household vessels are also painted on the inside.

In the graves of Yang Shao Tsun we found a very poor burial furniture. In the Kansu graves were discovered large and gorgeously decorated sepulture vessels (Pl. VI-VIII) which certainly belong to the most marvellous products of the Neolithic ceramic art. The patterns are very varied, only a small selection being represented in our plates. However, in nearly all these varied designs there is one motive which reoccurs with striking persistence, namely a

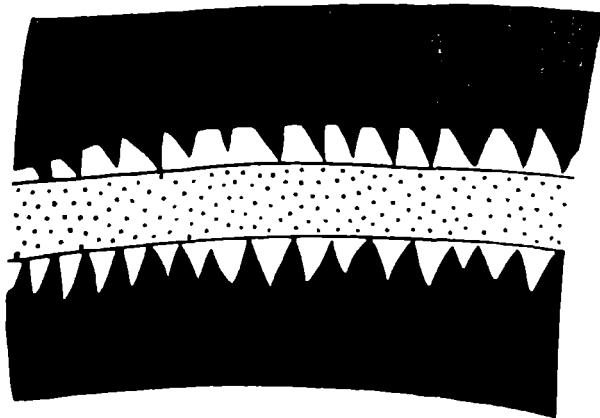


Fig. 2. The "death pattern", a design reoccurring upon most of the funeral urns of the Yang Shao stage. A red band (dotted) surrounded by two black bands with saw-like dentations. Nat. size.

第二圖：仰韶期之葬紋，為殉葬陶甕上所常見之圖案，乃一種紅色條紋，外加夾黑色之鋸齒紋二道。（原式）

red band bordered by very narrow belts which are left unpainted, and outside these unpainted belts there are black bands from which saw-like dentations project towards the central red band. A detail showing this design is given in fig. 2. As this motive reoccurs in nearly all funeral urns of this period but is never found in the household pottery of the same time, it appears reasonable to suggest that it is a kind of "death pattern" specially connected with the funeral rites.

In the sepulture furniture of some graves of this stage (the Chu Chia Chai site in Hsi Ning Hsien) were found some bone objects which deserve special mention (Fig. 3). They are small rectangular bone plates, either smooth as (a) or incised as (b) and (c). Sometime these bone plates were found in small groups lying side by side as shown by (d). I am tempted to think that they represent some kind of primitive writing or otherwise record some abstract ideas connected with the dead.

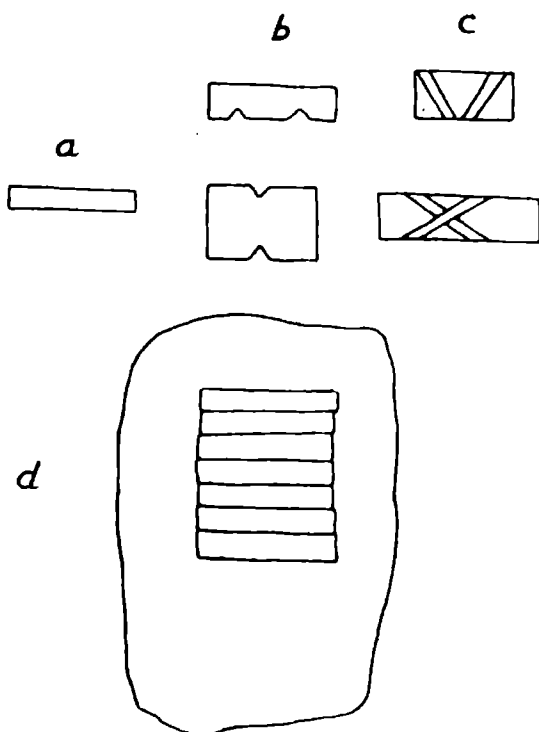


Fig. 3. Bone plates which possibly represent a primitive script. Yang Shao stage. Hsi Ning Hsien, Chu Chia Chai. Nat. size.

第三圖：仰韶朝上有近似原始文字之骨板。(見西寧縣，朱家寨，) (原式)

The Ma Chang stage: This period is mostly known to us through a number of urns obtained by purchase (Pl. II and Pl. IX fig. 2). A couple of graves excavated by us in Nien Po Hsien (碾伯縣) at Ma Chang Yen (馬廠沿) loc. 4 has given us some idea about the association of different ceramic types, and the stage has been named from this locality.

Nothing is known so far about the dwelling site furniture of this period.

The urns are of two types, one consisting of relatively large and high urns decorated sometimes with big circles filled with trellis pattern, sometimes with zigzag bands, at the angles of which there are finger-like projections, the whole suggesting some very strongly stylized anthropomorphous representations.

The other group of urns are small vessels with wide mouth and high-seated handles. The whole upper part of these small urns is painted in intricate designs: horizontal, vertical and diagonal lines, diagonal ovals, triangles filled with cross lines etc.

The Hsin Tien stage: One of the greatest surprises of the eventful season of 1924 in Kansu was the discovery at Hsin Tien (辛店) in T'ao Sha Hsien of a rich grave field (Hsin Tien A) with a sepulchral pottery entirely unlike anything previously known among our prehistoric finds. Later a fine dwelling-site of the same time was found at Hui Tsui, only 12 li S. from Hsin Tien, and additional finds were made during the course of the summer, so that the Hsin Tien stage is one of the best known in the whole prehistoric record of Kansu.

Concerning the stone and bone instruments there is not much to say, as they are of types also widely distributed in other stages, with the notable exception of mattocks made of the scapulas of cattle or horses.

Some very few copper utensils were encountered in the Hui Tsui site, among them what seems to be a knife.

In the ceramics of this period there is not that distinct contrast between household and funeral pottery which is shown in the Yang Shao sites. The potsherds found in the dwelling sites of this time exhibit the same designs and were most likely of the same shape as the complete funeral urns found in the burial places,

The ware of this stage is much more porous and as a whole of quite inferior quality when compared with the hard, resonant ware of the Yang Shao and Ma Chang periods. The bottom of the Hsin Tien urns is concave when viewed from below in marked contrast to the flat bottom of earlier periods.

A glance at Pl. IV will suffice to show how radically the designs of the Hsin Tien stage differ from those of the preceding stages. Then too, the shape of the vessels is different: the urns having a wide mouth, some being low (IV:1) but most of them high.

The painting is largely in horizontal black bands and narrow wave-lines. There are furthermore alternating low triangles separated by an unpainted zigzag line.

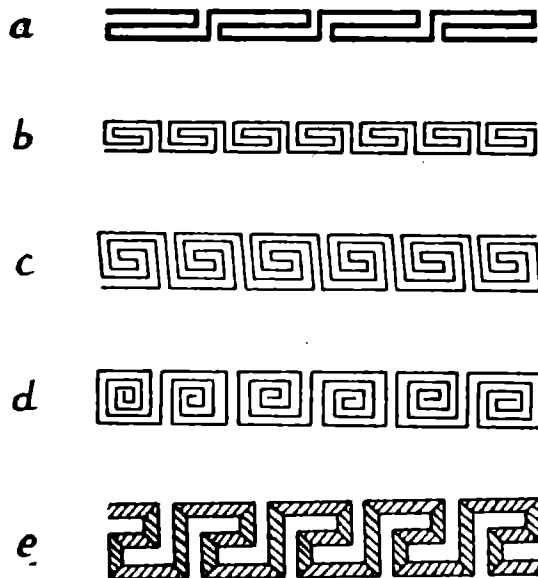


Fig. 4: The meander in Chinese and Western art.

第四圖：中國與西方藝術之 meander 花紋。

- a: Painting on the neck of a double-conical pottery vessel.
Hsin Tien stage. Hsin Tien, T'ao Sha Hsien, Kansu. (Pl. III, fig. 2)
甘肅辛店期埡狀陶瓶頸部之花紋 (出甘肅洮沙縣辛店)
- b: Decoration on the rim of a fourlegged, square Ting bronze vessel of the Chou dynasty.
From Hsi Ch'ing Ku Chien. Vol. 5, page 33.
周代四足銅方鼎沿口之花紋 (見西清古鑑卷五第三十三頁周寶鼎十五)
- c: Horizontal zone forming the uppermost part of the decoration of a three-legged bronze-Ting of the Chou dynasty.
From Hsi Ch'ing Ku Chien, Vol. 3, page 9.
周代三足銅鼎鼎面最上部之花紋 (見西清古鑑卷三第九頁周拱鼎二)
- d: Lei wen pattern. Three-legged bronze Ting of the Shang dynasty or earlier.
From Hsi Ch'ing Ku Chien. Vol. I, page 33.
商突鼎上之雷紋 (見西清古鑑卷一第三十五頁商突鼎三)
- e: Painting on the lower narrow part of a high-footed Dipylon-vase, Athens, Greece.
From Forrer: Reallexikon der prähistorischen, klassischen und frühchristlichen Altertümer. Pl. 50, p. 180.
雅典高足瓶下部之花紋 (見伏勒爾氏古物辭典第一百八十頁第五十版)

From two curved bands projecting downwards from a horizontal line (IV: 3a) in a manner which slightly recalls the character 丩 we may derive the central design of the figures 2 & 4 of the same plate. Parts of the same design are shown in fig. 2, Pl. III. This very interesting vessel exhibits another notable design which is quite common upon the big Hsin Tien urns, namely the true continuous angular meander.

A meander-like pattern is quite commonly seen covering the background of animal designs upon the early Chinese bronzes. This *lei wên* (雷紋) pattern is not a genuine meander but consists of pairs of angular spirals as shown by fig. 4 d. This lei wen and the variants of the same, is by far the most dominant among the meander-like designs of the Chinese bronze art. However, my research assistant Mr. S. S. Yoh has kindly called my attention to a few rare cases of real continuous meanders, two of which are represented by fig. 4 b & c. A continuous meander of western art is represented by fig. 4 e for comparison.

A peculiar feature of the decoration of these vessels is the intermixture, among the large bold designs already described, of very small details such as the N-like figures of IV: 2. To the same group should also be referred the small animals, a dog and a sheep, shown by III: 2.

A vessel from Hsin Tien shows the figure of a horse? (fig. 5a) and upon the collar of a vessel from another site of this period were found a human figure and that of a bird (fig. 5 c & d). A wheel-like design (fig. 5b) has been noticed in a few cases.

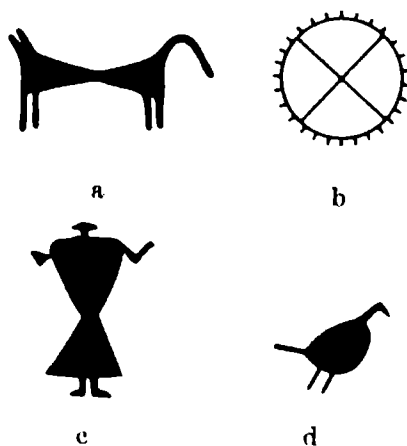


Fig. 5. Details from painted urns of the Hsin Tien stage. a & b 1/2 nat. size. c & d 1/4 nat. size. a & b from Hsin Tien. c & d from San Shih Ting.

第五圖：辛店期彩色陶壺詳細之花紋。a及b 爲原式，c及d 爲照原式縮小二分之一。（a及b 出辛店，c及d 出四時定）。

The Ssu Wa Shan stage: Under this heading I have brought together two groups of sites which at closer examination might prove to be somewhat different in age.

The type locality Ssu Wa Shan (寺窪山) is situated in Ti Tao Hsien (狄道縣). Close by a dwelling site of the Yang Shao age we here located a burial place characterized by the prevalence of large unpainted urns with saddle-shaped mouth (Pl. X, fig. I & 2) and also a Li tripod with bulbous legs (Pl. X, fig. 3). Some copper objects were found in the same graves proving that this stage undoubtedly belongs to the younger group of Kansu stages.

In Hsi Ning Hsien, at two places, Ch'ia Yao and Hsia Hsi Ho, we excavated numerous graves with unpainted pottery and rather numerous small copper objects (Fig. 6). The vessels of these graves are not of the shapes found at Ssu Wa Shan, and the bringing together of all these finds under one heading is, as already indicated, only a provisional arrangement.

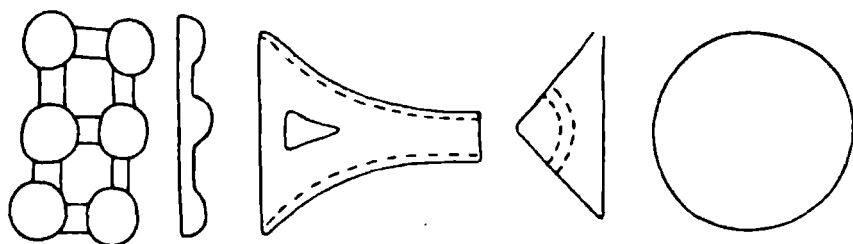


Fig. 6. Copper objects from the graves at Ch'ia Yao and Hsia Hsi Ho, Hsi Ning Hsien. Nat. Size.

第六圖：卡窰及下西河墓中所得之銅器（出西甯縣）

The Sha Ching stage: In Chên Fan Hsien (鎮番縣) we found a number of sites in a region which is now largely occupied by sand-dunes. Both burial sites and dwelling places were found, the latter surrounded by mud walls, a protective measure, which is quite natural in this perfectly level landscape.

The furniture of all these sites is so similar that they can all be safely assigned to one period, for which I have proposed the name Sha Ching (沙井) stage after the type locality which is situated 30 li west of Chen Fan city.

In the graves and dwelling sites of this group have been found numerous small copper objects, including such elaborate types as winged arrow points. For this reason I have interpreted the Sha Ching group as the youngest of our Kansu stages. Together with the copper objects there occur in the graves numerous cowries and beads of turquoise and other materials.

The pottery is made of a rather coarse ware. The shapes of the vessels are manifold as shown by Pl. XI, fig. 3-6. Most of the pots are not painted, or otherwise a part is covered with a red slip as is the case with those shown on Pl. XI, fig. 3 & 5. Some few vessels were found covered with very exquisite painted designs, the main features of which are vertical triangles and horizontal zones of bird figures (Pl. XI, fig. 1 & 2). These painted vessels exhibit such striking likeness to the pottery with bird-figures etc. from Susa, that it would be tempting to consider the two groups as interrelated, but the apparently much younger age of the Sha Ching culture makes a relationship very unlikely.

RELATIVE CHRONOLOGY OF THE KANSU CULTURES.

In the previous chapter we have reviewed a number of cultural groups, each one extended more or less widely over the area surveyed by me, and each one marked by a well defined furniture, among which the ceramics offer the best characteristics.

Here it will be our task to trace, as far as available facts allow, the relative ages of these cultural stages.

As a starting point for our survey we can most conveniently choose, what has been called above the Yang Shao group. The name, borrowed from the type locality, Yang Shao Tsun in Mien Chih Hsien in Honan, emphasizes the fact that it belongs to the same prehistoric period as that which became known through my excavations in Honan in 1921.

In fact, the similarity between the Honan and the Kansu Yang Shao sites is so great, the furniture in general and more markedly the designs of painted pottery of the dwelling sites is so strikingly the same in Honan and Kansu, that we can take for granted that these sites are all approximately of the same age. Chronological subdivisions may one day become established within this period, but the differences between the Honan and the Kansu Yang Shao sites is no doubt due to geographical differentiation far more than to difference in age. A number of these local characteristics have been mentioned in the previous chapter when describing the Yang Shao sites of Kansu. The whole problem will be fully analyzed in the forthcoming monographic description of the furniture.

For various reasons I believe that the Ch'i Chia type is somewhat older than the Yang Shao sites.

As seen in the description of the Ch'i Chia P'ing site, the pottery is nearly all monochrome, partly very much like the Yang Shao monochrome wares, partly a whitish thin-walled, high-collared vase, characteristic of this period, and partly vessels with beautiful impressed patterns recalling the "Kamm-Keramik."

In most of our excavation-places at Ch'i Chia P'ing only monochrome pottery was encountered, but in the big road ravine some few small fragments of typical Yang Shao painted vessels were also found.

While walking across the wheat-fields, during the topographic survey of the site, I noticed on the surface several Yang Shao sherds. In half an hour's stroll over these fields I collected as many Yang Shao sherds as my men obtained in their excavations during several days in the road ravine.

I feel inclined to interpret these facts thus: the Ch'i Chia type is somewhat older than Yang Shao, while in the Yang Shao time sherds of the then common painted vessels were strewn over the preëxisting Ch'i Chia deposit. At a much later time the road ravine was cut down, and during this process there occurred from time to time slides in the steep walls of the ravine. In this manner Yang Shao sherds from the top were mixed deeply with the Ch'i Chia deposit.

These facts are hardly to be taken as conclusive stratigraphic evidence that Ch'i Chia is older than Yang Shao. However, the frequency of stone axes in the Ch'i Chia furniture and the total absence of copper (as far as our experience goes) clearly indicates that Ch'i Chia belongs to the older, pre-metallic group of cultural stages.

There is one rare and highly remarkable feature in the Ch'i Chia P'ing site which deserves mention in this connection, namely the occurrence of some painting on the inside of the collar of one of the ceramic fragments (Pl. V, fig. 1). This painting consisting of vertical, very narrow triangles is somewhat similar to the triangle design of some vessels of the Sha Ching stage, and the likeness is further accentuated by the fact that the painting on the Ch'i Chia piece is made in a violet-red color similar to the Sha Ching paint, but quite unknown on the Yang Shao vessels. As the Sha Ching stage is rich in metal objects, I cannot imagine that these facts mean more than a casual likeness between the ceramics of two widely different stages.

We have now surveyed the main evidence indicating that Ch'i Chia is the earliest and Yang Shao second in age among the stages here described.

Next we have to deal with the Ma Chang group, which is unfortunately the most imperfectly known of our Kansu stages. Only the contents of some few graves are well recorded; for the rest we have to depend upon a number of vessels without detailed finding records. The furniture consists of large, relatively narrow urns (Pl. IX, Fig. 2) with very strongly conventionalized anthropomorphous (?) figures, and of small bowls (Pl. II.), the upper parts of which are entirely covered with geometric designs.

In the nature of the ware, its shape and decoration, these vessels are allied to the Yang Shao funeral urns, but they are on the other hand sufficiently distinct from the Yang Shao family to be considered as forming a group by themselves. It seems highly probable that the Ma Chang group is, in age, closely related to the Yang Shao stage, and I have tentatively placed it after Yang Shao, partly because there is no sign of these ceramics at Ch'i Chia P'ing, partly because the ornamentation of the Ma Chang family seems strongly mature and conventionalized.

We have now discussed three cultural stages: Ch'i Chia, Yang Shao and Ma Chang which, as far as our experience goes, seem to have one essential feature in common namely *the absence of metal*.

In the following we will describe three stages: Hsin Tien, Ssu Wa and Sha Ching which *all are copper-bearing* and which have here been tentatively numbered according to the increasing frequency of copper objects, beginning with Hsin Tien, where copper is quite rare.

The Hsin Tien stage is in many ways second only to Yang Shao in the abundance of sites and the wealth of designs on the painted ceramics.

As shown in the description of the Hsin Tien furniture, the ceramics of this group are radically different from those of the Ch'i Chia, Yang Shao and Ma Chang stages, both in the character of the ware, the shapes of the vessels and the designs of the decoration. The occurrence of some few copper objects indicates that the Hsin Tien group is younger than the three stages just mentioned.

In the case of the Hsin Tien group we have one of the very few instances of stratigraphic evidence to guide us, namely to show that Hsin Tien is decidedly younger than Yang Shao.

The type locality of the Hsin Tien stage is the burial site which has been named Hsin Tien A. 300 m. south of this grave-field, on the south side of a rather big ravine there is a dwelling site with rather puzzling surface indications. Over the whole area of this site we found mixed in about equal proportion painted potsherds of the Yang Shao and the Hsin Tien types. Their occurrence together seemed at first sight to indicate that the two groups were contemporaneous, and I thought at first of the possible intermixture in one site of two contemporaneous but ethnologically different cultures. At last I undertook a stratigraphically conducted excavation of a part of the site which seemed to be comparatively undisturbed. The culture stratum was excavated in layers of 33 cm. thickness. In the top layer the two types of pottery occurred just as at the very surface in about equal frequency. In the second layer there was one doubtful sherd of Hsin Tien type, all the rest was typical Yang Shao, and in the two deeper layers only Yang Shao sherds were found. From these facts we learn beyond doubt that the lower and larger part of this dwelling site-deposit belongs to the Yang Shao stage with merely a thin covering layer of Hsin Tien material.

To judge from the pottery of the type locality, Hsin Tien A, the Hsin Tien stage seems to stand in strong contrast to the previous periods, i. e. Yang Shao and Ma Chang. But on the west side of the T'ao river we found at Ssu Shih Ting (四時定) another burial site, the ceramics of which are essentially Hsin Tien in type, but with a much wider variety of design which on closer examination might reveal connections with the two stages just mentioned.

Under the Ssu Wa group, I have brought together a number of burial sites which might properly be subdivided into two smaller groups, Ssu Wa proper and Ch'ia Yao, and which in fact have very little in common except the prevalence of rather crude unpainted urns and a moderate abundance of metal objects. Possibly these two sub-groups will one day prove to be more independent of each other than here suggested. At any rate the furniture shows so little in common, that each of the sub-groups has to be treated independently. As shown by the description in the previous chapter, the pottery of the Ssu Wa group proper is by far the more characteristic, with such striking types as the big urns with saddle-shaped mouth and the Li-tripod with bulbous legs. On the other hand the copper furniture of the Ch'ia Yao (and Hsia Hsi Ho) sites is much more varied and better known.

The Sha Ching sites are here described as representing the youngest of the Kansu cultural stages, and my principal reason for this interpretation is the relative abundance of in part highly differentiated copper objects (arrow points etc.) in the Sha Ching deposits. The pottery of these sites is largely monochrome, but its possible relationship to the prevalently monochrome vessels of the Ssu Wa-Ch'ia Yao group has not yet been studied. At any rate, one thing deserves notice, namely the absence of the Ssu Wa big urn with saddle-shaped mouth.

Many of the Sha Ching vessels are covered with a red slip and some few are painted in red in very remarkable patterns, the most striking feature of which is horizontal zones of birds reminding us of some of the Susian designs.

We have now arrived at a tentative local chronology which can be outlined as follows:

PREHISTORIC STAGES OF KANSU.

Early Bronze Age	}	Sha Ching stage.
and		Ssu Wa stage.
Copper Age		Hsin Tien stage.
Neolithic	}	Ma Ch'ang stage.
and		Yang Shao stage.
Late Neolithic Ages		Ch'i Chia stage.

It might be questioned whether these six culture groups, which are founded principally upon the ceramics, really mark successive cultural stages or rather, in some instance at least, merely geographical families of contemporaneous, but possibly ethnologically different cultures.

It has been noted above (p. 22) that for some time I believed that the Yang Shao and Hsin Tien families might have been such contemporaneous but ethnologically differentiated cultures, but that I had been able to prove beyond doubt that this was not the case, but that Yang Shao was markedly earlier than Hsin Tien.

In another case, Ssu Wa and Ch'ia Yao, I have for the present, and until fuller material is available, assumed that all these sites might belong to one period to which the name Ssu Wa has been assigned. It is quite possible that this group will be split up after continued research.

In another case, namely the Sha Ching group, here described as the youngest, it could be suggested for geographical reasons that it is merely a geographical facies of some other stage, as all the Sha Ching sites so far known occupy a small area rather far away from the rest of our excavation places. However, the Sha Ching stage is marked by such a rich and highly characteristic furniture of relatively advanced type that it is hard to imagine that it coincides in time with any of the other groups.

All the rest of these cultural groups, Ch'i Chia, Yang Shao, Ma Chang, Hsin Tien and Ssu Wa occupy nearly the same, rather small area, where most of them are represented by several sites. As each of these groups is characterized by well defined ceramics, which, as far as our researches show, hardly in any case are intermixed, it seems very reasonable to assume that we have here to deal with six distinct chronological stages. The order between these stages might in one or two cases not yet be proved beyond doubt, and it is quite possible that additional stages will be found to link up such ceramic groups which now seem to follow abruptly, the one upon the other.

ATTEMPTS AT AN ABSOLUTE CHRONOLOGY.

So far we have only traced a tentative, locally valid, relative chronology of the Kansu sites.

In order to establish a beginning of an absolute chronology for these cultures, two ways of research are available: comparisons with the well-known archaeological data of the Near East, and comparisons with the very few reliable data so far known on the early historical archaeology of China.

So far as the first method is concerned, i.e. comparisons with the Near East, considerable results, based mainly upon the material found in Honan, have already been arrived at by myself, by Dr. L. Franz and above all by Dr. T. J. Arne.

In my paper "An early Chinese Culture" I have shown, with the support of Mr. R. L. Hobson and other British archaeologists, that the painted ceramics of the Yang Shao culture belong to the same family of design as the Neolithic pottery found in many sites in the Near East. I especially compared the painted pottery from Honan with the first culture of Anau and the second period

of Susa. In the paper referred to I did not venture to give any estimate of the age of the Yang Shao culture, but simply stated it as my opinion that it belonged to a time slightly preceding the dawn of recorded Chinese history.

A young Austrian archæologist, Dr. L. Franz, who reviewed my archæological papers in "Mitteilungen der Anthropologischen Gesellschaft in Wien" Vol. LIV, 1924, took advantage of his fuller access to the European archæological literature and carried the comparisons into more exact detail. Franz compares the Yang Shao culture more especially with Anau II-III, whereas I called attention principally to the relationship which appeared with the painted pottery of Anau I. This is a difference in detail which I will discuss in the final monograph, for the present I will only review briefly the comparisons made by Franz.

From Anau Franz' correlations proceed in a second step to Mesopotamia, where especially A. W. Andrae's excavations of the Ishtar-temple of Assur are of importance. The beds H-G in Assur offer connection with Anau II-III, and the termination of the bed G is held as contemporaneous with the overthrow of the dynasty of Akkad, about 2600 B. C. If these correlations hold true, the Yang Shao culture can be estimated at 2700 B. C.

Dr. T. J. Arne in his monographic work on the painted pottery from Honan has gone into still more exhaustive comparisons with the vast literature on the Neolithic cultures of the Near East and of S.E. Europe. In addition to the sites already mentioned in my paper and in Franz' review, Arne refers to a large number of Neolithic deposits, such as those in the Zhob valley in Baluchistan, Tepe Mussian, 150 km. W. of Susa, Petreny in Bessarabia, Cucuteni in Moldavia, Koszylowce in Galicia and Schipenitz in Bukovina.

Arne considers that the painted pottery of the Yang Shao culture is related to Susa I-II and to Anau I-II and he estimates its age at about 3000 B. C.

It seems in every way reasonable, while waiting for the final result of the researches on the vast and beautiful Yang Shao material from Kansu, to accept this figure, 3000 B. C., as a provisional determination of the age of the Yang Shao stage.

This is the only approach so far offered to anything like an absolute figure for the age of anyone of the prehistoric cultural stages of Kansu.

In the absence of better means for comparison, we may be justified in making a tentative, and naturally exceedingly uncertain, conjecture of the *duration* of the whole series of six stages in Kansu, by comparing them with the archaeological records from other regions where the corresponding space of time has been determined with considerable precision by intensive archaeological research supported by historical correlations. For this purpose I have selected two areas where the archaeological chronology has been carried to a high degree of perfection, namely Scandinavia and Crete.

In Scandinavia the successive stages of the Neolithic and Bronze Ages have been made known in admirable clearness by the classical researches of Montelius*. In the Scandinavian Young Stone Age, which is held to range approximately from 4000-1800 B. C., he distinguishes four periods, based upon the typology of the stone axes and upon the modes of burial. The earliest of these periods was by far of the longest duration. The three later stages, which might approximately correspond in time to the earlier periods in Kansu, cover the time from the beginning of the third millennium to the beginning of the Bronze Age about 1800 B. C. This gives us an average of 400 years, or slightly less, for each of these periods.

The Bronze Age of Scandinavia is subdivided by Montelius into six periods, based upon the bronze furniture, especially the axes and the fibulas. The whole Bronze Age ranges from 1800-600 B. C. giving us an average of 200 years for each period. The minuteness and exactitude into which Montelius was able to carry his researches made it possible to distinguish an older and a younger subdivision in each of the five older periods (the sixth one being in fact merely the transition to the Iron Age). Such minute subdivisions are not yet in sight in Kansu, where the researches have just begun, and we can for the present be content with stating that the late Neolithic and Bronze Ages of Scandinavia have been divided into nine periods with an average length of 400 years for the late Neolithic and 200 years for the Bronze Age.

The post-Neolithic prehistory of Crete has, thanks principally to the admirable researches carried out by Sir Arthur Evans, been made known in a remarkably complete record comprising three main periods, Early, Middle and Late Minoan, each subdivided into three stages. This chronology is based upon

* Montelius: *Minnen från vår forntid*. 1. Stockholm 1917.

the pottery and the bronzes, as well as upon the construction and ruin of the successive palaces of Cnossos.

The Minoan culture covers the time from 3000-1100 B. C., which gives a little more than 200 years as an average for each of the periods established by Sir Arthur Evans. Fimmen is of the opinion that the third Late Minoan period came to an end about 1250 B. C., but on the other hand he considers the subdivisions of the Early Minoan as not quite fully established.*

These brief notes suffice to show that the length of the several periods which have been distinguished in Scandinavia and in Crete, two regions where the ancient cultural record from 3000 B. C. to the end of the second or the early part of the first pre-Christian millennium has been made known by archæological researches in rather unparalleled fullness, varies from 400 to 200 years.

It seems likely that the ceramic stages which I have distinguished in Kansu are approximately equivalent in order to the periods discovered by Montelius in Scandinavia and by Evans in Crete. Considering that there is no proof that the Kansu record is complete and unbroken (the abrupt appearance of new ceramic types rather indicates that one or more additional stages remain to be discovered) I feel justified in assuming 300 years as a reasonable estimate for the average life-time of each of these six stages in the prehistory of Kansu, which gives us 1800 years as a vague conjecture for the duration of the whole cultural series here recorded. If we accept Arne's figure, 3000 B. C., as indicating the age of the middle of the second or Yang Shao stage, we arrive at the figures 3500-1700 B. C. as an approximation of the duration of the Kansu record.

I am fully aware of the fact that this estimate rests merely upon very general and debatable comparisons, and I give it only as a working hypothesis which will foster research and discussion, that will in the course of time give us more substantial knowledge about a series of cultural stages which were until yesterday entirely unknown.

* Unfortunately I have not here access to the original works by Sir Arthur Evans but only to the summaries of his researches given by Dussaud in 1914 and by Fimmen in 1921.

R. Dussaud. *Les civilisations préhelléniques dans le bassin de la Mer Egée.* Paris. 1914.

D. Fimmen. *Die kretisch-mykenische Kultur.* Leipzig & Berlin. 1921.

We have above indicated 1700 B. C. as an approximation for the end of the archæological record here summarized. It will be noted that this figure takes us into the semi-legendary early history of the Chinese, the figure given nearly coinciding with the ascendancy of Shang, the second dynasty of the San Tai (三代) in 1766 B. C.

Unfortunately nothing has so far been recognized among the furniture of the late Kansu sites which can be regarded as identical with objects of the San Tai. No painted pottery of the prehistoric type has been seen in any historical site, and the few and small metal objects found in my Kansu excavations are so simple and undecorated that they cannot help at present to link up the Kansu finds with early historical times. In the absence of positive facts we may be justified in calling attention to some negative evidence which tends to show that even the latest of our Kansu stages can hardly be supposed to extend in time beyond the figure here given i. e. 1700 B. C.

The earliest dynasty of the San Tai, the Hsia, remains entirely legendary as, so far, no archæological material has been found to support the scanty historical data. Also for the early Shang such evidence is badly lacking. But with reference to the late Shang, which has also been called Yin after the then capital in northern Honan, we are in a much more favourable position.

On the site of Yin, which in modern times is An Yang Hsien (安陽縣) on the Honan-Chihli border, rich and remarkable finds were made in 1899. Some comment on this material has been made by foreign students of the subject, among them Menzies, Hopkins, and especially Chalfant, but by far the most exhaustive work on these oracle bones and allied objects has been done by the leading Chinese archæologist of our day Lo Chên Yü, who has published a series of important works on the paleography of the Yin Dynasty, and furthermore, a volume, Yin Hsü Ku Chi Wu T'u Lu (殷虛古器物圖錄) on a number of highly important objects stated to have been found in this site.

The most abundant and in many ways also the most illuminating material of the An Yang site consists of pieces of bone and tortoise shell with a very archæic Chinese script, used in this case mostly for divination. Together with the oracle bones there were found bone arrow points, ivory carvings, fragments of bronze, cowrie shells and other objects which help to form a picture of the culture of that time. We learn from these objects that the people of Yin had a script, still primitive and largely pictographic, but marking a tremendous stride

towards a higher civilization. These writings tell about the structure of their social life, their calendar, and such interesting details as for instance, the use of the two horse cart.

In the work *Yin Hsü Ku Ch'i Wu T'u Lu* by Lo Chên Yü, there are figured some richly decorated objects of the highest interest. Fig. 2 is a carving of a Rhinoceros horn and fig. 4 a carving on ivory, both covered with the design of angular spirals which is known among Chinese archæologists as the Yun Lei (雲雷) pattern. In addition we recognize in both cases within the Yun Lei pattern the features of the T'ao T'ieh (饕餮).

Figures 5 and 6 also represent richly decorated bone carvings, these objects being interpreted as the handles of a spoon Bi (匕).

Fig. 39 is a fragment of a large bronze object decorated in Lei Wên (雷紋) pattern in high ridges, the interspaces of which are filled with pieces of a green precious stone, presumably turquoise.

All the objects described in the work mentioned are of such farreaching importance that it seemed desirable to know beyond doubt their connection with the inscribed bones. For this reason I approached Mr. Lo through the kind mediation of Dr. V. K. Ting, and Mr. Lo kindly favored me with information regarding the manner in which these objects were obtained. They were not actually excavated by the representative of Mr. Lo but bought in 1910, in the village Hsiao T'un (小屯) which is situated on the site. The villagers from whom the bones were obtained explained that they were excavated together with the inscribed bones. Under these circumstances it is considered by Mr. Lo as beyond doubt that the objects described in his work *Yin Hsü Ku Ch'i Wu T'u Lu* are of the period of the capital of Yin.

Viewed in this light Mr. Lo's finds are of the highest interest. The historical tradition which ascribes a number of highly decorated bronze vessels to the Shang Dynasty proves true as, apart from the bronze fragment decorated in Lei Wen pattern with inlaid stones, the richly decorated tusk carvings are worked exactly in the pattern of the bronzes ascribed to the San Tai.

From Mr. Lo's researches on the remains from the site of Yin we have learned two facts of fundamental importance, namely that from the fourteenth to the twelfth centuries B. C., the Chinese had already developed their pictorial script, and that the art of producing richly decorated bronze vessels and ivory carvings in the same designs, was also perfected to a high degree.

In all our extensive excavations in the prehistoric sites of Kansu we never saw on any pottery vessel or other object the slightest indication of writing, in spite of the fact that our attention was constantly bent in that direction (the incised bone plates of the Yang Shao time described on page 14 are at the most some kind of primitive record, in no way related to the archæic Chinese script).

Similarly we never found upon our small and plain bronze objects, in the Kansu sites, any decorative design resembling the rich ivory-carvings described from the capital of Yin or recalling that of archæic Chinese bronze vessels. These two groups of negative evidence deserve mention as an indication that even the most recent of our Kansu sites are earlier than the Yin Dynasty (1401-1122 B. C.).

It is true that the distance from the capital of Yin to our sites in Kansu is so great that such negative evidence must be regarded as very slender, and in addition it must be remarked that our excavations were confined to village sites, the inhabitants of which may have lacked both the writing and the arts which we can believe to have been in the possession of the ruling class of the time.

With all these reservations it should not be overlooked that the area where we worked in Kansu is along the great highway from Central Asia to the cradle of Chinese civilization in the valleys of the Wei Ho and the lower Huang Ho. Our discovery of an unparalleled development of the Yang Shao culture in Kansu has confirmed the view expressed in my earlier communications that the migration of the painted pottery across Central Asia to the valley of the Huang Ho must have taken place over the natural highway between the Pei Shan and the Nan Shan in N.W. Kansu, reaching the Huang Ho in the region of Lanchow, the capital of modern Kansu, that is in the centre of the area studied by me in 1923-24.

I do not feel competent to review the opinion advanced by several authors, such as Chalfant and Ball, that there is a common origin for the Chinese script and the ancient pictorial writings of the Near East, but it goes without saying that our discovery of the existence of strong cultural influences across Central Asia to the Huang Ho valley at the close of the Neolithic Age, as manifested by the Yang Shao painted ceramics, cause those philological speculations to appear less phantastic from the purely archæological point of view.

Voices have also been raised to explain the ornamental system of the archæic Chinese bronzes as derived from the Near East. In this connection I may quote Rostowtzeff who in his "Iranians and Greeks in South Russia" page 198, after mentioning four principal animal types of the early Chinese bronze art, writes: "It goes without saying that these types were not invented in China. All four as we know, were favourite types in Babylono-Assyrian art, which had inherited them from Sumerian art, It is impossible to suppose that such peculiar creations were invented independently by Sumerians and later by Chinese."

If any of these cultural innovations, the pictorial writing or the decorative style or both were brought into ancient China from the Near East, they must have reached the Huang Ho near modern Lanchow, the centre of our activities. Had these cultural migrations taken place during any of the stages studied by us, it would not be entirely unwarranted to expect some trace of them in the extensive collections unearthed by us. For this reason I think it justified for the present to interpret all our Kansu stages as earlier than the dynasty of Yin.

As a summary of the above considerations, I assume as a provisional conjecture that the six cultural stages made known through our work in Kansu cover the larger part of two thousand years ranging from the midst of the fourth to the midst of the second millennium B. C.

THE NEOLITHIC HIATUS.

The discovery in the summer of 1923 by the two distinguished French naturalists Père Teilhard de Chardin and Père Licent of Palæolithic implements in excellent stratigraphic conditions, and associated with a rich Pleistocene mammalian fauna in the Ordos, has offered us a new starting point for reviewing the history of Man in Northern China. So far only a preliminary note on these important finds is available, but the facts given in that paper are sufficient for our present purpose.*

The implements, made of quartzite and other rocks, are points, scratchers, coups de poing etc., and are stated by the authors to appear to be of Moustierian or early Aurignacian type.

* Teilhard de Chardin and Licent. On the discovery of a Palæolithic industry in Northern China. Bulletin of the Geological Society of China. Vol. 3. No 1, Peking 1924. pp. 45-50.

Together with these implements were found numerous mammal (and bird) remains: *Rhinoceros tichorhinus*, *Elephas (primigenius?)*, a horse, *Camelus*, *Bison*, *Cervus*, *Gazella*, *Antilope*, *Hyena*, *Meles*, and *Struthiolithus*.

The artefacts seem to have been found partly in stratified deposits underlying the loess, partly in the loess itself.

The fauna associated with the artefacts consists, at any rate to a considerable extent, of extinct Pleistocene species, and its composition together with the type of the artefacts marks these deposits beyond doubt as belonging to the Palaeolithic era. To judge from the brief notes so far available as to the stratigraphic conditions, it seems likely that the majority of the finds were made in the fluviatile bedded sediments below the loess or otherwise in the lower part of the loess deposit. It goes without saying that the sub-loess or low-loess position of these finds is a further proof, if such were needed, of their high antiquity.

A further fact which has so far been little emphasized in this connection, but which undoubtedly shows the complicated geological history which N. China has passed through after the deposition of the loess, is the considerable vertical erosion of more recent age.

In the final passage of another paper by the two French scientists on the geology of the Ordos, there is a reference to gravel terraces above the loess as "proof of a very important post-loess erosion".*

During my researches on the physiography of Northern China, undertaken as early as 1918, but not yet published, the post-loess erosion in the Chai T'ang valley near Peking has been studied in minute detail. A brief summary of my results are given in Mr. L. F. Yih's volume on the geology of the Western Hills of Peking and from this statement the following main facts are derived:**

1: In the valleys cut during the Fen Ho stage of vertical erosion there were laid down considerable masses of gravel, amounting to a thickness of 30-40 m. or more. These deposits consist of gravel, with intercalations of loess-like material, and in certain places these gravels are covered by deposits of typical pure unstratified loess. The time of deposition of the valley gravels and the superposed loess has been named the Ma Lan (馬蘭) stage, which was interpreted as of Middle Pleistocene age, because of the mammalian fauna, *Elephas* etc., of the loess.

* Bulletin of the Geological Society of China. Vol. 3. No. 1. p. 44.

** Memoirs of the Geological Survey of China. Ser. A. No. 1. 1920. pp. 68-71.

2: Following this stage of deposition there set in a period of renewed vertical erosion which resulted in partial removal of the Ma Lan loess and gravel with formation of terraces, 30 meters in height, and locally also the cutting of small rock canyons. Closely following this erosion there occurred the formation of redeposited loess with a fauna of *Bos*, *Cervus* and a *big-horn sheep*. This period of vertical erosion I called the P'an Chiao (板橋) stage, of presumably Late Pleistocene age.

In Kansu I made numerous observations on the physiography, and some principal facts have been mentioned above (P. 7-8). In the T'ao Ho valley and in several other valleys of Kansu the erosion has cut down from an old peneplane, about 500 meters above the present river bed. The progress of this vertical erosion is marked by a series of terraces from close below the old peneplane down to ten meters above the modern river course. Certainly most of this vertical erosion was carried out in pre-loess time, as the 50-100 m. terrace is covered by loess, and this pre-loess erosion might be correlated with the Fen Ho stage of N.E. China.

That the lower and consequently younger part of this erosion-process took place in post-loess time, is proved by many observations in the valleys of the Huang Ho and the Ching Ho, a tributary of the Wei Ho. Pl. XII, fig. 3, from the Huang Ho valley in Ching Yuan Hsien and Pl. XII, fig. 4, from the Ching Ho valley near Pin Chow, give a good idea of this part of Kansu which at the end of the loess time formed a gently undulating, but as a whole remarkably level steppe which has later become deeply dissected by post-loess erosion, that cut down not only to the gravel underlying the loess, but into the bedrock of Kueite beds or other older formations as well. To what extent this post-loess erosion reopened old river valleys covered by the loess, or cut entirely new channels, is difficult to say at present. At any rate there is not the slightest doubt that very extensive erosion, with resulting radical change of the physiographic aspect of Kansu, has taken place in post-loess time. Just as we compare the gravel and loess accumulation with the Ma Lan stage of N.E. China, so we feel entitled to enclose the post-loess erosion in our P'an Chiao stage of the vicinity of Peking.

NORTHERN CHINA IN PLEISTOCENE AND MODERN TIMES

GEOLOGICAL RECORD	PHYSIOGRAPHIC STAGES	ARCHÆOLOGICAL PERIODS
Blown sand Peat River gravels	Modern stage of river- gravel accumulation*	Historical times Yang Shao and allied prehistoric stages
Redeposited loess	P'an Chiao stage of ver- tical erosion	
Primary eolian loess	Ma Lan stage of gravel and loess accumula- tion	Palæolithic sites of Ordos
San Men gravels and sands		
	Fen Ho period of ver- tical erosion	

From the above given facts we learn that since Palæolithic Man lived with the woolly *Rhinoceros*, *Elephas* and *Struthiolithus* in the Ordos, two radical changes of the physiography of N. China have taken place, one culminating in the deposition of the primary, probably largely eolian loess, the second, the vertical erosion which deeply dissected the loess steppe and produced the modern scenery with its innumerable valleys and gorges, forming an intricate network between the remnants of the old loess plateau.

There is a marked contrast between the very ancient traces of Man discovered by the French *savants* and our finds of late Neolithic and Æneolithic cultures especially in the furnitures, the one exceedingly primitive, the other rich, varied and highly advanced. Furthermore, the general setting surrounding the two cultures was radically different: Palæolithic Man of the Ordos

* The fact that the modern river beds of N. China almost everywhere consist of gravel and that the bed-rock is almost nowhere shown in the bottom of the rivers, seems to prove that some deposition of gravel followed the P'an Chiao vertical erosion. This does not mean unconditionally that deposition is generally going on at present. In some places the occurrence of very low terraces seems to indicate that erosion has taken place quite recently. However, there is little or no doubt that the P'an Chiao erosion had cut down to the bed rock in many places now covered with gravel.

hunted a fauna of now extinct big game in a landscape, the true nature of which can only be gradually revealed by patient research because of its burial under the immense loess cover; late Neolithic Man, on the other hand, lived in a natural setting nearly identical with that of today, apart of course from the wholesale cutting of the forests, which still abounded in Late Neolithic time. It is true that in some places, as for instance, the site of Yang Shao Tsun in Honan, extensive vertical erosion has taken place in post-Yang Shao time, but most of the Kansu sites evidently existed in the topographic setting of today. In the animal life of Yang Shao time we have traced some features different from the fauna of today, as for instance the spread northward of *Hystrix* over areas where this mammal does not occur today. But as a whole the mammal life of the Yang Shao stage was not very different from that of our time.

At the present moment when the French scientists have not yet published the full results of their researches, their epochal discovery naturally remains surrounded by a number of unanswered questions. It is stated that the implements found are of Moustierian or early Aurignacian type. It is of course not proved that such a similarity in *type* will unconditionally allow a correlation in *time*, but for our present very general purpose it might be permissible to anticipate that the finds in the Ordos fall approximately in the Middle Palæolithic of the classical record of France.

Of the Upper Palæolithic we know so far nothing from this part of the world, except possibly a big laurel-leaf point of Solutrean type which has been described by me, but which for reasons given in my paper might possibly be of younger age.*

As stated above, the finds in the Ordos were made principally in the stratified deposits underlying the loess and to some small extent in the lower part of the loess. It might then be questioned, whether the time of deposition of the main mass of the eolian loess was not such a period of dry steppe condition, that Northern China during this time was largely depopulated and that we must imagine a re-peopling of the area in post-loess time.

At any rate there can be no doubt that during the P'an Chiao stage, when the rainfall again became abundant, while the temperature was probably not very different from that of today, the conditions were favorable for the occupation by Man of the revived river-courses.

* J. G. Andersson. Cenozoic of N. China. Memoirs of the Geol. Survey of China. Ser. A. No. 3. 1923. pp. 134-135. & Pl. IX, fig. 1.

This P'an Chiao stage of northern China seems to correspond approximately to the post-glacial time of northern Europe, where the Neolithic history of mankind is known in admirable fullness.

Granted, in the absence of better evidence, that the deposition of the main part of the eolian loess might cover considerable part of the Upper Palaeolithic, it seems justified to ask why we have never seen any trace of the early and full Neolithic, the time of polished stone implements accompanied by *primitive* pottery.

In order to deal with this problem it is necessary to review the general characteristics of the six cultural stages which we have discovered in Kansu.

It will then be seen that most of our stages have several essential features in common, as for instance the stone axes (rare in the later stages), the rectangular knives, some types of beads, the pointed bone implements and the Li-tripod (the latter however very rare in the early stages). The sepulchral customs are also in most cases the same.

The chronological subdivisions established in this paper are based in a general way upon the absence of metal in the three early, and the presence of copper (probably also bronze) in the three late stages. For the rest, minute and distinct chronological zoning has been established by aid of the ceramics which alone offer abundant and distinct means of classification.

There can be but little doubt that all these six cultural groups are inter-related. They probably represent more than one ethnological unit. Races may have met and mingled in this area, and certainly new cultural impulses were more than once introduced from other regions. But everything seems to prove that the area was continuously inhabited from the C'hi Chia stage to the Sha Ching period by populations which carried on certain cultural traits in an unbroken inheritance.

The stone implements of the Kansu cultures are of a simple and Neolithic type and remain so until in the later stages they are replaced by metal tools without having ever reached anything like the graceful perfection of the stone outfit of the late Neolithic of northern Europe. It seems as if the ancient inhabitants of Kansu remained satisfied with their simple axes and rectangular knives, when at the same time concentrating all their artistic inventiveness upon the production of really startling ceramics.

There is very little of primitive features, but many surprisingly advanced and refined types among the pottery vessels, even of the early Kansu stages. The impressed-pattern fragments of the first stage (Ch'i Chia) compare well with any products of the "Kamm-Keramik" of northern Europe and Siberia, and the thin-walled, high-collared vase with two large handles (Pl. V, fig. 3) rather reminds us of a type of classical Greece: the amphora. In the same way the profusely painted urns of the Yang Shao and Ma Chang burial sites stand among the foremost of all the painted ceramics of the Æneolithic cultures of the Old World.

It is principally because of these varied and highly advanced ceramics that I have hesitated to call even the earliest of these stages Neolithic and preferred the term Æneolithic (Stone-Copper Age). There is no metal visible in any of the three early Kansu stages, but it seems at least possible that the indirect influence of a culture, located elsewhere and already having access to metal, is felt in the furniture of these early sites. So for instance there are among the stone-arrow points in the furniture of the Yang Shao sites of Honan, the majority of which is of Neolithic type, some few which seem to be copied from specimens made in a metal technique. If this interpretation is true, the shapes produced by a culture which has already made use of metal, migrated farther than metal itself. This suggestion of mine may be confirmed or refuted by future research. When waiting for such a definite settlement of this question I have considered it most appropriate to name these early stages in Kansu Late Neolithic and Æneolithic (compare page 23).

As stated above, we have distinguished in Kansu a pre-Yang Shao stage, the Ch'i Chia stage, with very little painted pottery, but ceramics which are in other ways highly developed.

In like manner we have in Honan a small number of sites, like Pu Chao Chai (不招寨), where no painted vessels have ever been found, but where the ceramics are very closely allied to the monochrome vessels of Yang Shao Tsun. We do not yet know definitely the chronological relationship of these sites of the Pu Chao Chai type to those of Yang Shao sens. strict., but it might be permissible to suggest that they are slightly older and mark a time before the painted pottery had been introduced. If that is the case, we have in Honan, just as in Kansu, a type of sites which is older than Yang Shao sens. strict.

These two presumably pre-Yang Shao types, the Ch'i Chia type of Kansu and the Pu Chao Chai type of Honan, have very little in common, the former being characterized by the Kamm-Keramik and the amphora-like vase, the latter by such proto-Chinese vessels as the Ting and above all the Li-tripod. To this interesting feature we will return in the sequel. For the present it is most important for us to recognize that both these early groups are in many ways related to the Yang Shao stage, especially of course to its monochrome ceramics. The Pu Chao Chai type of Honan is in its peculiar line just as far developed as the Ch'i Chia type of Kansu, as proved above all by the presence of such a specialized vessel as the high, slender, thin-walled Li-tripod which is common at Pu Chao Chai.

When all the facts mentioned above are taken together, we will realize that all these early sites of Honan and Kansu, Yang Shao Tsun and Pu Chao Chai of Honan together with Ch'i Chia P'ing, the numerous Yang Shao sites and the Ma Chang sites of Kansu, all form a complex of highly developed cultural groups which are inter-related in a very complicated manner. None of these geographical and chronological subdivisions can be said to be primitive in its composition. On the contrary it is a striking feature of them all that they represent a very advanced cultural stage which we have placed in the transition period from the Late Neolithic to the beginning of the metal ages.

The remarkable frequency of such *Æ*neolithic sites, especially in Kansu, when compared with the total absence, as far as we know, of the early and middle Neolithic, is a fact which deserves close attention. Of this early *Æ*neolithic group, Yang Shao and allied, we know now one site in Fêngtien (Sha Kuo T'un), one in Shansi (not yet described), 7 in Honan, two in Shens (undescribed) and not less than about 27 in Kansu.

Several times during our field-work in Kansu I thought that I had struck a really primitive site with coarse, largely chipped stone-implements and crude pottery, but always in the course of persistent excavation some pieces of painted pottery turned up, these being sufficient evidence to show that these sites also belong to the *Æ*neolithic group. I gradually became inclined to think that such poor sites with crude pottery mark, not a different period, but rather places which were occupied by poor people or otherwise were only temporarily occupied.

It is quite possible that the deposition of the primary, eolian loess, which might approximately correspond in time to the Late Palæolithic of Europe, was marked by such a semi-desert or dry steppe climate that northern China was then largely depopulated and that consequently human remains from the Late Palæolithic may prove to be very rare.

On the other hand I take the post-loess river erosion, which certainly was at work many millenniums after the primary loess was deposited and before the Æneolithic cultures appeared, as the proof that the region was quite inhabitable in Early and Middle Neolithic times.

Our failure so far to find indisputable traces of these Neolithic periods is then a striking fact which must be accounted for.

The explanation nearest at hand is that research has so recently begun and been of such small extent that the filling in of the Neolithic gap can be expected from the further pursuance of our field-researches. This will undoubtedly prove to be true, and some indirect indications of the existence of remains of Neolithic Man are already known to us.

From large parts of northern China we know numerous surface finds of polished stone implements. An interesting collection of such artefacts was described by Laufer from Shantung,* and many hundred specimens derived from Fêngtien, Joho and Chihli are in our possession and will be described in the *Palæontologia Sinica*. Most of these stone axes, adzes, chisels etc. belong to types well known from the Æneolithic sites and may very likely belong to that relatively modern age.**

But in addition to these types, which we have found *in situ* during our excavations, there are some few types of stone implements among these surface finds which we never encountered in our excavations. Such a tool is the grooved hammer described by Laufer and also rarely represented in our collection. Another implement, never found in our excavations but represented

* Laufer. *Jade*. Chapter I.

** It is possible that real Neolithic finds occur among the numerous sites discovered by Torii in Manchuria and E. Mongolia. Much of his material is evidently of Yang Shao age. Because of the small size of his illustrations of the ceramics and the briefness of his descriptions it is difficult to utilize his finds for comparisons.

In the same places in the Ordos where the French scientists discovered the Palæolithic implements deep below the loess, they also found polished stone axes, unpainted pottery etc. on the surface. According to their statement "all those specimens belong probably to the Yang Shao Culture". (*Bull. Geol. Soc. China*, III, 1, page 50).

by several specimens from N. Chihli, is a very big, nearly triangular stone hoe. Such stone implements, which were never encountered in the Æneolithic sites, may have belonged to aboriginal tribes which carried on their own stone industry contemporaneous with the Yang Shao and allied cultures, but it is tempting to think that they partly belonged to true Neolithic stages, preceding in time the Yang Shao and allied cultures.

Granted that we know some few stone implements which may belong to the true Neolithic, it remains an indisputable fact that we have discovered 38, mostly very rich, Æneolithic sites but not a single one with an Early or Middle Neolithic furniture.

There is but little doubt that true Neolithic sites with primitive pottery will be found and that Early and Middle Neolithic stages will be established also in northern China.

But the overwhelming abundance of rich and large Æneolithic sites, when compared with our failure so far to locate a single true Neolithic station, can hardly be explained otherwise than that the Yang Shao and allied sites mark a new development in the history of mankind in this part of the world. As we know from our geological observations that the rivers, after the termination of the loess steppe period but prior to the appearance of the Æneolithic cultures, flowed during several millenniums, marking a climate which was certainly quite inviting to Neolithic Man, the cause underlying the sudden and rapid spread of the Æneolithic settlements must have been, not entirely a change for the better of the climate, but rather *the coming of a higher civilization*.

CULTURAL MIGRATIONS.

In the previous chapter, when dealing with periods like the Late Paleolithic and the Early and Middle Neolithic which are so far not represented by actual finds, I have been forced to express certain opinions on questions where there are not at present sufficient facts available. In the following, when trying to interpret the real meaning of the Æneolithic finds, I will be forced to proceed further along the same very dangerous path of slightly founded conjectures. I do this purposely at this very early stage of our research with the sole intention of formulating a working hypothesis which will stimulate fruitful discussion.

One of the results of our researches on the Æneolithic sites of Honan was the discovery of strong evidence of cultural relationship in those prehistoric times between the Near East and the valley of the Huang Ho. By aid of Dr. Arne, who kindly furnished me with the literary means for comparisons, I was already able to point out in my paper "An early Chinese Culture" the striking similarity between the painted pottery of the Near East and that of Honan. Recently Dr. Arne in his splendid monograph on the painted pottery of Honan has undertaken such exhaustive comparisons between the painted ceramics of southwestern and eastern Asia that we might be justified in accepting as a fairly well proved fact that the painted pottery of Honan belongs to the same family of ware, form and design as the painted pottery of the Æneolithic sites of the Near East

My more recent finds in Kansu of large masses of painted ceramics of Yang Shao age, including many complete funeral urns, have only further accentuated the close relationship between the Æneolithic ceramics of the Near and the Far East. The problem will be fully discussed in the final monograph on the Kansu finds, and for the present I proceed under the assumption that in Æneolithic time cultural influences from the Near East were strongly felt in the Huang Ho valley.*

When, at the end of my first years work in Kansu, I wrote a brief report on the results so far obtained, which was later published in the Swedish geographical journal *Ymer*, I was so impressed by the predominance of painted pottery among the Kansu finds that I joined in the opinion expressed earlier by Richthofen that the Chinese have migrated from an ancient home in Chinese Turkestan, where they were supposed to have developed their earliest culture and received influences from western peoples.

This idea of a migration in Yang Shao time of the Chinese from Hsinking into the Huang Ho valley where they carried with them an Æneolithic culture of western type, has been reviewed and criticised by Karlgren in the new journal *Litteris*. As my paper was published in Swedish and as the opinions

* In the small note on my first years work in Kansu published in the Swedish geographical journal *Ymer* I have expressed the opinion that the painted pottery of Sh-Ching, in Chen Fan Hsien containing among other designs horizontal rows of birds, is related to the painted pottery of Susa where such zones of bird-figures are also very common. The similarity between the painted urns of Susa and those of Chen Fan is certainly striking but judging from my second year's work it seems that Sha Ching is much younger than Susa.

admirably expressed by Karlgren in English have carried the discussion much nearer a final solution, I take the liberty of quoting the following passages from the distinguished sinolog:

"In drawing his historical conclusions Dr. Andersson first suggests that the Kansu and Honan (Yang-shao) sites have so many implement types in common, and such an accordance in regard to the painted pottery that they must be considered as essentially contemporaneous and belonging to the same culture. And yet, according to Dr. Andersson, we must distinguish between a Kansu province and a Honan province within this culture, for on the one hand the painted ceramics are much more fully developed in the former, with richer patterns and more complete similarity to the Western types, and on the other hand the Kansu sites lack almost entirely certain elements which were most typical in Honan, e. g. the li and ting tripods: one single fragment of a li was found in the very extensive Kansu excavations. Whether Dr. Andersson's view holds good or not, depends upon which general historical theory we adopt.

"It seems obvious that two different theories are possible regarding the proto-Chinese culture. The one which Andersson proposes is best expressed in his own words (Ymer 1924, p. 25): "This analysis of the geographical milieu points decidedly to Turkestan as the territory where we shall have chances of finding a final solution of the Yang-shao problem. Possibly we shall be able to identify there the region where, in Neolithic times, a group of the Mongolian race, under strong cultural and perhaps also racial influence from the West, while settling down gradually to stationary agriculture, developed the civilisation which was to be the beginning of the historical Chinese culture. The exact localisation of this earliest proto-Chinese civilisation can be ascertained only by future researches in Chinese Turkestan, but already on the basis of our finds in Honan it seems highly probable that migration waves carrying along this culture have come down from Central Asia through the main channel of communication which passes between the two mountain chains of Peishan and Nanshan, leading from the eastern part of Turkestan in a southeasterly direction to the Yellow River at Lanchow, the provincial capital of the present Kansu."

"According to this theory, then, the foundations of the Chinese civilisation would have been laid already while the people lived in Turkestan, and this

culture, in its essential and typical traits, would have been brought into China by migration. Dr. Andersson underlines this in summing up the preliminary results (Ymer 1924, p. 34): 'Several facts, such as sites indicating stationary agriculture, the occurrence of pig bones in the cultural strata and methods of sepulture agreeing with those of Yang-shao Ts'un and those of the historical Chinese, suggest that the possessors of this culture (i.e. in Kansu) were of proto-Chinese race. The strong development of this culture here in the north-western corner of China proper and the marked signs of a civilisatory influence from the West, seem to give further support to my repeated surmise that the earliest evolution of the Chinese race was located in the interior of Asia, probably in Chinese Turkestan or adjacent regions. These conclusions involve a radical change in our views concerning the origin of Chinese civilisation.'

"This theory seems to me to offer serious difficulties, at least at the present stage of investigation. Our point of departure was that the occurrence of the characteristics enumerated above is the essential reason why we should consider the Yang-shao culture as Chinese, as the proto-Chinese basis of the later historical civilisation. If this culture were to have originated in Turkestan and therefore flourished more vigorously in Kansu than in Honan, of course all these implement types should exist in Kansu and ought to be even more richly represented there than in Honan. But in the preliminary report (Ymer 1924) Andersson expressly states that, while rectangular knives were found also in Kansu, li and ting tripods scarcely exist there, and as he mentions nothing, as far as Kansu is concerned, about the other more decisive elements found in Central and Eastern China—yüan rings, haches-poignards—I suppose he has found no specimens of them.

"Thus we find that, apart from the knives, the pig bones and the grave customs, and some general neolithic implements of no peculiarly Chinese type, it is only the Western element, the painted pottery, which is more fully represented in Kansu, not those which we have accepted as "genuine Chinese".

"Moreover, there have been found in Kansu several very particular artifacts entirely unknown in Honan: specimens (both in Si-ning, Kuei-tö and close to Kukunor) of a bone knife with a score into which flint chips are fitted to serve as cutting edge; small carved ivory tablets with incisions, possibly serving as a primitive script; and ornamental beads of various substances (semi-precious stones, marble etc.)

“Supposing Dr. Andersson’s theory to be true, the only possible explanation of these facts would be that continuous waves of Western influence gradually succeeded in supressing the genuine Chinese culture elements as created originally in Central Asia, the tendency being more victorious in Western China, for geographical reasons, than in the more Eastern colonies. But this seems far-fetched.

“Another and to my mind more natural general theory is this:

“In Honan, with offshoots in various directions, e.g. Fêngtien, there flourished a neolithic, genuine Chinese (proto-Chinese) culture, characterized *inter alia* by *li* and *ting* tripods, *yüan* rings, *kou* haches-poignards, crescent-shaped or rectangular knives, breeding of pigs and certain sepulture methods. In late Neolithic times this sphere of culture was reached by strong influences from the West, along the channels of communication which in later times proved to be the natural and normal ones, and thus was introduced the art of making finer, painted pottery besides the native, coarse and uncoloured pottery (largely found in Yang-shao). Hence the *comparatively* sparse finds of painted ceramics in Yang-shao. The tribes from which the Honan people learnt this art, living in Kansu, were probably not proto-Chinese but rather a Turkish race, as they lacked several of the most important elements acknowledged by us as genuine Chinese. But of course the influence was reciprocal, which might account for the rectangular knives, the breeding of pigs and the burial customs in Kansu. A certain amount of trade with the proto-Chinese Honanites must have existed (thus Andersson has found cowry money in the Kansu graves, clearly indicating relations with the Eastern coast), and therefore we have every right to expect in the future excavations some finds of genuine Chinese objects, though scanty and only as a result of trade or war looting.

“Now the Kansu influence in Honan may have been peaceful, but it might equally well have been due to war excursions and political hegemony. If some branch of “the people of the red and black pottery” did really penetrate, from its original home in Turkestan and Kansu, towards the East in the 3rd millennium and push on as far as Honan, which is quite possible, they did not found colonies there, bringing with themselves the proto-Chinese culture, but they found it already flourishing round the large bend of the Yellow River, and they were soon assimilated by these real Chinese, enriching them with their own art of making finer pottery.”

A further contribution to the discussion on the relationship of the Yang Shao culture to the Late Neolithic and Æneolithic of the Near East and Europe has been forwarded by Arne, from whom I quote the following:

"I find no reason for moving the Chinese finds nearer our own times owing to the appearance of tripod vessels and their resemblance to later Chinese types of bronze. Tripod vessels turn up as early as in the oldest Troy (Town I). They are spoken of as kettle-like vessels with three tall feet and a broad vertical handle. They chiefly call to mind tripods of the Ting type. Thus the Chinese tripods may possibly proceed from a model imported from the west. A double conic vessel found at Yang Shao with a perforated bottom has also connections in the oldest culture of Troy, as also in Egypt and Tepe Mussian. This kind of clay vessel has long survived in Korea. The tall, pointed-bottomed clay vessels (pithoi) spoken of by Professor J. G. Andersson have parallels not only in Egypt, but also at Hissarlik, Troy, and in India, as Wilke shows in the work which has several times been cited. A connection with the west may also be hinted at by the stone and mussel rings. These occur, in fact, often in flint, seldom in jadeite and nephrite, in France, Italy and Spain during the early Neolithic Age, and also in Egyptian graves (as early as the third dynasty) and—also at a rather late date—in India (G. Wilke, *op. cit.* pp. 9. ff.). As a rule, they have a triangular section. Mussel rings have been found in the Thessalian dwelling-places from the later Stone Age, e.g. at Dimini and Rakhmani (Wace and Thompson, *Prehistoric Thessaly*, 1912, p. 84). Wilke knows them also from several other South European countries. They were also met with in the course of the above-mentioned excavations in the Zhob Valley in Baluchistan, but it is uncertain from what date they come.

"Thus judging from the perhaps insufficient archæological material known to me there is but very little distinctively Chinese in the Honan culture, although many of the elements introduced have survived in the fully developed Chinese civilization. Nevertheless it seems to be probable that the newly-discovered culture, which in the third millennium precedes the historic or quasi-historic culture, belonged to the ancestors of the present day Chinese. Attempts have not been lacking to place the mark of a special race on the civilization of the late Stone Age, which is characterized by painted pottery and the first appearance of copper. It has been declared to be South Indo Germanic, and it has also been regarded as belonging to a brachycephalic race.

As the bodily characteristics of the Mongolians are so well marked, it should not be impossible to find a satisfactory solution of the race question in the skeleton material collected by Professor Andersson."

It is evident that the contributions offered by Karlgren and Arne have added materially to the elucidation of the problem in which we are now interested. It is natural that Karlgren, the sinolog, has examined the problem so to say from a Chinese viewpoint, and that Arne, the European archaeologist, has laid special stress upon the evidence of cultural relationship with the west. Waiting for the result of the anthropological examination of the human skeletal material, Arne has avoided expressing an opinion as to possible migrations of races and confined himself to the discussion of the spread of cultural traits.

It goes without saying that a full review of these intricate and fundamentally important problems cannot be delivered before the large material from Kansu has been fully studied and described. For the present we will deal only with one, certainly one of the most important groups of artefacts, which is fairly well known and which seems to form part of the autochthonous proto-Chinese culture. I refer to the Li-tripods, eventually also to the tripods of the type Ting.

Dr. Arne's mentioning of tripod vessels from the first city of Troy is a fact new to me and of greatest interest. Mr. Ellis H. Minns of Cambridge, the distinguished author of "Scythians and Greeks" has kindly called my attention to the occurrence in the Tripolje culture of southern Russia of a Ting-like tripod.

Until the Ting-like tripods of early Troy and the Tripolje culture are more fully known to me, I am not able to express an opinion as to the possible relationship of these western vessels to the Chinese Ting. Moreover, it seems as if the Ting tripod in its primitive form, a clay bowl with three very small legs, is such a simple thing that it might have been invented more than once in the history of mankind. The assumption may be justified that a clay bowl was used for cooking first by putting three stones to support it, and that then the stones were replaced by three lumps of clay attached to the bowl.

It has often occurred to me that the origin of the Li is entirely different from that of the Ting. As already stated, the Ting is a bowl with three solid legs, whereas the Li has hollow, wide legs which form three, only partly confluent cavities. It is tempting to think that the Li was invented by merging

three vessels with pointed bottom in order to form a household utensil which could stand by itself, while at the same time it offered a very large contact surface to the fire when used for cooking. We know that crude pointed vessels are among the earliest ceramics known from the European Stone Age (time of the Danish kitchenmiddens), and the occurrence of several widely different types of pointed vessels in the Yang Shao beds of Honan may indicate that forerunners to these comparatively advanced types were in use in eastern Asia in early Neolithic stages, so far unknown to us.

This suggestion as to the origin of the Li is for the present a mere conjecture, and I intend to return to this question when the whole material from Honan and Kansu has been fully studied.

As far as I know, *the Li is a ceramic type confined to the proto-Chinese and historically Chinese cultures.* From Laufer's description we know a clay Li assigned by him to the Chow dynasty; three other forms are figured in my paper "An early Chinese Culture" and a fifth type is here described (Pl. X, fig. 3) from the Ssu Wa stage of Kansu. In our undescribed material there are still other species of this remarkable ceramic family, and then we have to add the bronze Li of various types figured by the Chinese antiquarian works from various dynasties, ranging in fact from the remote San Tai to the present day, when the Li still remains a favorite motive for the Chinese bronze founder. When sufficient material becomes known, the typology of the Li will form an intricate but most attractive field of research, and already at this early stage of our knowledge it seems justified to mention the Li as a symbol of Chinese culture, a venerated and beloved vessel, which can be traced in an unbroken ancestry back to the remote time of the Yang Shao settlers.

The early history of the Li throws much light on the question of cultural beginnings in northern China.

In the Yang Shao sites of Honan, especially in the Pu Chao Chai and similar sites without painted pottery, sites which are possibly somewhat older than Yang Shao sens. strict, Li tripods are very common, and most of the best Honan specimens come from these sites.

In Kansu the situation is different. In the earliest three stages Ch'i Chia Yang Shao and Ma Chang, there are very few or practically no traces of the Li, while at the same time the Ting tripod is very rare or missing in Kansu. Th^e

only specimen of the Li-tripod which I have recorded in my field notes from Kansu is a small fragment of a leg from one of the sites of the Yang Shao stage. It is only in the fourth stage of the prehistory of Kansu (the Hsin Tien stage) that we meet more abundant remains of the Li, and in the fifth and sixth stages (Ssu Wa and Sha Ching) special types of Li are quite common.

Everything goes to show that the earliest known history of the Li centers in the area which has been by tradition marked down as the cradle of the Chinese civilization, the lower Huang Ho valley on the Shensi-Shansi-Honan borders. The presence or not of the Li in Kansu in the early premetallic stages is so far not quite settled, at any rate it was exceedingly rare in those early times, and only during the three later stages of Kansu prehistory did the Li ceramic family become richly represented by some peculiar local Kansu species.

It then seems fairly probable that the Li tripod from its early home on the Shansi-Honan border slowly spread N.W.-ward to central Kansu.

Under the generally accepted view that the original home of the painted pottery was in the near East, we feel inclined to believe that the art of making the fine pottery with painted decoration reached Kansu first and Honan later. This is undoubtedly true, but the spread of this western art must have been comparatively rapid, because there is at present very little de facto archaeological evidence that the painted ceramics reached Kansu earlier than Honan.

There is just one sherd (Pl. V, fig. 1) of undoubted Ch'i Chia type with some little painting on the inside of the collar. But this is rather an exception within the Ch'i Chia group of Kamm-Keramik, and but little importance should at present be assigned to this find also for the reason that it is hardly proved beyond doubt that Ch'i Chia is actually older than Yang Shao.

The painted ceramics occur in Kansu as well as in Honan first in the Yang Shao sites, and there is nothing at present known to prove that the Kansu Yang Shao was somewhat older than the Yang Shao sites of Honan. Not only does the Honan Yang Shao combine the painted pottery with a Neolithic stone and bone furniture devoid of metal, just as is the case in Kansu, but the painted ceramics of Honan, though closely related to those of the Kansu Yang Shao, still form a province of their own, which in certain respects is superior in quality to the overwhelming masses of Yang Shao pottery found in Kansu. The painted pottery in the Kansu Yang Shao sites is far more abundant than is the

case in Honan, and numerous complete vessels have been found, especially in the burial sites of Kansu. Also the design of the painting is in Kansu far more gorgeous than in Honan, being sometimes even overburdened. But in hardness of the ware, in the deep, beautiful red and the exquisite polish of the surface, in the variety of colors, grace of design and thinness of the vessels, the Honan fragments compare very favorably with the painted vessels from the Kansu sites of the Yang Shao time. To this must be added that there are certain characteristics which mark the Honan polychrome material as forming a province distinct from that of Kansu.

It seems as if the new cultural influences from the distant west, when they once had reached the Huang Ho in what is now central Kansu, spread swiftly down the large river and its tributaries, became amalgamated with preexisting aboriginal cultures and got modified into local varieties of the wide-spread Æneolithic culture family.

It has already become apparent that I deal for the present only with the migrations of *culture* and that the question of migration of *races* is here left out of consideration. What Dr. Black can tell us on the racial question at this very early stage of his vast research will be indicated in his note at the end of this paper.

I now return to my assumption, as expressed above, that the thousands of years, during which the revived rivers flowed and eroded after the end of the loess-steppe period and prior to the coming of the Æneolithic culture, was a time when the climate of northern China was favorable to harbour Neolithic Man. For this reason I take it for granted that genuine Neolithic sites will be found in the continuation of our archæological research.

But the striking fact that we know at present not less than 38 Æneolithic sites in northern China, many of them large and rich, whereas not a single Early or Middle Neolithic deposit has been found, goes to prove that the aboriginal Neolithic population lived under conditions markedly different from those of the Æneolithic settlements. As there is nothing to indicate a radical change of climate or otherwise physical environment at the beginning of the Æneolithic time, it seems reasonable to assume that the new start marked by the abundant early Æneolithic remains was more in the way of *introducing a new, superior culture*.

Most likely the Neolithic aboriginals, Mongoloids who had already begun to mould the humble beginnings of the proto-Chinese culture, lived principally

as hunters and fishermen, possibly at the same time and in suitable regions carrying on a primitive hoe culture. If this assumption is true, they very likely lived in comparatively small groups and were not permanently settled but moved from place to place as changes in the supply of game forced them to do.

The Æneolithic settlements were, to judge from their location and size, large villages permanently occupied for a considerable space of time. In fact many of these sites coincide in place with modern villages, and as a whole it is safe to say that the settlements of that time were located very much as are the present communities, with the only exception that the Æneolithic villagers preferred to settle upon the terrace surfaces, whereas most of the modern villages have moved down upon the river plain which was probably in the Æneolithic time too densely wooded and locally too swampy to invite permanent settlement.

Several features combine to show that the Æneolithic settlers probably were to a very large extent dependent upon agriculture for their existence. The size of the dwelling sites and the thickness of the culture deposit indicate such permanence of the villages as could hardly be maintained except by a farming population, the marks of strings and cloth-pattern upon the pottery indicates the cultivation of some textile plant, and such numbers of pigs as are indicated by the abundant bones of this animal in the dwelling refuse could hardly be kept except by a people of agriculturists.

The tentative hypothesis which I want to present in order to explain how we have come across not less than 38, mostly large Æneolithic sites without encountering a single Middle Neolithic station, can be briefly expressed as follows:

The early Neolithic aboriginal inhabitants of northern China were hunters and fishermen, carrying on also a primitive hoe-culture. They lived mostly in small groups which migrated from place to place. The sites deposited by these people were relatively inconspicuous and most likely located in a topographic setting different from that of the large Æneolithic villages.

The painted pottery of the Æneolithic cultures is, together with some few other ceramic types (as for instance the high, pointed-bottomed *pithei*), the only mark of western cultural influence which has been preserved to our time. But it is exceedingly probable that, together with these ceramic innovations,

migrated many other gifts from the high cultures of southwestern Asia, and considering that these very early leading cultures of the Near East were so predominantly agricultural, it may not be too bold to assume that one of the most valuable endowments to the peoples of the Far East was a stride forward in the perfection of agriculture. Whether this improvement was in the form of introducing new cultivable plants or in better methods of tilling the soil or in a combination of both, we cannot even guess at present. If the plough was already in use among the people of the Yang Shao time, it was probably made all of wood, as such a light tool would work well in the easily tillable loess soil. That the cart wheel was possibly known to these prehistoric cultures, may be surmised from the fact that the potters wheel was already in use in Yang Shao time and that the picture of what resembles a wheel is seen upon pots of the Hsin Tien stage. (fig. 5b).

If the spread to the Huang Ho valley of the painted ceramics was accompanied by the introduction of other cultural progress, foremost of which were improved agricultural methods, then it is easy to understand that the population rapidly increased and that there were formed during a comparatively brief space of time numerous permanent settlements in nearly the same places as the villages of today.

This is merely a tentative effort to explain the sudden and rapid spread of the Yang Shao and allied cultures. It will have fully served its purpose, if it helps to stimulate research and discussion on these now obscure but highly fascinating problems.

A NOTE ON THE PHYSICAL CHARACTERS OF THE PREHISTORIC KANSU RACE*

By

DAVIDSON BLACK.

It gives me great pleasure to have this early opportunity of acknowledging to Dr. J. G. Andersson and to the Directors of the Geological Survey, Drs. V. K. Ting and W. H. Wong, my very sincere appreciation of their kindness in placing at my disposal for study and description the splendid collection of human skeletal material recovered by Dr. Andersson during his recent Kansu expedition.

Dr. Andersson has done me the honour to ask for an expression here of my opinion as to the physical characters and identity of the people represented by this material. In complying with his kind request I do so with some hesitation since instead of a considered report it is only possible to present at this time preliminary and tentative remarks on the subject. The cases of specimens were unpacked in my laboratory during the latter part of last December and most of the available time since then has necessarily been devoted to the work of cleaning, numbering, and arranging the specimens. However, in carrying on this work and in the initial phases of the systematic examination of the crania and long bones I have gained certain general impressions as to the physical character and race of the people represented in the collection. The remarks on this subject offered here are in substance essentially the same as those made at the close of Dr. Andersson's lecture on the prehistoric sites of Kansu delivered at the meeting of the Geological Society of China held in Peking on May 15th last and though I believe that their general truth will be substantiated by subsequent detailed work they represent purely tentative opinions.

The collection includes remains representing more than 120 individuals of whom the majority are adults, both sexes being well represented. All skulls and fragile specimens had been reinforced in the field by the pasted paper method and packed with such care that none suffered injury in transit to the

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laboratory. More than thirty skulls are in a good state of preservation and have been examined in some detail. Not a few of the remaining skulls can be fully or to a large extent restored but some are in such a friable and eroded state, apparently due to some more acid condition of the soil in which they lay, that restoration will be impossible.

No skeletal remains from the first or earliest cultural period (Ch'i Chia) were recovered. From the localities at Chu Chia Chai and at Ma Chang Yen the remains of more than fifty individuals from the second or Yang Shao and the third or Ma Chang culture horizon were obtained. In the remainder of the collection individuals from each of the subsequent culture periods recognized (fourth to sixth period) are represented.

In general it may be said of all the groups represented in this collection that the average adult stature appears to have been moderate. Muscular development in both sexes was good and may even be described in many cases among both sexes as marked. Postural facets on the astragalus, tibia, patella and femur together with moderate platymeria and platyknesia occur in a high percentage of cases and not a few typically flat sacra have also been observed. (cf. my report in *Palaeontologia Sinica*, Series D, Vol. I, Fasc. 3, 1925.)

The majority of the adult skulls of the different groups examined present an interesting and suggestive complex of characters which may be summarized under the two following headings:—

(1) *Measurements*:—mesocranial (average cranial index 75-79 with an index range from 69 to 90); hipsicranial (average length-height index 76-81 with an index range from 65 to 82); metrio- to akro-cranial (average breadth-height index 95-101 with an index range from 88 to 106); long face (average upper facial index from 56-60); nose mesorrhine to leptorrhine (average nasal index 43-49); wide interorbital breadth (average interorbital index 24-27 with an index range from 23 to 30).

(2) *Observations*:—a subnasal fossa either slightly or moderately developed is of frequent occurrence; the frontal region is well formed but the glabella and superciliary ridges are usually slightly or at most moderately developed; a persistent metopic suture obtains in more than 15% of the adult skulls recovered from the Chu Chia Chai site (second cultural period) and in 11% of those from Hsin Tien A (fourth cultural period), though among the crania from other sites metopism occurred considerably less frequently; the nasal bones are long

and are usually compressed and depressed for some distance below the nasion; the malar bones are usually prominent and large and the fronto-orbital deviation angles relatively small; in males the external occipital protuberance is usually well developed and frequently hook-like.

Thus in general cranial and skeletal features the majority of the individuals included in this collection exhibit characters which seem to identify them beyond much doubt as belonging to the so-called Mongoloid division of mankind. Further, in contradistinction to other Asiatic Xanthoderms they would appear to resemble most closely the particular type termed by Giuffrida-Ruggeri "typical *Homo Asiaticus*".*

I have already shown in the report on the Sha Kuo T'un and Yang Shao remains (*loc. cit. supra*) that the people there represented appear to conform to a physical type closely similar to that of the modern inhabitants of these regions and which I have termed North Chinese. If this be true it follows that the proto-Chinese Yang Shao and Sha Kuo T'un peoples are in general physical type similar to those of the Kansu prehistoric sites since both broadly conform to the modern type termed North Chinese or *Homo Asiaticus proprius*.

The foregoing conclusions would seem to apply to the majority of the individuals represented in the Kansu collection. There are, however, some which are apparently to be distinguished from the rest by a combination of certain skull characters and it may be that these differ from the majority sufficiently to be considered as a sub-type. Three such individuals have been noted, two from the Chu Chia Chai site (second period) and one from that of Ma Chang Yen (third period).

In the three skulls in question in contrast to the majority of those in the collection the nasal bones are definitely less compressed and depressed in the region of the nasion while at the same time the plane of the orbital entrance is set relatively obliquely to that of the *norma frontalis*, i.e., the fronto-orbital deviation angle is relatively large. When, therefore, these skulls are viewed in normal lateralis the root of the nose is more prominent and a greater part of the medial orbital wall is to be seen than is the case in the majority of the skulls. The effect of the combination of these characters is much less evident when the skulls are viewed in *norma frontalis* in which view the large and

* v. Giuffrida-Ruggeri 1921, The first outlines of a systematic anthropology of Asia. Translated by H. Chakladar, University of Calcutta, Journal of the Department of Letters (Anthropological Papers No. 6) Vol. V., pp. 1-110.

prominent malar bones and general facial proportions are such as to indicate at once a fundamental similarity to the proto-Chinese type. Until the present uncertainty is removed as to the status and relationship of the individuals represented by these skulls I shall refer to them as "Type X".

It is of interest to note that "Type X" skulls have only been observed in the material recovered from the earlier pre-metallic culture periods and are apparently not represented in the later horizons of the collection. Further, the characters by whose moderate development "Type X" skulls have been distinguished are those which have reached their highest development in man among western races. On this account it might be suggested that the occurrence of "Type X" skulls in Kansu was to be explained as due to a mixture of western and proto-Chinese strains. If this be the explanation, however, it is difficult to see why "Type X" skulls are not more abundant in the intermediate and later culture periods than in the earliest period represented. An alternative explanation at once suggests itself, namely, that "Type X" skulls may represent individuals allied to those from whom the proto-Chinese type was derived, since it is reasonable to suppose that the peculiar flat type of face characterizing *Homo Asiaticus proprius* represents a specialization away from a more generalized facies in which the shape of the nasal bones and the contour of the lateral orbital margins were modelled along lines such for example as those characterizing these parts among late palæolithic peoples in Europe. Some light may be shed on this speculation during the further study of this interesting material but the true answer can be looked for only with the recovery of further human skeletal material from central Asiatic sites which antedate the Yang Shao culture period of Kansu.

Some reference should also be made here to the widespread occurrence among the prehistoric peoples of Kansu of the practice of depositing red pigment with the dead. Whether or not the practice of *scarritura*, or removal of the soft parts before pigment deposition, also obtained is uncertain but from every major site in which human skeletal remains were recovered, one or more of the graves contained bones which were colored with a bright red pigment. The deposition of red pigment, usually ochre or peroxide of iron, is a special feature marking many interments both in palæolithic and neolithic times throughout Europe while the practice is also known to have obtained in certain early

historic Chinese burials.* Its occurrence in the prehistoric Kansu sites provides a further interesting link between the burial customs of the west and east. The chemical nature of the red pigment used in the Kansu burials is not yet known.

In recapitulation it may be said that the general impressions gained from a preliminary survey of the human skeletal remains from the prehistoric sites of Kansu are such as to indicate that the inhabitants of this region were probably largely of proto-Chinese type and not as Professor Karlgren† suggests of Turkish race, while among the earliest inhabitants known by their skeletal remains, a few individuals occur belonging to an allied and possibly more archæic type.

Peking, May 27, 1925.

* Mr. C. W. Bishop, field director of the Freer Art Gallery Expedition of the Smithsonian Institution, has recorded the occurrence of a red pigment deposit both about the human skeletal remains and on objects associated with them in his most interesting account of the recovery of the Hsin-Cheng Bronzes. This burial in his opinion probably dated from "the latter part of the Chou Dynasty or roughly between 400 B.C. and 250 B. C." Concerning the pigment deposition Mr. Bishop says in part that there was "both above and below the skull, a dark layer about an inch and a half in thickness, quite distinct against the yellowish soil and rather deeply impregnated on both sides with the same red pigment already noted." For further details see Mr. Bishop's paper, *The Bronzes of Hsin-Cheng Hsien*. The Chinese Social and Political Science Review, Vol. VIII, No. II, April 1924, pp. 1-19.

† vide Professor Karlgren's critical review of Dr. J. G. Andersson's archaeological publications of 1922-1924. *Litteris*, Vol. I, No. 2, December 1924, pp. 142-153.

**EXPLANATION OF
PLATE I.**

(中英文說明見此頁背面)

PLATE I.

All figures reduced to 1/3 of natural size.

Urns belonging to Mr. Hsü Ch'êng Yao, (許承堯) ex-taoyin of Tsinchow, and kindly placed at my disposal for reproduction.

Black = black.

Dotted = red.

Figures 1 & 2 are urns of the Yang Shao stage.

Figure 3 of not quite settled age, Yang Shao or Ma Chang?

第 一 版

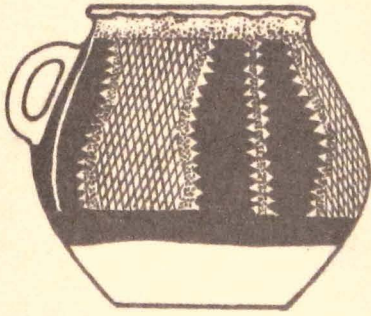
(各圖均按原式縮小三分之二)

遠古陶甕，前渭川(秦州)道尹許承堯君所藏。

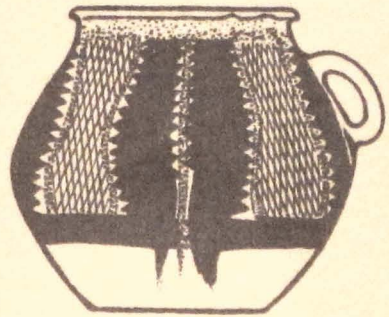
黑處爲原器之黑色，點處爲原器之紅色。

第一圖及第二圖：仰韶時之陶甕。

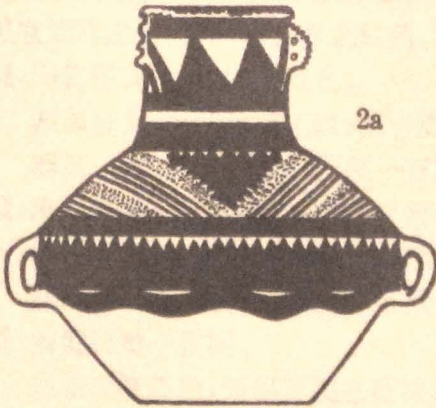
第三圖：時代未定(仰韶或馬廠?)



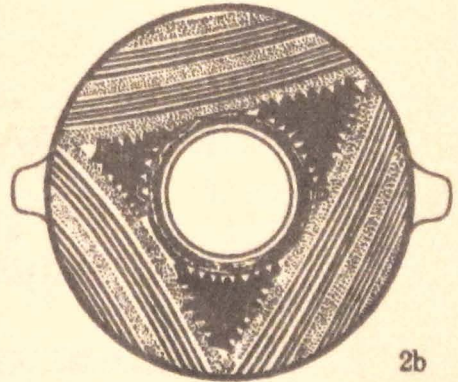
1a



1b

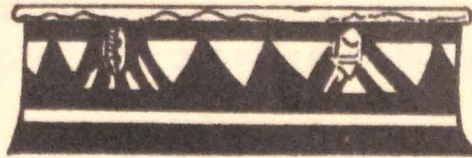


2a

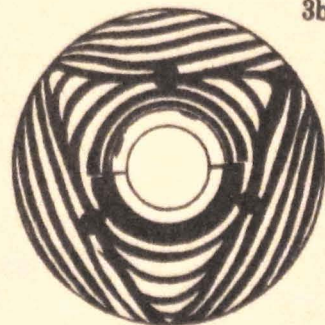


2b

2c



3a



3b

EXPLANATION OF PLATE II.

第 二 版

(各圖均按原式縮小三分之二)

馬廐期之小陶甕。(購買所得,產地不明)

圖中黑處爲器之黑色,點處爲器之紅色。

第一圖:陶質橙黃色,花紋深紫色。

領部裏面,有彩繪之花紋,第一圖所示。

器高一百二十六公厘,腹徑一百四十八公厘,領部口徑,九十九公厘。

第二圖:陶質與第一圖同,花紋亦爲深紫色。

領部裏面,有彩繪之花紋,第二圖所示。

器高一百五十公厘,腹徑一百八十公厘,口徑一百零四公厘。

第三圖:陶質與第一圖同。

彩繪爲紅黑色,領部裏面之花紋,可於第三圖見之。

器高七十九公厘,腹徑八十七公厘,口徑八十三公厘。

第四圖:陶質及花紋,與第三圖所示者同,其領部裏面之花紋,可於第四圖見之,

器高九十七公厘,腹徑一百十九公厘,口徑九十四公厘。

PLATE II.

All figures reduced to $\frac{1}{3}$ of natural size.

Small urns of the Ma Chang stage, obtained by purchase, locality not known.

Black = black.

Dotted = red.

Fig. 1. Ware reddish yellow, painting in a deep purplish black.

Painting inside the collar as shown in fig. 1.



Height 126 mm., width of widest part of body 148 mm., width of mouth 99 mm.

Fig. 2. Ware like fig. 1. Painting in deep purplish black.

Painting inside the collar as in fig. 2.



Height 150 mm., width of widest part of body 180 mm., width of mouth 104 mm.

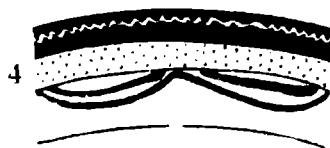
Fig. 3. Ware like fig. 1.

Painting in red and black. Painting inside the collar shown in fig. 3.



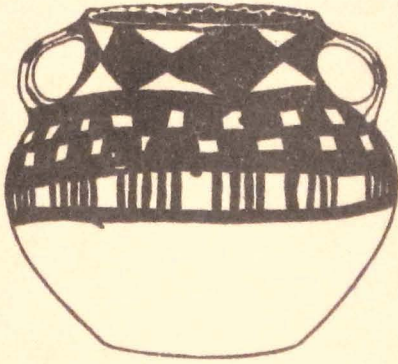
Height 79 mm., width of body 87 mm., width of mouth 83 mm.

Fig. 4. Ware and painting like fig. 3. Painting inside the collar shown in fig. 4.

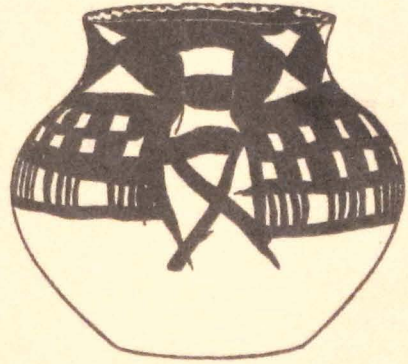


Height 97 mm., width of body 119 mm., width of mouth 94 mm.

(中文說明見此頁背面)



1a



1b



2a

3a



3b



2b

4



**EXPLANATION OF
PLATE III.**

(中英文說明見此頁背面)

PLATE III.

Figures reduced to 1/3 natural size.

Fig. 1. Urn of the Yang Shao period, obtained by purchase, locality unknown. Painting in black and red (dotted). Two lugs at the widest part of the body. Another pair of small lugs on the uppermost part of the collar. These lugs have only a very narrow hole each, which was apparently for the purpose of inserting in these holes a string to fasten a (wooden?) cover.

Height of the vessel 248 mm., width of the body 211 mm., width of mouth 90 mm.

Fig. 2. Urn from the Hsin Tien A burial site (type locality of the Hsin Tien stage). Painting in black upon a grayish yellow, coarse, porous ware. The decoration consists of straight horizontal bands and lines, horizontal wave-lines, straight and wavy vertical lines and a big central figure like that shown in Pl. IV, fig. 2 & 4.

In the openings of the curls of this central figure there are small animal figures, two dogs and two sheep or goats. Above each lug there is a snake-like figure with filamentous appendages.

Round the neck there is a true continuous meander (see page 16-17).

第 三 版

(各圖悉照原式縮小三分之二)

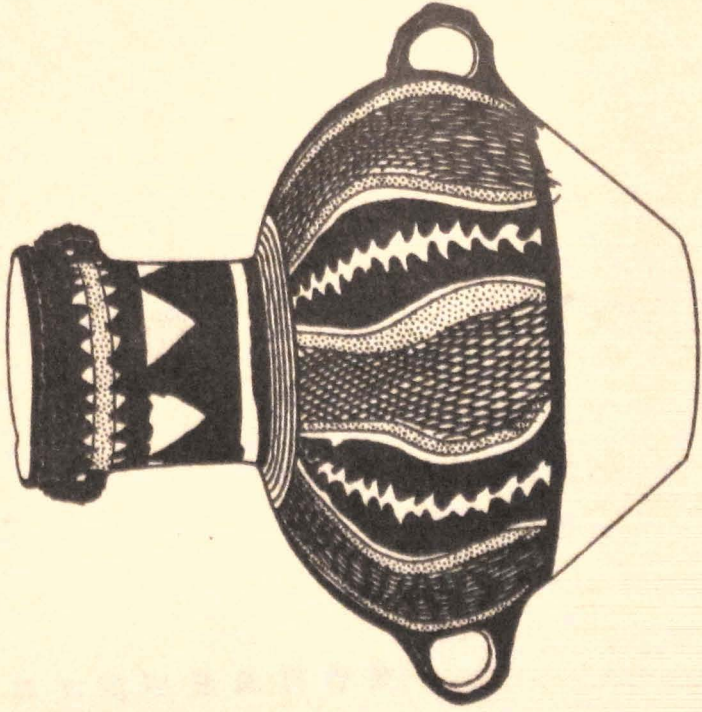
第一圖：仰韶期之陶甕，購買所得，產地不詳，花紋作紅(點處)黑二色，腹部具有二耳，傍口處亦有一對，此等器耳孔均甚小，似為穿繩繫蓋之用。

器高二百四十八公厘，腹徑二百一十一公厘，口徑九十公厘。

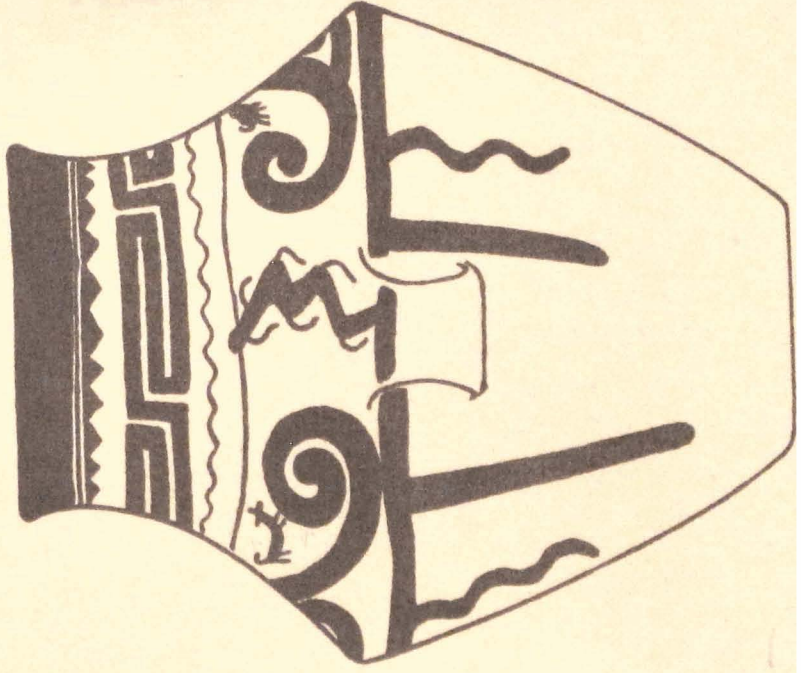
第二圖：辛店甲址(即辛店期之模範址)葬地之陶甕。

彩紋黑色，繪於灰黃色之粗陶地，花式為橫行之條紋，線紋，及波紋，縱行之直線紋，及波線紋等，花紋集中之處，則與附圖第四版第二圖及第四圖相似。此種花紋中空之處，見有犬羊之獸紋各二，各耳之上，有鬚毛蓬蓬之蛇紋，頭部周圍，則有真正之連續回紋(參閱本書第十六頁至第十七頁)

1



2



**EXPLANATION OF
PLATE IV.**

(中英文說明見此頁背面)

PLATE IV.

All figures $\frac{1}{3}$ of natural size.

Urns from the Hsin Tien A burial place.

All these urns (and also III:2) are made of a coarse, porous, grayish yellow ware*. Nearly all these vessels show on the bottom and, in some cases, over the whole vessel traces of a largely obliterated vertical cloth impression. The painting is mostly only in black, applied directly upon the raw and spotted surface of the ware. In one case (IV:2) a much improved effect was obtained by first laying out in red a bottom for certain bands and figures. Upon this bottom the figures were then painted in black lines and cross-lines.

Fig. 1. Height 95 mm., width (body) 150 mm., width (collar) 113 mm.

Fig. 2. Height 184 mm., width (body) 178 mm., width (collar) 105 mm.

Fig. 3. Height 172 mm., width (body) 146 mm., width (collar) 110 mm.

Fig. 4. Height 145 mm., width (body) 140 mm., width (collar) 93 mm.

Fig. 5. Height 156 mm., width (body) 150 mm., width (collar) 99 mm.

* In one case at least (IV:5) the ware is reddish in color, and a gray slip seems to have been applied to cover over the ruggedness of the red ware.

第 四 版

(各圖均按原式縮小三分之二)

辛店甲址葬地之陶甕。

此等陶甕(第三版第二圖亦在內)係粗鬆及灰黃色之陶質所構成*, 器之底部, 或器之表面, 常有縱行布紋之痕跡, 但大半則消失殆盡, 彩紋僅屬黑色, 直施於陶地之上, 如第四版第二圖, 其繪畫之法較佳, 蓋先塗紅色條紋及他圖形之底, 然後再加黑色之線紋及格紋也。

第一圖: 器高九十五公厘, 腹徑一百五十公厘, 口徑一百十三公厘。

第二圖: 器高一百八十四公厘, 腹徑一百七十八公厘, 口徑一百零五公厘。

第三圖: 器高一百七十二公厘, 腹徑一百四十六公厘, 口徑一百十公厘。

第四圖: 器高一百四十五公厘, 腹徑一百四十公厘, 口徑九十三公厘。

第五圖: 器高一百五十六公厘, 腹徑一百五十公厘, 口徑九十九公厘。

* 第四版第五圖之陶質係為紅色, 而其上之灰色彩衣, 似專為掩覆此紅色粗糙之地。



**EXPLANATION OF
PLATE V.**

(中英文說明見此頁背面)

PLATE V.

Figures 1 & 2 natural size. Figure 3, one half natural size.

All objects from the Chi Chia P'ing site in Ning Ting Hsien. (齊家坪寧定縣) (type locality of the Chi Chia stage).

Fig. 1 a. Outside of fragment of vessel with lug and attached parts of collar and body. Uppermost part of collar is decorated in impressed pattern exactly similar to the "Kamm-Keramik". The lug is decorated in horizontal impressed lines and in diagonal X-like rows of impressions. Upon the uppermost part of the body there are oblique lines of "Kamm-Keramik" impressions and further down to both sides of the lower part of the lug elevated ridges.

Fig. 1 b. Inside of the same fragment showing painting, consisting of three hanging triangles in violet red.

Fig. 2. Another fragment with lug and adjoining parts of collar and body. The lug is decorated with horizontal rows of impressions and with a mamma-like elevated dot at the centre. Collar smooth, but the transition zone between collar and body covered with oblique groups of "Kamm-Keramik" impressions.

Fig. 3. Amphora-like urn of whitish-yellow ware, thin-walled (3 mm.) with smooth surface.

Height 118 mm., width of body 85 mm., width of mouth 76 mm.

第五版

(第一圖及第二圖大小等於原式，第三圖則照原式縮小二分之一。)

寧定縣齊家坪遺址所產陶器(即齊家期之模範址。)

第一圖：有耳陶片之表面，及其領與身之碎片，領部最上處，綴以壓花之圖案，酷似康克拉米 (Kamm-keramik)，耳上亦綴壓成之平行綫紋及 X 式之斜交綫紋，器身最上部，下至凸耳之兩側，均有康克拉米式之斜綫紋。

第一圖 b：陶片裏表之彩繪，作紫紅色，為三下垂之三角紋所組成。

第二圖：另一有耳之陶片，及其領與身之碎片。

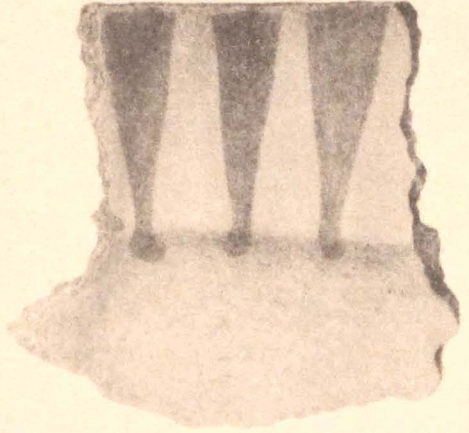
器耳綴有多數壓成之橫綫紋，中心飾以乳狀突起之點，領部平滑無紋，身與領之交界處，滿綴康克拉米式之斜綫紋。

第三圖：安佛拉式陶甕，陶質粉黃色，器肉甚薄(僅三公厘)，有平滑之面，器高一百十八公厘，腹徑八十五公厘，口徑七十六公厘。

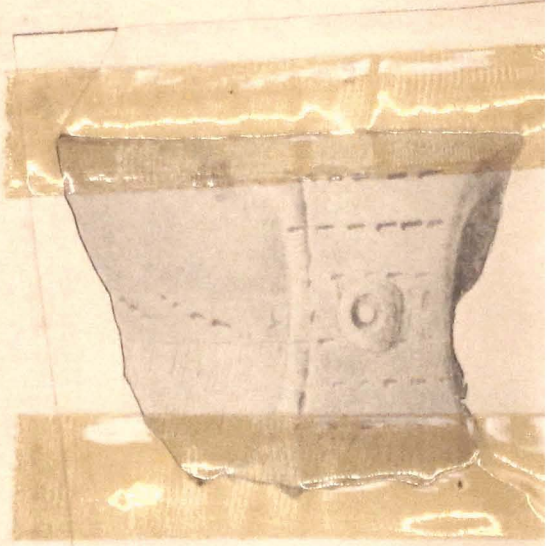
1a



1b



3



EXPLANATION OF PLATE VI.

第 六 版

(各圖均按原式縮小四分之三)

仰詔期陶甕，出寧定縣，第一圖自半山區所得，第二圖自瓦罐嘴所得。

第一圖：器身之最闊處，見有大耳一對，另有具小孔者一對，位於高領之口部，（比較第三版第一圖），領上繪有橫行線紋，居中上部者黑色，其在領之底部者，則為紅色，二者之中更有直立之黑三角紋，器身上半，有連續之螺紋四，其組織與喪紋同（比較本書第二圖及第十三頁至第十四頁說明）即二紅條紋之中夾有一鋸齒之黑色帶紋是也，在螺紋之上捲處，中列多數有紅核之桃式圖形，器身有彩繪之下部，則綴以橫行波紋一道。

器高三百八十六公厘，腹徑三百九十一公厘，口徑一百二十九公厘。

第二圖：此器之形狀與裝飾，大致與第一圖者相同，但口低而寬，彩繪之下部，亦缺少橫行之波紋，器身綴有連續之螺紋四，組織亦與喪紋同，其紅色條紋之寬度，約與有鋸齒之黑紋相等，黑紋直貫入螺旋圖案之中心，領部裏面，繪下垂之連續曲條紋六（亦依喪紋之組織）。

器高二百九十九公厘，腹徑三百六十六公厘，口徑一百六十九公厘。

PLATE VI.

1/4 of natural size.

Urns of Yang Shao stage, both from Ning Ting Hsien. Fig. 1 from the Pan Shan area, fig. 2 from Wa Kuan Tsui.

Fig. 1. With two big lugs just below the widest part of the body and two small lugs with very small perforations at the upper edge of the high collar (compare III:1).

Collar painted in horizontal lines, the uppermost and the middle ones black, the one at the base red. Between these lines standing black triangles.

Upper half of body painted in four confluent groups of spiral designs, the elements of which are the "death pattern" (compare fig. 2 and explanation page 13-14), narrow red bands and between them broad black bands with serrations. In the upper curls of these spirals there are groups of pointed, oval shaped "peach" like figures with a red "kernel".

At the bottom of the upper painted part of the vessel runs a horizontal wave-line.

Height 386 mm., width of body 391 mm., width of mouth 129 mm.

Fig. 2. Shape of vessel and decoration much the same as fig. 1, but mouth low and wide and painting lacking the wave-line at the bottom.

Painting in four confluent groups of spirals drawn in the "death-pattern" element. The red bands (lighter on the figure) nearly as broad as the black serrated bands. Black crosses in the centres of the spiral designs.

The inside of the low collar is painted in six confluent, downwards bent bands of the "death pattern".

Height 299 mm., width of body 366 mm., width of mouth 169 mm.



EXPLANATION OF PLATE VII.

第七版

(各圖均爲原式四分之一)

仰韶期陶甕，第一圖出寧定縣瓦罐嘴，第二圖購買所得產地不詳。

第一圖：高領陶器領部之碎片，領之底部，繪有紅色條紋，其上爲直立之黑三角紋，其下爲黑色有齒之寬條紋，合觀之適與喪紋相符，此黑紋之下，更有三黑色同心之狹線紋，自此條紋，下至兩耳，有彎拱之曲線四組，每組復爲四黑線所疊成，而黑線之中，則另綴黑色寬條之紋（圖中淺色處），與兩耳相齊，則爲二橫行之直線，中飾波綫紋二道，均用黑色；腹徑爲三百四十二公厘。

第二圖：短領陶器，形式與第六版第二圖相同。

領部表面繪有黑色之波線紋，領底之下爲紅色線紋及黑色齒線紋所組成之喪紋，喪紋與器耳之間，則有依喪紋組織之方形圖八個，中實黑底圓形之陰紋四，與耳相齊爲一橫行線紋及一波行線紋，領部裏面，繪有連續之下垂曲條紋六組，結構與喪紋同，每二組之間，隔以一縱行紅色之直綫，下達領底。

器高三百二十五公厘，腹徑三百四十八公厘，口徑一百六十八公厘。

PLATE VII.

1/4 of natural size.

Urns of Yang Shao stage. Fig. I from Ning 'Ting Hsien, Wa Kuan 'Tsu (寧定縣瓦罐嘴).

Fig. 2 obtained by purchase, locality unknown.

Fig. 1. High-collared vessel with only small part of the collar preserved. Red band at the base of the collar and, above this, standing black triangles. Below the red band is a broad black one, which, with its serrations together with the red band, forms the "death-pattern" element. Below the said black band three narrow black concentric lines.

From these concentric lines downwards to the lugs four confluent groups of arched lines consisting of repeated four narrow black lines (repeated in four groups) and between them broad black bands (lighter on the picture).

In level with the lugs is a zone consisting of two horizontal lines and between them two undulating lines, all black.

Width of the body 342 mm.

Fig. 2. Low-collared vessel of the same shape as VI:2.

Outside the collar is painted a black undulating line.

Below the base of the collar is a red and a black serrated line forming the "death pattern".

From these two lines downwards to the level of the lugs the space is occupied by eight groups of square figures framed in by the "death pattern" with central black painting which leaves bare four rounded dots.

In the level of the lugs a straight horizontal line and below it a wave-line.

Inside of collar painted in five confluent groups of downwards bent "death pattern" bands. Between each of these bands a vertical red line projects downwards to the base of the collar.

Height 325 mm, width of body 348 mm, width of mouth 168 mm.



EXPLANATION OF PLATE VIII.

第 八 版

(各圖均爲原式四分之一)

仰韶期陶甕，購自狄道，產地不詳，想係半山區所出。

第一圖：陶甕之正面及側面。

第二圖：大口陶甕，形式與第六版第二圖及第七版第二圖同。

第一圖示領部裏面彩繪之情形，其圖案與第七版第二圖同，但大部消失而不明晰，領之外表有雙綫之格紋五組，領底部，接有同心喪紋，上爲暗紅條紋，下爲鋸齒狀之黑色條紋；同心喪紋與二耳之間，綴有瓶狀之圖形六組，亦依喪紋之結構（黑色有齒之紋在外，紅色條紋居內），瓶狀圖形之中，則實方格花紋，凡瓶與瓶之間又飾以黑底之橢圓陰紋三箇；吾人於此藉可想見仰韶時代之繪師，隨手繪畫，初不待陶器之周圍，分爲相等之六部，而與六瓶紋及其中空之部位相對應，瓶紋爲圖案之主要部分，故其大小，必當一致，但當第四瓶紋完全之際，該繪師始查及所餘地位不敷，因將中間之區域縮小，故最後者其中僅含一細長之橢圓紋也，器上有彩紋之部分，下爲一直綫及波綫所包圍，恰與第六版第一圖及第七版第二圖相似。器高三百四十五公厘，腹徑三百九十八公厘，口徑一百七十二公厘。

PLATE VIII.

1/4 of natural size.

Urn of the Yang Shao stage, bought in Titao, locality unknown, probably from the Pan Shan area.

Fig. 1. view from above of the same urn as that shown in side-view *Fig. 2.*

Wide-mouthed urn of the same shape as VI:2 and VII:2.

Fig. 1 shows how the inside of the collar is painted in five groups in the same design as VII:2, but in this case the painting is largely destroyed and obscure.

Outside the collar there are five groups of double cross-lines.

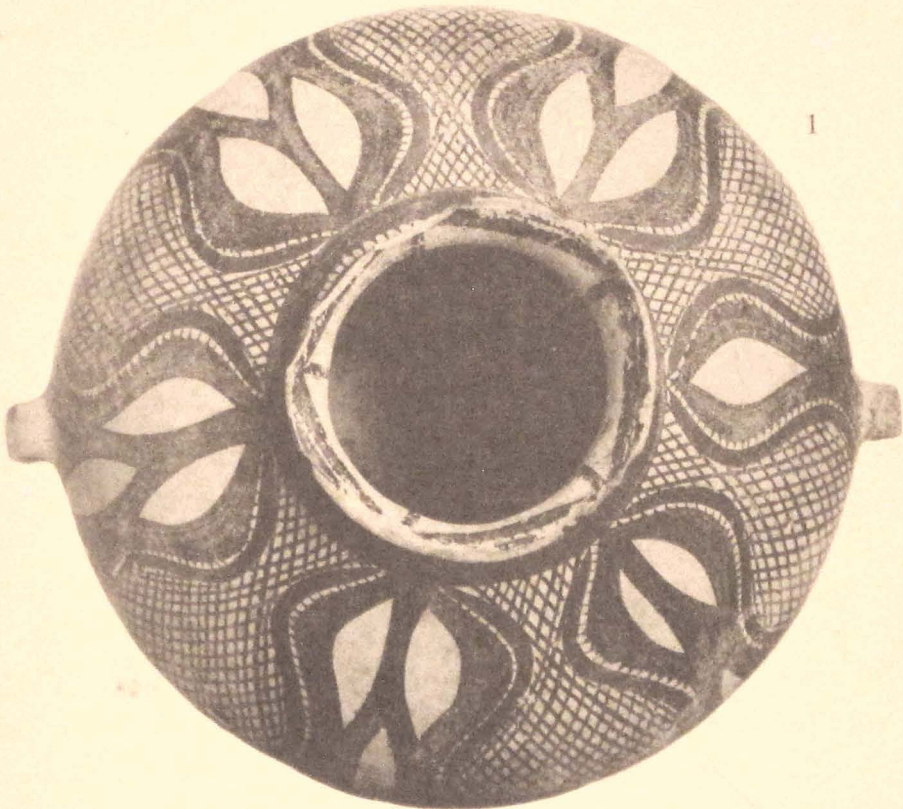
Below the base of the collar there is a concentric "death pattern", consisting of an upper dark-red band and a lower serrated black band.

From this concentric "death pattern" downwards to the level of the lugs there are six groups of flask-like figures, framed by the "death pattern" (black serrated band outwards, red band inwards). The interior of the "flasks" is filled with trellis pattern. Between the "flasks" are paintings in black leaving bare three large pointed ovals.

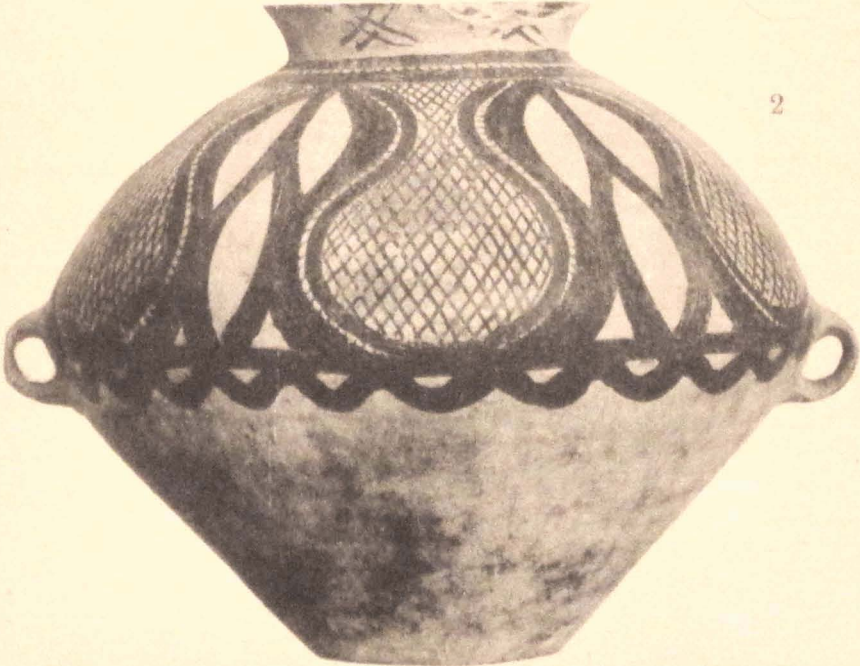
It is interesting to see how the artist of the Yang Shao time worked entirely by free hand without first dividing the circumference of the vessel into six equal parts to correspond to the six "flasks" and their interspaces. The "flasks", being the essential part of the design, are all of the same width, but when the fourth group was made, the artist noticed that there was too little space left, and so he narrowed down the interspaces so that the last one shows only one of the pointed ovals.

The painted area is bounded below by a straight and an undulating line just as VI:1 and VII:2.

Height 345 mm, width of body 398 mm, width of mouth 172 mm.



1



2

EXPLANATION OF PLATE IX.

第九版

(第一圖爲原式四分之一，第二圖及三圖爲原式三分之一)

第一圖：仰詔期陶器，出礪伯縣彌勒溝黑土莊。

第二圖：馬廠期陶甕，購買所得產地不詳。

第三圖：此甕時代未定，但似與仰詔期相近，購買所得，產地不詳。

第一圖：短領外部，繪有黑色之橫行綫紋，其下稍遠，另有黑色條紋一，二者之間，實以短斜之線，再下則分列棋盤圖案四組，此四組圖案，其隔離之情形，各各不同，兩耳之下，更有縱行之綫紋四，其兩旁與紅黑色之直條紋爲鄰，後者與棋盤紋之間，則以齒紋相連，(此則圖中所不能察見)，兩耳間之正中，另有簡單之花紋，圖中完全顯露，此花紋爲紅黑色之縱行條紋所構成。其兩側則含接於棋盤圖案下垂之齒紋，此器有紋部分，下爲一黑色橫線所包圍。

器高一百五十八公厘，腹徑二百三十六公厘，口徑一百四十八公厘。

第二圖：此器彩紋，爲紅黑色，圖案較爲粗率，參以其他同式之器，似爲一種流爲風上之人形花紋，其在底部之橫行綫紋及波形綫紋，使吾人回憶仰詔陶甕之彩繪(第六版第一圖，第七版第二圖，第八版第二圖)。

器高三百二十六公厘，腹徑二百四十六公厘，口徑一百零七公厘。

第三圖：彩紋爲暗紅色，其圖案之各部，圖中皆可察及，自底部所綴之螺旋紋及波紋，使吾人回憶仰詔之圖案。

器高二百四十三公厘，腹徑二百二十四公厘，口徑九十七公厘。

PLATE IX.

Fig. 1. 1/4 of natural size. Figures 2. & 3. 1/3 of natural size.

Fig. 1. Vessel of the Yang Shao stage from Nien Po Hsien, Mi La Kou, Hei T'u Chuang (碾伯縣彌勒溝黑土莊).

Fig. 2. Urn of the Ma Chang stage, obtained by purchase, locality unknown.

Fig. 3. Urn of unsettled age, probably nearly allied to the Yang Shao stage, obtained by purchase, locality unknown.

Fig. 1. The outside of the very low collar is painted in a black horizontal line from which oblique short black lines extend to another broad, black horizontal band, below which there are four fields of chess-board pattern.

These four chess-board fields are separated from one another in two different ways. Below the two lugs there are four vertical lines bordered on each side by a reddish black vertical band, connected with the broad black chess-board frame by means of serrations from the latter. (All this pattern is invisible in the figure). Halfway between the lugs there is another simpler pattern fully shown on the figure. This is a vertical, broad, reddish-black band, from both sides receiving serrations of the broad black frame of the chess-boards.

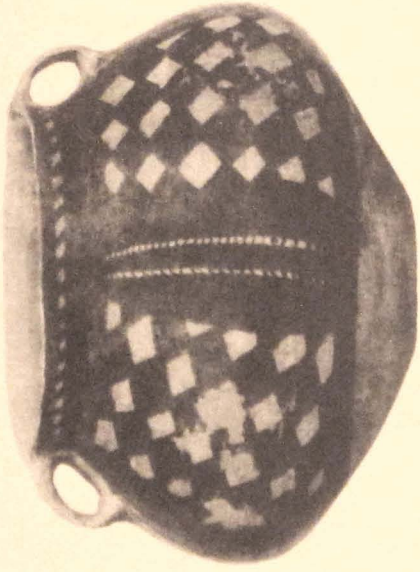
The painted area is bounded below by a horizontal black line.

Height 168 mm, width of body 236 mm, width of mouth 148 mm.

Fig. 2. This vessel is painted in a reddish black color, in a coarse design, which, to judge from other specimens, might be of very strongly conventionalized anthropomorphous origin. The horizontal line and wave-line at the bottom remind us of the painting of certain Yang Shao urns (VI:1, VII:2, VIII:2)

Height 326 mm., width of body 246 mm, width of mouth 107 mm.

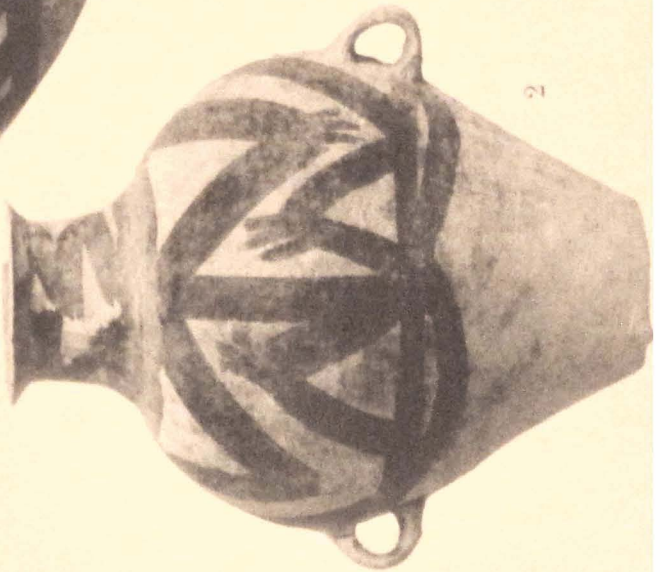
Fig. 3. is painted in a dark reddish color. The design, which is in every detail visible on the figure, reminds us of the Yang Shao patterns because of the spirals and the wave-lines at the bottom. Height 243 mm, width of body 224 mm, width of mouth 97 mm.



1



3



2

**EXPLANATION OF
PLATE X.**

(中英文說明見此頁背面)

PLATE X.

Fig. 1. 1/4 of natural size. Fig. 2 & 3. 1/2 of nat. size.

All these pots are from Ti Tao Hsien, Ssu Wa Shan (狄道縣寺窪山), type locality of the Ssu Wa stage. Fig. 1 is derived from our own excavation Skel. 7, pot 2. Fig. 2 & 3 were obtained by purchase from the villagers.

Fig. 1. Ware reddish, rather coarse. Surface smooth. The mouth is saddle-shaped as seen from the side and oval as seen from above, as is also the body of the vessel.

Height 367 mm., width of the body, long diameter 300 mm., short diameter 281 mm., width of mouth, long diameter 242 mm., short diameter 215 mm.

Fig. 2. Small pot of the same general shape as fig. 1 but with indented ridges, vertical upon the lugs and horizontal between the lugs. Ware reddish gray, surface rough.

Height 148 mm., width of body, long diameter 128 mm., short diameter 121 mm.; width of mouth, long diameter 100 mm., short diameter 90 mm.

Fig. 3. Li-tripod of a special species with bulbous legs, characteristic of the Su Wa stage. Ware coarse, brick-red. Surface rough. An indented ridge between the two legs upon which are fixed the two lugs.

Height 114 mm.

第十版

(第一圖爲原式四分之一，第二圖及第三圖則爲原式二分之一。)

此等陶器，均自狄道縣寺窪山所得(即寺窪期之模範址)，第一圖爲吾人親身採掘，第二圖及第三圖則自村人購買。

第一圖：陶質紅色，略粗，表面光滑，口部側面作馬鞍形，自上視之，則爲卵形，其體亦如後式。

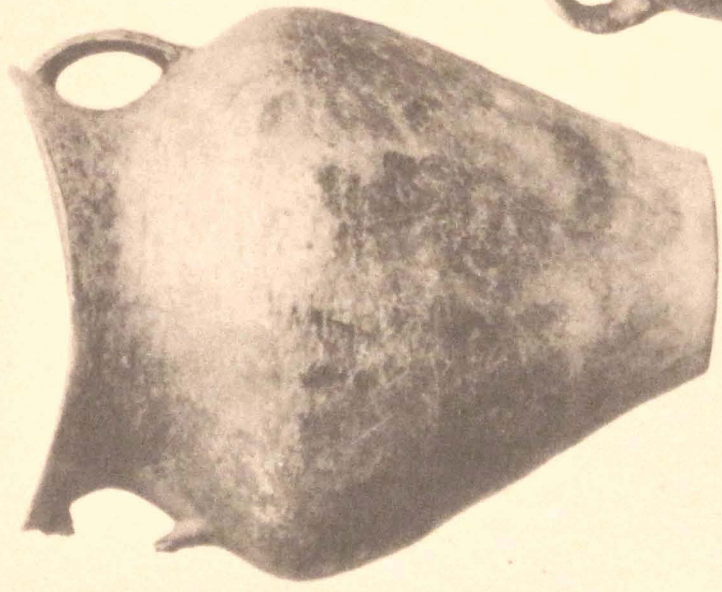
器高三百六十七公厘，腹部長徑三百零二公厘，短徑二百八十一公厘，口部長徑二百四十二公厘，短徑二百十五公厘。

第二圖：器形與第一圖相同，但不如上圖之大，且耳上有犬牙狀之直凸紋，耳間有犬牙狀之橫凸紋，陶質灰色，表面粗糙。

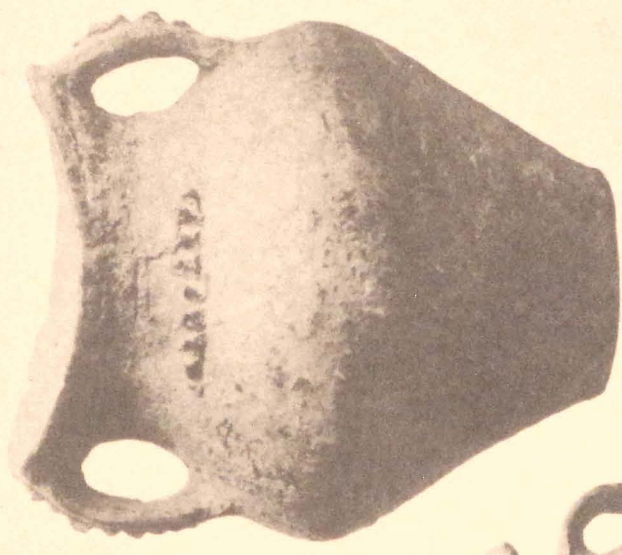
器高一百四十八公厘，腹部長徑一百二十八公厘，短徑一百二十一公厘，口部長徑一百公厘，短徑九十公厘。

第三圖：寺窪期特式之大足鬲，陶質磚紅色，但略粗，表面不平，兩足間有犬牙狀之凸紋，上接兩耳。

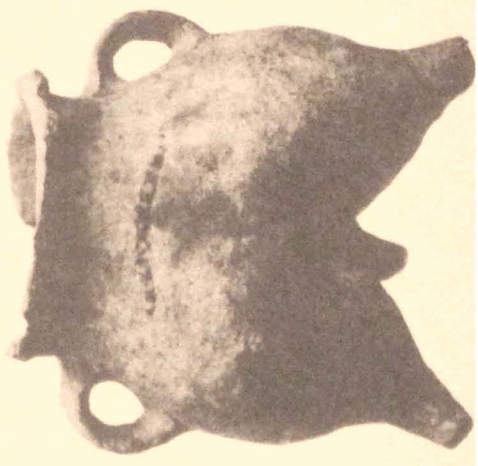
器高一百十四公厘。



1



2



3

EXPLANATION OF PLATE XI.

第十一版

(第二圖爲原式，第一圖縮小二分之一，第三圖至第六圖縮小三分之二。)

本版器物，均出鎮番縣沙井之南葬地，陶質紅色，略粗，第六圖所示則富於黃色之雲母質，陶器如第三及第五圖所示者其上一部塗有紅彩，他如第一圖及第二圖之陶器，則綴以紅色美麗之花紋，但施有黑色彩紋者，終無所見。

第一圖：陶質之一部，其上半繁複之圖案，頗爲美觀，係橫行線紋，或垂或立之三角紋，成列之角紋鳥狀形帶紋等所組成。

第二圖：繪有同心圈紋，縱行線紋及鳥形帶紋之陶片。

第三圖：大耳之瓶狀陶器，器之下部，及耳之外部，均塗有紫紅色之彩衣一層。
器高一百十五公厘，腹徑九十公厘，口徑七十六公厘。

第四圖：筒狀陶器，上有器耳下部之跡，腹徑爲一百零六公厘。

第五圖：有二高耳之陶器，兩耳間之稍底處即器身之最闊處，見有突出之小凸紋二箇，器耳底部，綴一連續而不規則之闊溝紋，器身上部平滑，但施有紅色之彩衣，器身下部，則清晰之布紋，特爲顯著。

器高一百六十二公厘，腹徑一百三十九公厘，口徑一百二十五公厘。

第六圖：破碎不堪之陶器，其上有耳，耳上穿有細孔，僅容一線，器身上部，塗有紅色之彩衣，下部則有布紋。

PLATE XI.

Fig. 2. Natural size. Fig. 1. 1/2 of nat. size. Figures 3-6. 1/3 of natural size.

All these objects came from Chen Fan Hsien, Sha Ching, South burial place. They are made of a reddish, coarse ware which in one case at least (fig. 6) is rich in yellow mica. Some of the vessels, like fig. 3 & 5 are partly covered with a red slip. Others (fig. 1 & 2) are painted with red in beautiful designs. No black painting was ever encountered on these vessels.

Fig. 1. Part of a vessel, the upper portion of which is painted in a complicated and beautiful design, consisting of horizontal lines, standing and hanging triangles, a row of angular figures, and another row of bird-figures.

Fig. 2. Pot-shoulder painted in concentric and vertical lines and a row of bird-figures.

Fig. 3. Jug with large and broad handle. The lower part of the vessel and the whole outside of the handle covered with a violet red slip.

Height 115 mm., width of body 90 mm., width of mouth 76 mm.

Fig. 4. Cylindrical vessel with trace of the lower part of a lug. Upper part unknown. Width 106 mm.

Fig. 5. Vessel with two high-seated lugs and between them, but somewhat lower, on the widest part of the body, two small protuberances. At the base of the lugs there runs round the vessel an irregular broad furrow. Upper part of vessel smooth, covered with red slip.

Lower part shows very distinct cloth impressions.

Height 162 mm., width of the body 139 mm., width of the mouth 125 mm.

Fig. 6. Very fragmentary vessel with lugs with very small perforations fit only for a string. Indication of red slip on the upper part, cloth-impression on the lower part.

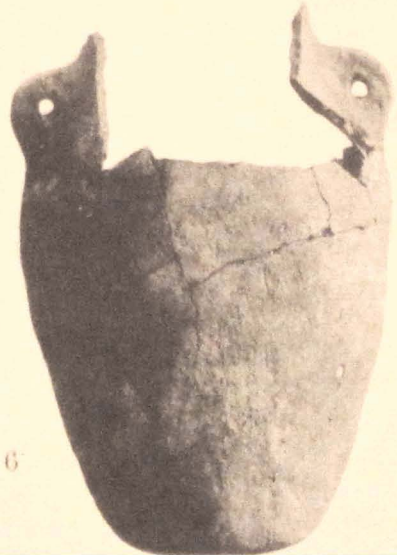
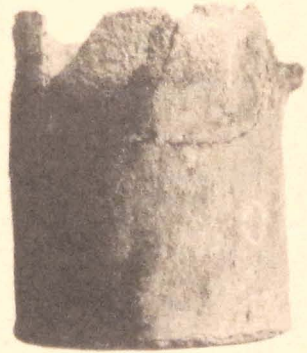
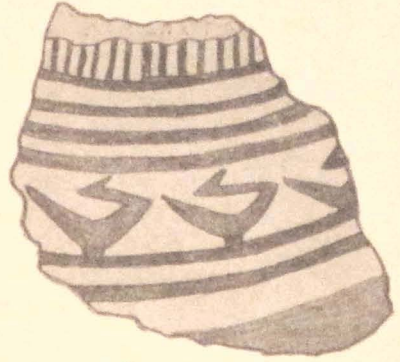
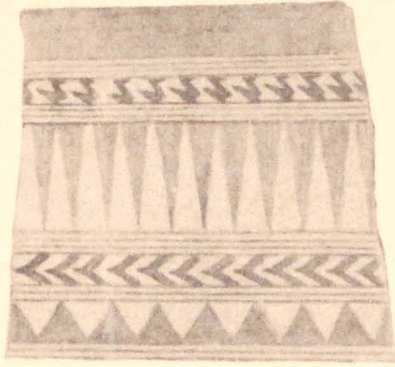
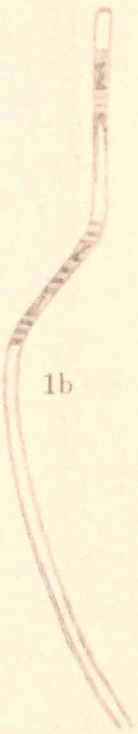


Fig. 1. Section through the Hui Tsui Site, T'ao Sha Hsien. Scale 1: 5,000
 第一圖 洮沙縣灰嘴遺址剖面 縮尺五千分之一

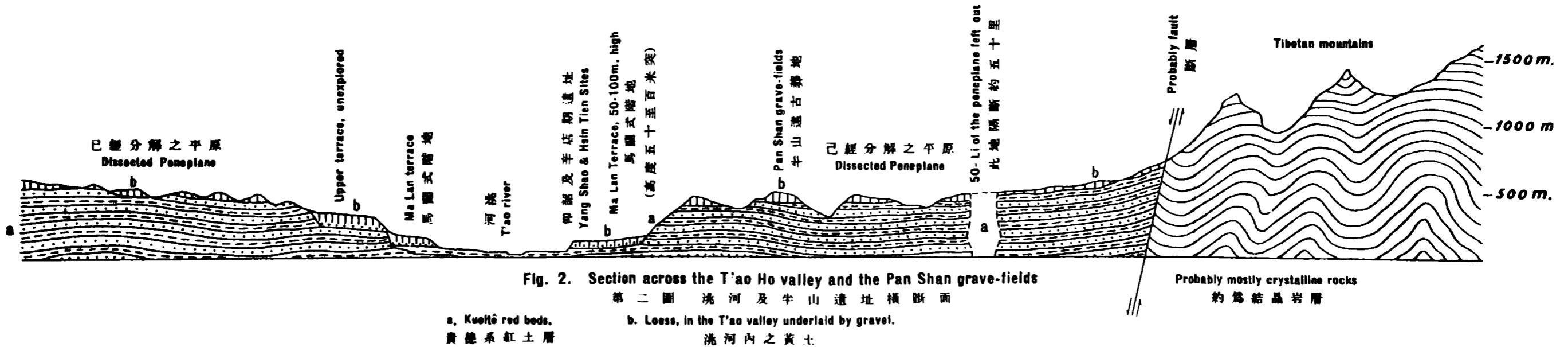
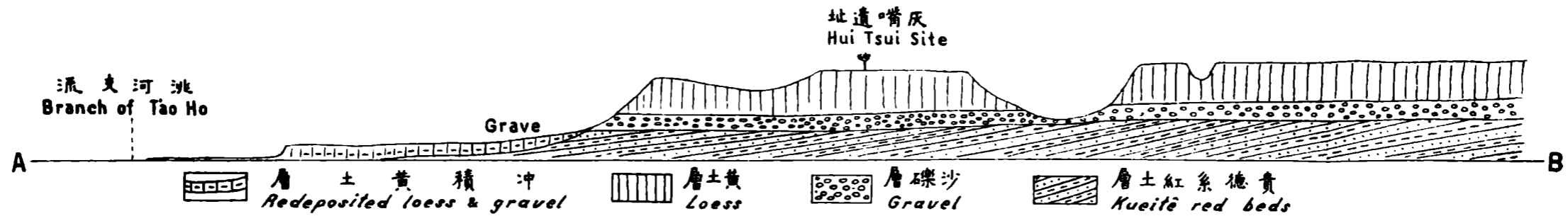


Fig. 2. Section across the T'ao Ho valley and the Pan Shan grave-fields
 第二圖 洮河及牛山遺址橫斷面

a. Kueitê red beds. 貴德系紅土層
 b. Loess, in the T'ao valley underlain by gravel. 洮河內之黃土



Fig. 3. Section across the Huang Ho at the ferry place Shang Pai Wan, 3 li above the village Ho Pao K'ou, Ching Yüan Hsien.

第三圖 靖遠縣河保口村上三里上擺灣渡口黃河橫斷面

c. Loess 黃土
 b. Conglomerate & gravel, few m. thick 薄層礫岩及礫石
 a. Red sandstone, nearly horizontal 紅砂岩

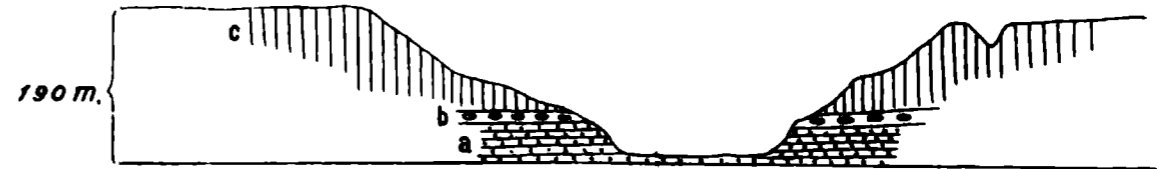


Fig. 4. Section across the Ching Ho. 15 li below Pin Chou.

第四圖 邠州下十五里涇河橫斷面

c. Loess 黃土
 b. Conglomerate & gravel 礫岩及礫石
 a. Young Paleozoic, probably Gigantopteris-Series 古生界後之大羽羊齒類系岩層

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