

THE STANFORD SKULL, A PROBABLE EARLY MAN FROM
SANTA CLARA COUNTY, CALIFORNIA.

1. HISTORY AND CIRCUMSTANCES OF THE DISCOVERY OF THE SKULL.

By Robert F. Heizer

Early in 1922, probably in April or May, a Stanford University student, Bruce Seymour, discovered a human skull protruding from the channel wall of San Francisquito Creek opposite the site of the Stanford residence. He removed the skull and took it to the late Professor Bailey Willis who showed great interest in it, visited the find spot, and made a study of the geology of the location. Willis advised Dr. Aleš Hrdlička, with whom he had collaborated in the study leading to the publication of Bulletin 52 of the Bureau of American Ethnology. Some correspondence between Hrdlička and Willis ensued, but interest in the whole matter seems shortly to have been abandoned by Hrdlička who never mentioned the find in print, and by Willis who became again involved in matters more geological than anthropological. Willis did print, in a college magazine, an account of the find which seems to have been overlooked or ignored.¹

In February, 1949, Professor V. L. VanderHoof of the Department of Geology, Stanford University, sent me a file of letters and photographs which had recently been deposited in his Department by Dr. Willis. A perusal of these has led me to believe that the facts in the case are sufficiently interesting, as probably indicating really ancient skeletal remains, that they are worth presenting in more accessible form.²

There follows copies of: 1), Dr. Willis' letter to Hrdlička; 2), an extract from the little article published by Willis; 3), Hrdlička's reply to Willis; 4), a letter from L. L. Loud to Willis; and 5), an interesting letter to Willis from J. M. F. Dubois, son

¹ Bailey Willis. "Out of the Long Past." The Stanford Cardinal, October, 1922, pp. 8-11.

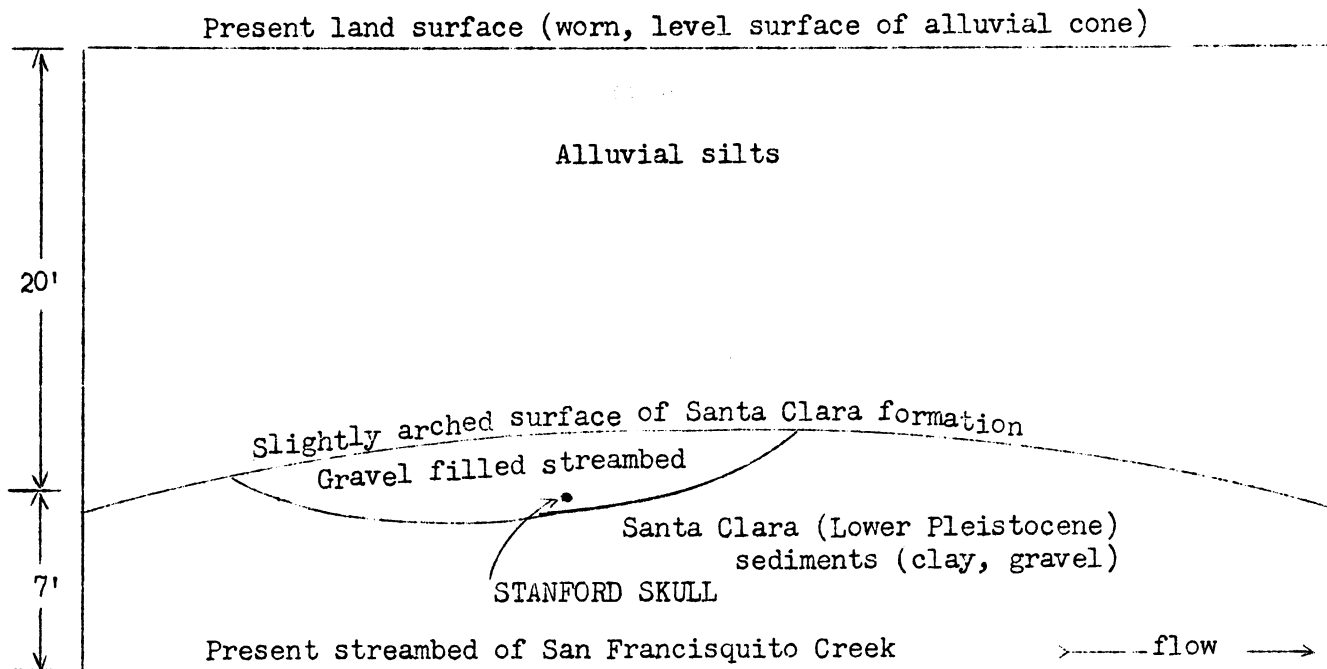
² The present authors express their appreciation to Dr. VanderHoof, Dept. of Geology, and Dr. F. V. Keesing, Dept. of Sociology and Anthropology of Stanford University for locating the skull, making available the file of data regarding the skull, and for permission to publish on the find.

of the discoverer of Pithecanthropus erectus. Reproductions of several photographs are also presented here in Plate 1, since these clearly illustrate some of the essential points detailed in Dr. Willis' letter of May 15, 1922. From the evidence presented in these documents, the following facts seem established:

1. The skull was found at a depth of 20 feet from the surface, cemented in the lower part of a gravel stratum exposed in the bank of San Francisquito Creek.
2. The skull, solidly embedded in gravels, was filled with small gravel as attested by Willis' published statement, by two photographs made at the time of discovery (and now on file in the UCAS office), and by the skull in its present condition (cf. Plate 2.)
3. There is thus ruled out the possibility that the skull was recently derived from a higher point, and it must be considered as laid down at the same time as the gravels in which it became cemented.
4. Some geologic antiquity, early Recent according to Dr. Willis, is to be accorded the skull on the basis of the time involved in the formation of the alluvial cone over the gravels in which the skull lay, and the cutting of the present creek trench into the cone and underlying deposits.
5. That the skull is not a recent intrusion into the gravels in which it lay is further demonstrated by the facts that it was solidly cemented in the gravels, was exposed in a vertical bank by the stream cutting, and its interior was filled with gravel of the same type in which it was firmly embedded.

The reconstruction offered by Loud in his letter (last 3 paragraphs) is not supported by the evidence of the deposition of the skull cited above, and because the present stream channel cuts across, at nearly a right angle, the gravel bed marking the course of the former stream which antedates the formation of the superincumbent alluvial cone.

The stratigraphic situation may be reconstructed about as follows:



May 15, 1922

Dr. Ales Hrdlička,
National Museum,
Washington, D. C.

My dear Doctor Hrdlička;

Although it is some 12 years since you and I rejuvenated Ameghino's ancient man in South America, you are, I notice, still interested in our older inhabitants and I would, therefore, call your attention to a skull, which we have recently found in the alluvial gravels of this immediate vicinity.

Stanford is built on the alluvial cone of San Francisquito creek and the old Stanford residence stands on the bank of the creek about midway between the head of the cone and salt marshes. At this point the creek has cut a canyon in its own earlier deposits of silt over gravel and has gone down into the underlying

Santa Clara (Pliocene). The canyon is about 25 feet deep, some 20 feet in the alluvial deposits and some 5 feet in the Santa Clara.

The unconformity between the Pliocene and the more recent gravels is very sharply defined. The older formation, consisting of consolidated yellow clay and gravel, was eroded and presented a hard surface. The younger gravel was swept down upon it by the stream and was deposited in potholes and irregularities of its surface. The same process is going on today in the much more modern channel of the present course.

The gravels which rest upon the Santa Clara may, I think, be correctly classed as early Recent, to distinguish them from the deposits which have been laid down by the creek since it assumed its actual [i.e., present] course. I would not be understood, however, as attributing any considerable geologic antiquity to them. They seem to be old humanly speaking, but they are recent geologically. The early Recent gravels are strongly cemented. They stand in a vertical wall and even large pebbles are so firmly held that they cannot be dislodged, except with a pick. They fill an old channel, which can be traced in a curve, that is now cut across by the actual channel in a curve in the opposite direction. Hence I conclude that the old channel was filled, lay buried long enough to permit the cementing of the gravel by the solutions contained in the groundwater, and has been re-exposed by the erosion of the present canyon. How long that might take it seems impossible to conjecture, several thousand years, I would guess.

At the bottom of the early Recent gravels a skull was found by a Stanford student, Bruce Seymour, who dug it out and brought it to me. He said he had difficulty in freeing it from the gravel, which he had to pick away, and that even after he had cleared away all the gravel around it it still remained firmly attached by the mass of gravel which fills the base of the skull. I went down to the locality next day and found the cast of the skull clearly defined in the gravel, which immediately around the skull was somewhat finer than elsewhere. I replaced the skull in its original position, where it fitted perfectly, and took the photographs which I am sending you.

A week later the skull was again replaced in its old bed and the locality was examined by a number of geologists; members of the Le Conte club. Lawson, Buwalda, and Stock of the University of California were of the party. It was agreed, without question that the skull was an indigenous boulder in the formation. The idea of artificial burial was negatived by the continuity of the overlying strata, which were found to be undisturbed.

The skull itself is complete, except for the lower and upper jaw and nasal portion. It measures 181 mm. from front to back and 137 mm. above the ears, measured between verticals. If these

dimensions are rightly measured, the cephalic index would be 76.4. The super-orbital ridge is strongly developed and is continuous across the nose. The back of the head is prominent and the muscle scars of the neck are large. Examined by Professor Heath of the Zoology department and by Dr. Meyer, Head of the Department of Anatomy, the skull is regarded as very similar to Indian skulls, which have been collected from burying grounds in the Santa Clara valley. Dr. Meyer, however, commented on the somewhat primitive characteristics that I have mentioned and upon other anatomical details of a somewhat unusual character.

The evidence would seem to indicate that we have found a rather ancient Indian skull, perhaps older than any other known from this locality.

I feel sure that you will be interested to know the facts and to have the photographs.

With best regards to both yourself and to Dr. Holmes, to whose attention I would be glad to have you bring this letter, I am cordially yours

/s/ Bailey Willis

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[Abstract of Willis' article in the Stanford Cardinal]

"...I must admit that I think the skull is more than 3000 years old, and for that I have this reason. I am by no means sure that 20 feet is all the silt there ever was above the skull. If any part of the plain were raised, say by earthquake or by warping under the pressures which cause earthquakes, the surface would be washed away or worn away by wind until it held even with the rest. The plain by the Stanford residence has thus been warped up and worn off. If you will go down into the deep channel of the creek, you will see that the present bottom lies seven feet below where its bottom was when the skull and the gravel were washed down... The newer, deeper part of the channel has been cut in a hard bed of clay and gravel, which slopes away both up and down stream. It is very slightly arched and the arching has taken place since the skull washed into place. Seven feet is the apparent height of the arch, and since the plain above is level, seven feet of silt must have been washed off. Considering how gradual are the changes, even where the growing mountains throw down our cities, I am inclined to think that the larger estimate is more likely to be the right than the smaller and that ... [the skull was deposited] more than 4000 years ago."³

³ Willis, op. cit., p. 11.

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SMITHSONIAN INSTITUTION
UNITED STATES NATIONAL MUSEUM
Washington, D. C.

May 23, 1922

Dr. Bailey Willis
Department of Geology
Stanford University

Dear Professor Willis:

I am delighted to have your letter of May 15, together with the clear photographs of the locality of the highly interesting specimen the finding of which is described.

Of course you know my position on this subject. While I have all reason to distrust the existence of man of any really great or geological antiquity on this continent, I would have no hesitation in accepting a man up to say, 6,000, 8,000 or even 10,000 years ago; though if man had been here as early as that he must have been very scarce.

I would like to have a few more details about the position of the skull:

- 1) How deep was it from the surface of the gravel at that particular spot?
- 2) How far was it from the outside wall or surface of the gravel (if there was such)?
- 3) Does the skull bear any marks due to contact with the gravel which would probably have been quite necessary had it been rolled with the same?

In addition I would be very thankful for a top view of the skull in such a position that the glabella-inion line would be about horizontal.

Of course I should be very glad to examine and report on the skull, perhaps in our new Journal, if it could be sent to me for information. I think it would be quite safe to send it by express.

The enclosed letter in one of the Argentine Journals will I am sure interest you; please send it back.

With best wishes, and hoping you will come to see me when in Washington, I am,

Sincerely yours,

/s/ A. Hrdlicka

P.S. I have of course called the attention of Professor Holmes to the skull.

UNIVERSITY OF CALIFORNIA
Museum of Anthropology

Second and Parnassus Avenues
San Francisco, California
May 24, 1922

Dr. Bailey Willis
Stanford University
Palo Alto, California

My dear Dr. Willis:

In regard to the skull which has had so much publicity in the newspapers recently you will recall that I said at the first glance that it was a typical Central California Indian skull of a male about 50 years of age at the time of death. Measurements confirm this decision as most of them do not vary hardly a hairs breadth from the average.

Measurements:-- Among the skulls from the San Francisco Bay shell-mounds which I recently measured are 40 which are undoubtedly from males. The average length of these is 184.4 mm., and the average width 139.1 mm. The corresponding measurements for your skull is 185 and 139 mm. The basion was broken in many of our skulls but the average height of 24 complete specimens is 135.8 mm. Your skull again is almost exactly the same, 136 mm. The average basion-nasion length is 98.5 mm. while your skull is 103 mm., but three of our skulls run higher than yours in this regard. The average minimum frontal width is 92 mm., while yours is 95 mm.

Indian Village Site: -- This is good evidence that the skull belonged to a typical shellmound Indian but I have also located an Indian village site a quarter of a mile or more upstream from the place where the skull was found. The village site is on the northwest side of San Francisquito Creek at the first bend below the old suspension bridge. This is on the ground that is being irrigated and planted to tomatoes and young fruit trees.

The ground is not a shellmound, neither is there blackened soil such as is usual at village sites in the interior of California far from salt water. There is much evidence of occupation by white men such as nails and broken glass and pottery yet the Indian signs are also unmistakable over a very wide area.

Shells: -- Broken bits of shell can be easily found of a character to strongly suggest Indian occupation. This statement would be true even though it might be shown that some of the shell was left on the ground by white men engaged in chicken business. The species found include, principally bentnosed clam (Macoma nasuta), but also California oyster (Ostrea lurida), and Cerithidea californica. The last species is rare in all San Francisco Bay mounds except at Castro where it is more abundant than any other species. Two fragments of shell were found which came from the ocean coast. One was abalone (Haliotis sp.). The other was the Washington clam (Schizothaerus nuttallii). Both of these are very rare in the San Francisco Bay mounds.

Implements: -- Other evidence of Indian occupation is fragments of animal bones, but more especially the abnormal quantities of stones of the size of an apple and smaller. Almost without exception these stones are burnt. They are what we know as cooking stones. There is one flake of chocolate colored chert. A kind of rock common on the Peninsula and used in making knives and arrow points. It is a typical piece of refuse such as is common in the Castro mound. Two flakes of obsidian were found. A very large Indian quarry six miles east of Santa Rosa has been worked for thousands of years to obtain this material. It is the nearest source of supply known to the writer.

Age of the skull: -- Although my belief is that the skull was washed down from the Indian village site a quarter of a mile or more up stream I am unable to determine the age of the skull. That is a problem for the geologist.

I find that the depth of San Francisquito Creek opposite the Indian village site is 30 feet. The skull was washed down in my opinion at a time when the channel was only 23 feet deep. Then 5 feet of gravel was deposited on top of the skull. This gravel appears to be of two different kinds with two different degrees of cementation. After the deposit of gravel the channel moved to one side and eroded a new channel 7 feet deeper than it had ever been before.

I am no judge of the time that this would require. If a geologist should judge the time to be four or five thousand years ago or even somewhat more it would, in my opinion, in no wise conflict with the findings of an archaeologist.

Yours sincerely,

/s/ Llewellyn L. Loud

P.S. You are at perfect liberty to quote from the above in any statements to the press that you desire to make.

Ross, Cal. May 24, '22

Prof. Bailey Willis
Stanford, Cal.

Dear Sir:

With very much interest I have followed the newspaper reports regarding the "Stanford Skull."

I take pleasure in informing you that I received today a cable from Holland from my father, Prof. D. Eugene Dubois (discoverer of the Pithecanthropus Erectus), requesting me to ascertain all possible data in regard to this new discovery. Would it be possible to obtain photographs, description of the location and soil in which it was found, measurements, color and general contour of this skull?

My father is still developing his theories and studies of the "Missing Link" and this information would help him greatly and would be very much appreciated.

Thanking you for anything you may be able to do in this matter, I am, dear Sir

Yours very truly,

/s/ J. M. F. Dubois

Address:
J. M. F. Dubois
Ross, Marin Co.
Cal.