PRELIMINARY NOTICE OF THE DISCOVERY OF AN ADULT *SINANTHROPUS* SKULL AT CHOU KOU TIEN[1]

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On the second of December 1929 Mr. W. C. Pei of the staff of the Cenozoic Laboratory of the Geological Survey of China, while excavating a sheltered recess of the main deposit (Locality 1) at Chou Kou Tien, discovered the greater part of a uncrushed adult skull of *Sinanthropus pekinensis*. Mr. Pei at once recognized the importance of the specimen and personally carried out the difficult work of removal and subsequent field preparation of the block of matrix in which it lay. It is entirely due to his skill and devotion that this bulky material with its unique and fragile contents reached the Cenozoic Laboratory without the loss of a single fragment.

Mr. Pei has been in charge of the Geological Survey's field excavations at Chou Kou Tien during the past season. He was also associated with Drs. Bohlin and C.C. Young in the work of excavation carried on at that site during the season of 1928 which resulted in the recovery of the major parts of two lower jaws and numerous teeth and skull fragments referable to the genus *Sinanthropus*.[2] Within the main cave deposit at Chou Kou Tien up to the present time *Sinanthropus* remains have been recove ed from five different loci, three of which, including the last major skull find, have been discovered by Mr. Pei during the last season's work. Contrary to any reports which have been circulated, no skeletal parts other than the skull and numerous isolated teeth have been recovered during this year's excavations.

It should be noted that the different *Sinanthropus* loci discovered within the main Chou Kou Tien deposit are all clearly contemporaneous with one another, being Lower Quaternary (Polycene) in age. This latter statement is based on the evidence collected in a preliminary report on the geology and palaeontology of the site by Pere Teilhard de Chardin and Dr. C.C. Young

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2. v. Bull. Geol. Soc. China, Vol. 8, No. 1, April 1929, pp. 15-32.

the occipital artery being also well marked. The crista supra-mastoidea is well developed and it is prolonged upward and backward above the linea nuchae, being separated from the latter by an appreciable interval. In this respect the relations here evidently differ significantly from those obtaining in this region in *Pithecanthropus*.

The glenoid fossae are well preserved on both sides and in undisturbed mutual relationship. They are quite deep and the post-glenoid processes are markedly developed. A hard crust of calcareous deposit which has not yet been removed obscures the further details of this region.

TABLE I[1]

(*Linear measurements in millimeters*)

	Sex	Glabella-Occipital Length	Maximum Breadth	Cranial Index	Lambda-Inion Arc	Lambda-Bregma Arc	Bregma-Nasion Arc
La Chapelle	♂	207.7	156.2	75.2	74.0	118.5	120.5
Neanderthal	♂	199.2	146.7	73.6	57.2	109.0?	133.0?
Spy I	♂	200.6	144.3?	71.9?	58.5?	126.0?	110.0?
Spy II	♀	200.0?	153.2	76.6?	55.0	115.0	—
Gibraltar	♀	192.5	ca. 149	ca. 77.5	60.0	—	—
La Quina	♀	204.2	138.3?	67.7?	66.3	106.9?	116.3
La Quina child	?	171.4	131.8	76.9	—	99.2?	107.5?
Le Moustier	?	195.9	150.1	76.6	63.0	121.8	120.2
Galilee	?	—	—	—	—	—	125.0
Pithecanthropus	?	184	131	71.2	45	90	100
Sinanthropus	♀	190??	145??	76.3??	51?	104?	110?

1. Measurements of Neanderthal specimens are quoted from G. M. Morant, Studies of palaeolithic man. Ann. Eugenics, Vol. II, October 1927, pp. 318-381; measurements of *Pithecanthropus* quoted from E. Dubois, On the principal characters of the cranium and brain, the mandible and the teeth of *Pithecanthropus erectus*. Proc. Konink. Akad. van Wetenschap. Amsterdam, Vol. 27, Nos. 3 and 4, 1924, pp. 1-14.

Though it is not yet possible to give any measurements that may be considered as final, yet some idea of certain dimensons of the specimen may be had by the comparisons instituted in the above table. It is to be understood that the few measurements given here for *Sinanthropus* are but reasonable approximations which will be subject to corrections when the skull is completely prepared.

From the foregoing it becomes evident that in the characters summarized a wide difference exists between *Sinanthropus* and *Pithecanthropus*, a difference which I believe will be increased as more characters are made available for study. It is clearly evident even at this stage of the work that of these two hominids *Sinanthropns* represents the much more generalized and progressive type.

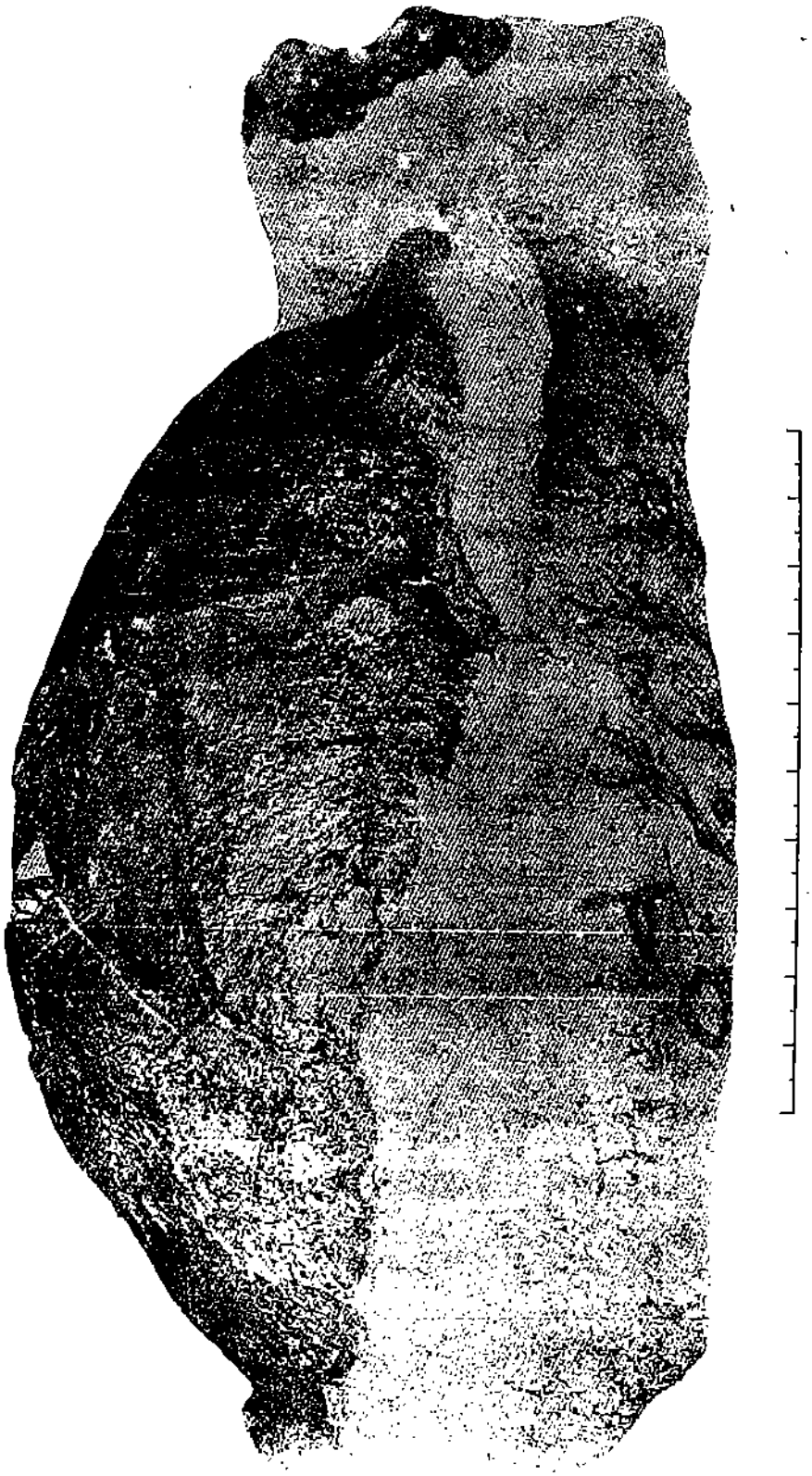
On the other hand, in so far as a comparison here has been possible, *Sinanthropus* might well be regarded as pre-Neanderthaloid in type. Its dental characters certainly would seem to indicate that *Sinanthropus* could not have been far removed from the type of hominid from which evolved both the extinct Neanderthaler and the modern *Homo sapiens*. It remains yet to be seen whether or not the evidence to be gathered from a detailed study of this early hominid skull will modify or strengthen this view.

Explanation of

Plate I

PLATE I.

View of the right side of the skull vault of *Sinanthropus* as exposed on partial removal of its field wrappings. The high lights are due to the heavy coating of shellac. Natural Size.



Explanation of

Plate II

PLATE II

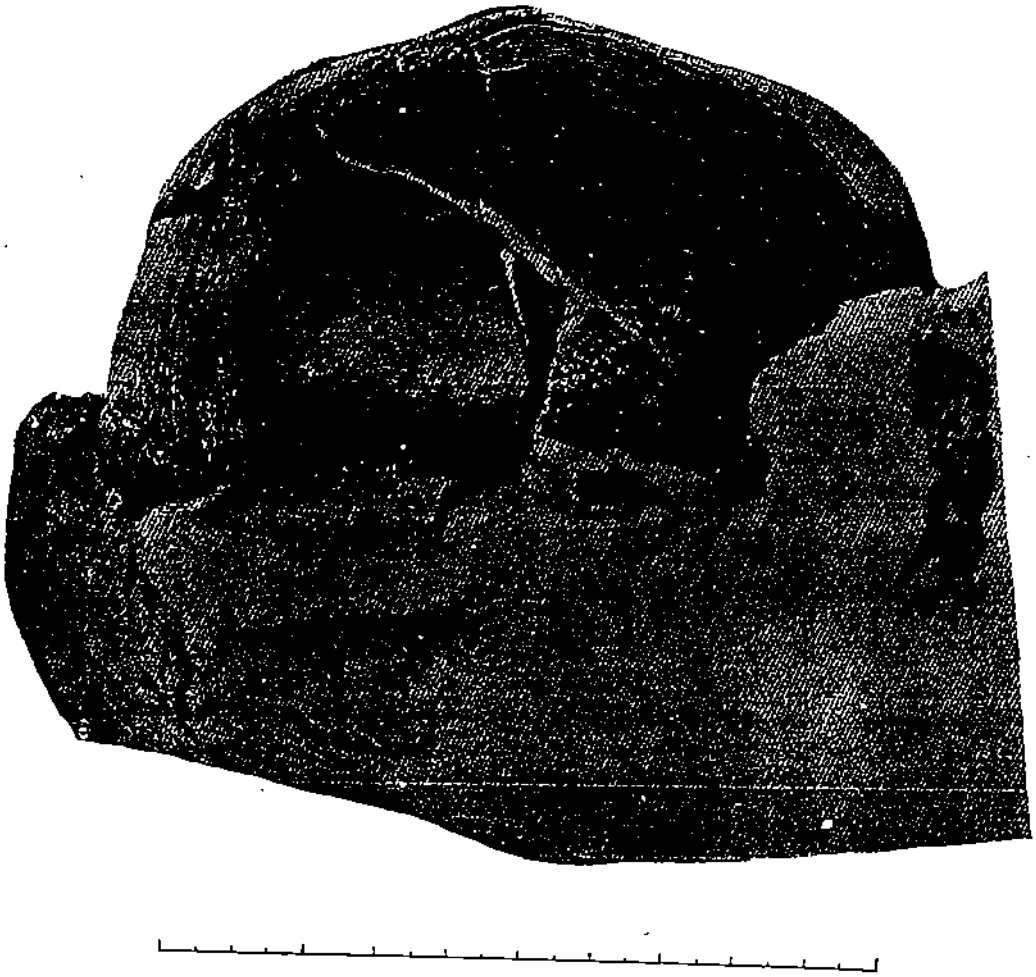
View from above of the skull vault of *Sinanthropus* as exposed on partial removal of its field wrappings. The high lights are due to the heavy coating of shellac. Natural size

Explanation of

Plate III

PLATE III

View from in front of the skull vault of *Sinanthropus* as exposed on partial removal of its field wrappings. The high lights are due to the heavy coating of shellac. Natural size.



Explanation of

Plate IV

PLATE IV

View of the skull base of *Sinanthropus* as it first appeared after the removal of its field wrappings and of all the unconsolidated part of its surrounding matrix. Natural size.

Explanation of

Plate V

PLATE V

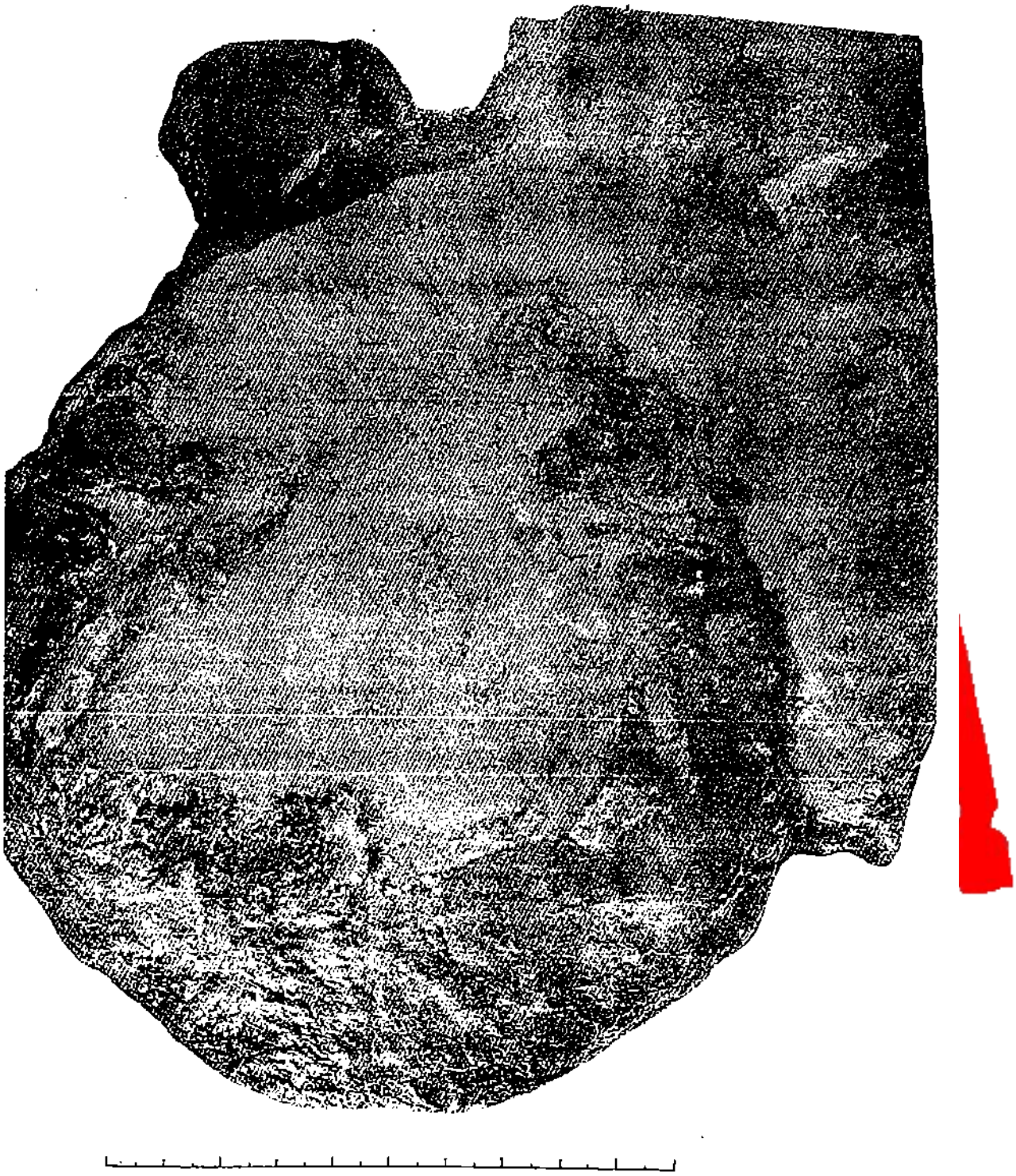
View of the skull base of *Sinanthropus* after the travertine obscuring the occipital area had been removed. Natural size.

Explanation of

Plate VI

PLATE VI

View of the skull base of *Sinanthropus* showing a further stage in the removal of the travertine. Natural Size.



Explanation of Plate VII

PLATE VII

View of the skull base of *Sinanthropus* showing a further stage in the removal of the travertine. Natural size.

Explanation of Plate VIII

PLATE VIII

View of the skull base of *Sinanthropus* showing the stage of preparation reached at the time the present paper went to press. Much of the roof and the medial wall of the left orbit as far back as the optic foramen have been exposed. The irregular whitish area between the orbit and left temporal bone represents the cut surface of an angular fragment of limestone included within the travertine. Natural size.

Explanation of

Plate IX

PLATE IX

View of the right side of the skull base of *Sinanthropus* as it is exposed above the supporting plaster at the time the present paper went to press. The supraorbital torus, postglenoid process, small massive mastoid, occipital torus and upward trend of the crista supramastoidea in relation to the latter as described above are evident in this view. Natural size.