# A STUDY OF SOME HUMAN SKULL SUTURES

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In invertebrate palaeontology there are two different groups of investigators of the ammonite sutures. While one school looking for the specific or generic determinations stressing mainly the study of sutures, the other school considers the importance of sutures as secondary as they do not disregard many other external physical characters. The study of sutures plays a very important part in ammonitology but as ammonites are extinct it is not possible to test the value of sutures by its application on fossil as well as recent descendants to verify how far this criterion could be used. As a parallel case for study I examined some available fossil and recent human skulls. The study of suture closure made for some human races by anthropologists, has already proved the consistency of human skull sutures, where the age of a person at death could be determined with some approximation. But I do not know, if any approach has been made to application of human skull sutures for the study of systematics in men.

Out of the skulls available in the Indian Museum, Calcutta, as the basis of my present investigation, I concentrated on the sagittal suture as this suture being situated on the mid skull vault, joins the two symmetrical sutures, e.g. the Coronal at one end and the Lambdoid at the other, at their mid points. So far the figured fossil skulls are concerned I took the type figures of the Sinanthropus skull and the Rhodesian skull, as both of them show the sagittal sutures preserved and moreover as they do not belong to the same species, their sutures should be different, if they bear any taxonomic significance.

The figure 1 gives a comparative view of the two types of sagittal sutures which have been sub-divided into different anatomical parts, e.g. pars bregmatica (b), verticis (v), obelica (o), and lambdica (l). The table below gives the respective lengths of the above mentioned parts for the two specimens.

| Sinanthropus skull | | Rhodesian skull | |
|---|---|---|---|
| b ... | 1.8 cm | ... | 1.6 cm |
| v ... | 3.3 cm | ... | 4.3 cm |
| o ... | 1.5 cm | ... | 1.8 cm |
| l ... | 1.7 cm | ... | 1.8 cm |

It may be added that in a paper entitled—"The optic chiasma of Cephalopods and the significance of crossed tracts". J. P. Stanier and J. Z. Young of the University College, London, have made no distinction between Cephalopods and Vertebrates, as it has been assumed that the same condition hold good in them. Even then it is better, I feel not to draw here any analogy between the Cephalopod and Vertebrate sutures to supplement my present observations.

In the Sinanthropus skull, the vertex shows about 13 saddles present, which number 8 in the case of the Rhodesian skull. The vertex of the Rhodesian skull is 4.3 cm. in length that is 1 cm longer than that of the Sinanthropus. All the above observations made on the two sagittal sutures probably suggest that these specimens due to their varied nature as shown need not fall in the same species. Since they differ greatly in pattern form each other, the interpretation that they may belong to different species is supported by this fact. The variations recorded for b,o and l, have not been further discussed here.

Figures of only the above two sagittal sutures could be found in the anthropological literature. The skull of Homo soloensis (Solo skull XI, Oppenoorth, W. F. F., 1951) was not taken into consideration in the above comparative study, because the suture disappeared in places. Probably it became closed.

Later for reciprocal confirmation if there was any, I wanted to examine some recent skulls, for example, of typical Negro, Mongolian and Mediterranean specimens. But the collection of skulls in the Indian Museum is neither rich nor comprehensive, and as such does not permit me to make a choice as desired. I could select only a Chinese, a Mediterranean and a Bengali skull (as there was no Negro skull available) from

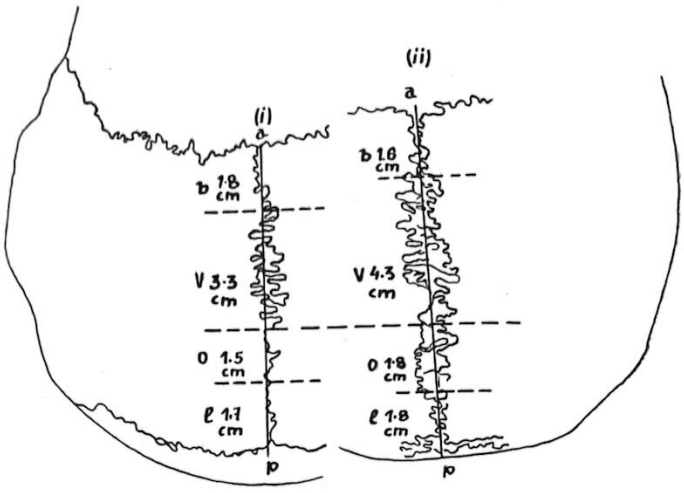


FIG. 1
Sagittal Sutures of (i) *Sinanthropus* and (ii) Rhodesian Skulls. Nat. (aprox); a — Anterior, p — Posterior

the Indian Museum for a comparative study of their respective sagittal sutures. The lengths of the different parts are given below:

| | Chinese-3 | Cr-103 | Bengali-Jessr. 33 |
|---|---|---|---|
| b... | 2.0 cm | 1.4 cm... | 1.4 cm |
| v... | 5.7 cm... | 6.5 cm... | 5.8 cm |
| o... | 2.2 cm... | 1.9 cm... | 2.2 cm |
| l... | 3.4 cm... | 2.7 cm... | 2.5 cm |

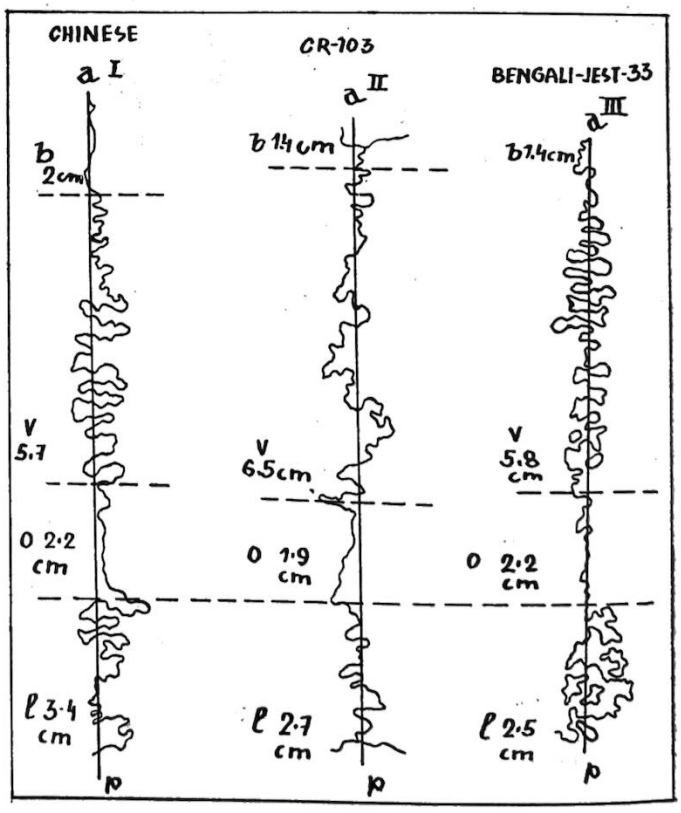


FIG. 2
Comparative Table showing the length of the different parts of the Sagittal Sutures of the above three skulls, which are representative in the Collection. a — Anterior, p — Posterior

The length of the vertex of the Mediterranean skull is greater than of the other two. While the vertex of the Bengali and Chinese skulls are of the same length, the Bengali skull shows more involutions in general. The lower half of the vertex of the Bengali skull (Mongolo-Dravidian) shows some resemblance in pattern to the lower half of the vertex of the Chinese skull. Out of the three above mentioned skulls, the vertex of the Mediterranean specimens shows no complicated pattern like the other two. In fact, the general pattern of the vertex of the Chinese and the Bengali sutures show a resemblance to each other, probably because they belong to the same sub-species asiaticus and no such resemblance could be found with the Mediterannean skull.

The suture pattern is highly variable either in fossil ammonites or in human or vertebrate skulls. In the same species of ammonite there is no doubt, a good deal of variations is in the suture pattern. As regards the fossil and recent human skulls, to the author's knowledge no such suture study has been made before, neither any yard-stick has been established in approach or procedure and naturally one has to face considerable variations in the suture pattern. I could not proceed further for lack of typical skulls representing different fossil species or different modern human races, which fall under different sub-species. It may be pointed out that no conclusion can be drawn from this preliminary study of typological approach, based on the available scanty material. Lack of adequate series of skulls in the Indian Museum did not permit the author to make a statistical study of the intra-group variation, which is necessary to assess the size of difference in the identification of a significant variation pattern. All this is recommended as an interesting pursuit in a laboratory or museum having a rich collection of skulls.

At least there are 17 Homo sub-species excluding the three principal species—Homo sapiens, Homo neanderthalensis and Homo heidelbergensis; according to Boule and Vallois (1952), the determinations given by different authors should fall in synonymy. As human palaeontologists generally stress external physical characters, it is suggested to make an attempt to classify the existing human species, if applicable on the basis of a particular cranial suture, to test how far it holds good.

## SUMMARY

The study of suture closure has demonstrated the consistency of human skull sutures but it is not known if the human skull sutures can be used in the Homo systematics. The author studied some human skulls of both fossils and some recent ones which were available in the Indian Museum and presents here the results as obtained and based on the sagittal suture only. As the material examined by the author does not represent in sufficient numbers the types of different living human races, the present study could not be completed and thus no conclusion has been drawn.

If sutures are to play a systematic role in the living human races, they must also be of importance in the study of fossil human skulls. Studies in Invertebrate palaeontology since the early part of the nineteenth century have revealed that although sutures are stable characters yet they are variable in their pattern in the same species and it is very probable that the same thing might happen with human skulls, too, taking into consideration that previously two authors made no distinction between Cephalopods and Vertebrates in the case of their studies on optic chiasma.

As it is not wise to discard human sutures without examining them in detail, the author recommends an attempt in this regard on different *representative* skulls which are easily available in museums of the West.

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# BODILY DEVELOPMENT OF GYPSY CHILDREN IN CZECHOSLOVAKIA

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Comparative linguistics can claim to have the main merit in discovering the area from which Gypsies have spread all over the world and in discovering their antiquity. As the most significant classics of this research are held: H. M. G. Grellmann (1787), A. F. Pott (1845), and F. Miklosić (1874—1879). Besides them, there was a number of both contemporaries and successors, who studied not only the language of the Gypsies, but also their history, folklore, and chiefly their music. Out of the many let us mention here at least the well-known composer F. Liszt, who in his book (1883) dealt mainly with the music of Hungarian Gypsies.

The Faculty of Pedagogy, Prague, has been treating as a national research task problems relating to the bodily development of Gypsy youth in to-day's conditions of life. The new conditions are marked by the fact that the Gypsies have now stopped to live their nomadic life as was usual in former times. Efforts are being made to enable them to pass from the state of isolation into that of assimilation with respect to the other inhabitants.

Between the two states called isolation and assimilation is an intermediate stage characteristic of many Gypsies. They live with the other inhabitants neither jointly, nor separately, but rather parallel. They absorb from the surroundings only what they regard to be useful. They can be nonconformable. Surely enough there is a great strength in this quality, and it would be useful to cultivate it by education in a positive sense. It seems that, within a civilized society, only a man of extraordinary qualities can be nonconformable, who can afford it. That is why such a quality is surprising in those very Gypsies who have played the most inferior role in the course of social differentiation.

In the 20th century, the countries of Central Europe have introduced various forms of registering rambling groups, allotting regions to them, requiring notification of their migrations, and trying to settle them down according to plans. As a new and positive element appeared the understanding of assimilation no longer as mere settling down, but as a part of a more complex process of acultivation. The element of education appeared, problems of illiteracy and school atten-