

# MEDICAL VIEWS ON PREHISTORIC REPRESENTATIONS OF HUMAN HANDS

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IN certain caves, where prehistoric wall-paintings have been discovered, imprints of human hands have also been found. They often appear close to drawings of animals. Sometimes they are separated from these drawings, and at first sight seem to have hardly any connection with them, being there, apparently, by accident. At the present time, reproductions of human hands have been found in some dozen caves, notably in those of Gargas, Bédailhac, Trois-Frères and Cabrerets in France, and at Altamira and Castillo in Spain.

These imprints are the first manifestations, the first phase in fact, of pictorial art and date back to the Aurignacian culture. We consider imprints to be positive when the hand, coated with colour, was placed or imprinted on the wall of the cave; and negative when the hand was placed on the wall and subsequently outlined with colour. This second method recalls, in certain cases, modern techniques of pictorial art, notably revolver painting. The imprints, normally executed in red or black, almost always represent the left hand, which implies that prehistoric man was markedly right-handed, although in the cave at Castillo a single imprint of a right hand has been found next to twenty-three of the left. One may therefore conclude that there were also left-handers. Furthermore, Breuil mentions the presence of 124 left hands with thirteen right hands in the cave at Gargas. In our view, these imprints at Gargas are of great interest. For it is a characteristic fact frequently to find one or more fingers missing from these hands, and sometimes all the fingers including the thumb, so that only a stump remains. These 'mutilated' hands have, so far, been found exclusively in the Gargas cave.

On 24 June 1956 M. Jacques Jolfres discovered in the cave at Tiberan images of six negative mutilated left hands on an ochre ground. This cave is hollowed in the eastern slope of the mountain of Gouret, on the western slope of which opens the Gargas cave (Méroc, 1956). In considering these mutilations, one immediately asks one's self: 'What is their meaning, or cause?' For Van den Broeck, it is not a question of mutilations. His opinion is based on the fact that these never appear on positive hands. He submits that the imprint or reproduction is of a strictly personal character and that it must be considered as a signature or 'visiting card', and that, to produce



**Fig. 1.**  
**GARGAS**  
**Group of four badly shaped hands in red.**  
*(After Breuil.)*



**Fig. 2.**  
**GARGAS**  
**Hand stencilled in red.**  
*(After Breuil.)*

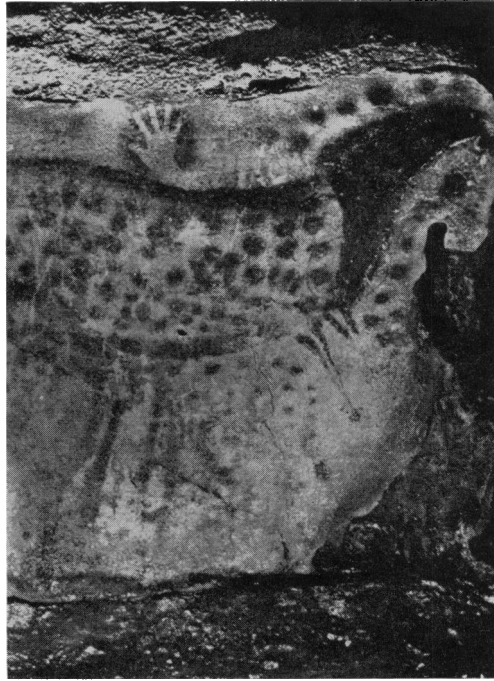


Fig. 3.  
PECH-MERLE, CALVERETS  
Part of panel showing hands stencilled in black above  
spotted horse.  
(After Breuil.)

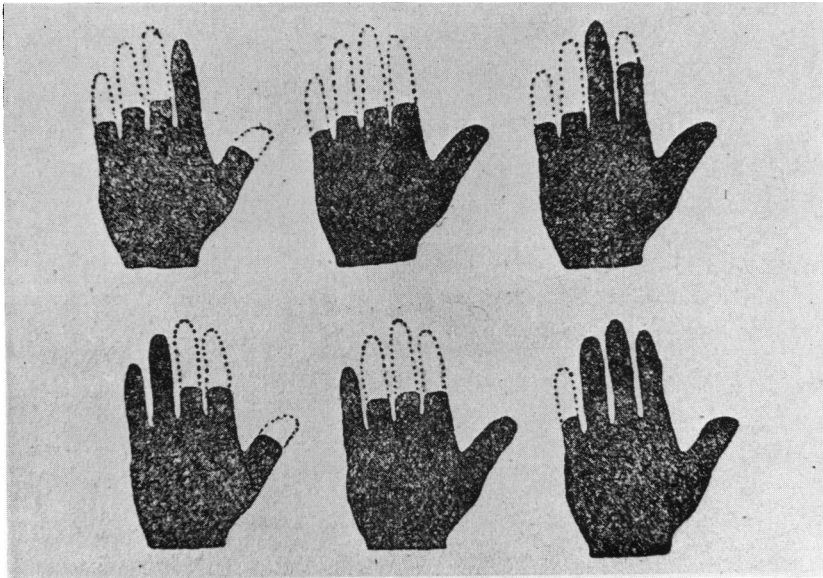


Fig. 4.  
The commonest types of mutilations  
among the 200 Gargas hand prints.  
(After Casteret.)



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it, the painter concealed one or several fingers, by bending them into the palm of his hand. We cannot share this view, for the negative hands found in other caves do not present the same phenomena. Moreover, it is not logical to suppose that all these painters would leave the same 'visiting card'. Besides, the outline as drawn is too clear, and this would be impossible if the fingers of the hand were bent, since the distance between the wall and the hand would be too great to allow of a clearly circumscribed form's still appearing; even if this were possible, it would cease to be so when the thumb was bent at the upper joint.

Weinert and Casteret submit that these are cases of sacrificial offerings. Casteret supports this hypothesis by a comparison with other primitive peoples, but it must be realized that, by using this deductive method one runs the risk of reaching doubtful conclusions. He cites numerous examples among the Pygmies and Hottentots. Among the former such amputations are a sign of mourning or a means of securing peaceful death later, while the second would be performed to avert serious illness. In this case only the fourth finger is sacrificed. In the course of consecration rites among the Indians of the Mandan tribe, the first and fourth fingers of the left hand are amputated: the motive for this is not known. In the hope of ridding himself of an enemy, an Indian would cut off three fingers of his left hand. Natives of the Pacific islands perform this mutilation on members of their family during illness or at death. It is performed gradually, day by day. In India there is a tribe called the Berula Kodo, or 'finger cutters'. Every three years, during a religious ceremony, they cut off the second and third fingers of some of their women; the reason is not known. Sometimes this mutilation is performed for practical reasons, as where certain tribes of native fishermen remove the fourth fingers of their women to facilitate their task in making nets. We are, however, struck by the fact that none of these primitive peoples ever amputates the thumb. Now, this is not so with the primitive man of Gargas. After examining more than 200 imprints, it is impossible for us to determine which finger is most favoured for amputation. However, amputation of the thumb is not so frequent as that of the other digits. Intentional mutilation of the thumb would be regarded by primitive man as an act of the greatest stupidity. The art of using the thumb in conjunction with the fingers, like the development of the brain, may be regarded as a vital stage in the progress of civilization. Again, his hand was for primitive man his most finished tool, and that by very reason of his ability to use the thumb and fingers in conjunction. Even in modern times the role of the thumb has remained extremely important and its loss in an industrial accident is valued at 50 per cent of the usefulness of the entire hand. I am convinced that the problem of mutilations of the hand must be resolved in medical terms.

The first possibility to attract our attention is that which attributes these mutilations to the results of infection or of a whitlow. It is logical to suppose that this affliction would have been very frequent, for, in working flint, primitive man must often have injured his fingers, so giving rise to frequent infections in the total absence of hygiene or of antiseptic measures. Van den Broeck raises the objection that no skeletal abnormalities or defects have been found which would prove that primitive man suffered from whitlows, although he admits that the total number of digital skeletons extant is extremely small. We do know that when a phalanx is infected it usually continues to suppurate until the bone has suffered complete dissolution. But the numerous mutilations of one hand would lead us to discount the theory that they are really the result of so many whitlows.

A second possibility calls for a brief consideration of climatic factors or influences. It has been established that, even in the glacial period of the Pleistocene epoch, the climate in Spain was much milder than in southern France, where the mammoth still lived, although it had disappeared from Spain before the time of Aurignacian man. For this reason drawings of this animal are not found in Spain. The difference of temperature must be attributed to the Gulf Stream, the influence of which was felt in Spain but not in the southern part of France, since the Channel did not exist at that time, and England formed part of the continent of Europe. The Gulf Stream was forced to flow westward. France, and particularly the Dordogne and Ariège regions, were not affected by it, since they were encircled by the high, cold ranges of the Alps and Pyrenees. Bearing this in mind, we may ask ourselves if the mutilations in question were not the effect of cold and the results of frostbite, the more so as they are entirely absent in Spain. Moreover, the reproductions are of the hands of children or of young women, and it has been proved that young people are the most frequent victims of cold and its consequences. But this cannot be the only cause, for if it were the other French caves in the vicinity of Gargas would also show these mutilations, and this is not the case.

Gangrene is the most important condition which may result from a harmful mutilation. It is the result of an interruption in the circulation of the blood. A great number of factors must be borne in mind. It must first of all be emphasized that a majority of the drawings are taken from children, young people and women. Acute arteritis is the result of an infectious disease (typhoid, paratyphoid, scarlet fever, smallpox, puerperal sepsis, appendicitis or dysentery) or of a suppuration close to the artery. It is rare and the prognosis is poor (50 per cent mortality). In certain less serious cases, a small member (a finger or toe) may necrose.

In acute or subacute cases of syphilitic arteritis, the arteries at the base of the skull are affected. If the disease has a tendency to become chronic, it

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affects only sections of these arteries (Darier). Grenet rejects this hypothesis. The experts are not agreed as to whether or not this disease is often manifested at the level of the peripheral blood-vessels. The extremely incomplete supporting and documentary evidence relating to the existence of this disease in prehistoric times which is at the disposal of the palaeopathologist, does not allow the serious consideration of the hypothesis. Arteriosclerosis might have occupied our attention, but, since the drawings are of young people, it must be discarded. For the same reason, embolism and diabetic gangrene must be excluded. The so-called juvenile forms of arteritis have a considerable interest for us, and among them presenile obstructive endoarteritis (Friedländer), which is undifferentiated from the senile form except that it manifests itself at the age of thirty or forty. Although the etiology is not known, it is attributed to an abuse of tobacco or alcohol.

Obstructive thromboangiitis, formulated in 1906 by Leo Buerger, is characterized by an obstruction following a thrombosis, which attacks the entire peripheral circulatory system, the veins as well as the arteries. The disease is most frequently manifested between the ages of twenty and forty among male Jews. However, it is considered that Englishmen and Japanese are also subject to it. The etiology shows that syphilis cannot be held responsible. In my opinion the specificity of this disease would make it unlikely in Gargas.

It is quite otherwise with Raynaud's disease which, moreover, is most frequently found in young women of about twenty-five years of age. The bilateral forms are the most frequent, but unilateral forms are also found at the onset of the malady, which is hereditary in character. Infants and children may be among the victims. The following etiological factors are given: intoxication, acute or chronic infections, and particularly syphilis; cardiopathies such as mitral stenosis, and endocrine disorders. The factors: 'cold', 'young people', and 'heredity' are so many arguments in our favour. Against the hypothesis is the fact that syphilis is reputed to be an important factor in Raynaud's disease; but this is not evidence of the first order.

The truth is that these mutilations are found solely in the caves of Gargas and never in neighbouring caves, which had nevertheless a similar climate. Cold is not therefore 'by itself' the ruling factor. It will certainly have exerted an influence on the tribesman, already the victim of an hereditary disease, for whom, although this has not been proved, promiscuity must have been a simple and natural mode of behaviour. We are not opposed to the theory which regards the imprints of human hands as votive, but simply to the idea that primitive man may have mutilated himself for this purpose. Had he done this in the cave at Gargas, he would also have done so in the others, where the votive hands prove the existence of an identical or at least an analogous religion.

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