

THE SO-CALLED "PETRIFIED HUMAN EYES,"
FROM THE GRAVES OF THE ANCIENT
INDIANS, ARICA, PERU.

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A very large portion of the Republic of Peru, especially that which is near the Pacific coast, forms part of an extensive district in which rain is unknown; and in several important respects,—especially in the periodical overflow of many of its rivers,—it bears a marked resemblance to Egypt. This state of things is partly an effect of the improvidence of the ancient Spaniards. They cut down forest trees wherever they could find them, for the purpose of smelting the minerals in the neighbourhood; and hence, rain, which had been small in quantity, disappeared entirely; vegetation ceased except along the banks of rivers; and the sands of the desert buried hundreds of square miles, previously fertile.

Stretching from Arica on the coast, in Lat. $18^{\circ} 27' S.$, the railroad passes over thirty-nine miles to the town of Tacna, which is on the high road to the Cordilleras, and to Bolivia. This is now a treeless waste of sand, which sparkles with myriads of hexagonal crystals of salt; indeed scarcely a shrub or blade of grass is to be seen. Yet it was formerly known as "the *Forest* of San Juan de Dios;" and no doubt trees were abundant, as in many other places of the same

kind, where now the railway traveller may see the *mirage*, perhaps every day of the year.

At Arica, and in the immediate neighbourhood, animal matter does not decay as elsewhere; it simply becomes desiccated. Hence, the bodies of Indians who were interred perhaps centuries before the arrival of the Spaniards, are turned up to-day as natural mummies; and specimens of them may be seen in most of the public museums of Europe and America. The Arica of the present time is only a seaport village; as the pretty little town was destroyed in the earthquake of 13th August, 1868. But even this town was modern; and it is believed that a great city, the inhabitants of which were largely engaged in fishing, occupied the same spot. Certain it is, that a large mound just outside of the town, consists in a great degree of human flesh covered with sand; and as the Peruvian government have forbidden all interference with these remains, the mound is not likely to diminish as it has done. It is recorded that the earthquake of last year separated a portion of the adjoining hill or "Morro," near a place known as "the Incas' cave;" and that a row of corpses was visible for weeks, each in a sitting posture as usual, and some with the former implements of their daily toil beside them.

At various times, there have been found, near these bodies, small hemispherical objects of amber-looking matter; and occasionally they have been found in the eye-holes of the skulls. These objects have naturally been supposed to be human eyes; but as they have become completely solidified or hardened, they have been called incorrectly (even on that theory,) "*petrified* human eyes."

I saw two of them at Iquique in the South of Peru, and heard a great deal about them all along the coast. On my return, in July 1867, I found that they were still occasionally picked up, by the workmen who were engaged in preparing

sites for the cannon to defend the port ; and as they did not come under the head of corpses, and could be readily secreted in the pocket, they were carried away and sold. When the interior hemisphere of the object is started out of its corresponding socket, it appears like a split pea of solid gold ; and the young men of Arica and Tacna frequently get them mounted, to serve as shirt studs. An English woman who had a small shop, collected in barter numerous antiquities and curiosities from the workmen, without any distinct idea of what to do with them ; and from her I procured several objects of great interest. Among these was her stock of "eyes," the current retail price of which was half a dollar, or about 1s. 6½d. each.

Such being the simple facts of the case, I proceed to give the only theories which are known on the subject ; in the hope of eliciting some final decision, on the best evidence, as to what the objects really are. I may add that the subject is one which has greatly interested gentlemen of the medical profession, both in the United States and in England ; and that the newspaper known as the *Panama Star and Herald*, which has a large circulation on the west coast, preserves and diffuses carefully, all the information obtainable on the subject.

I. *First Theory* ; that they are bonâ fide *Human Eyes*.

Testimony of the late W. Billinghamurst, Esq., Acting
V. C. at Iquique.

" On my part, I have to state that when I resided in
" Arica, I was a daily visitor to the scene of the excava-
" tions in the Indian burying-ground, at the foot of the
" Morro: and witnessed the exhumation of the bodies,—
" many of which were in a perfect state as mummies.
" The eyes were generally found in the vicinity of them,
" and in some instances *were attached to the sockets,*

“which I think is strong evidence to confirm the belief
“that they are human.”

Report of Henry W. A. Coleman, Esq., M.D., Iquique.

“They are human eyes, in a state of petrification. The
“external tunics have become decomposed, and obliterated
“by time, leaving only the vitreous humour with its
“*membrana hyoloidea*; and having the crystalline lens
“imbedded in its cup-like excavation, or *fossa hyoloidea*.
“By continuous boiling with water, this lens becomes
“separated; and its compact membrane or capsule can
“be distinctly seen. The *nucleus* of the lens is easily
“distinguished, also the subdivisions of its surface,
“showing its three layers concentrically arranged like
“those of an onion, which by a minute examination can
“be seen to be closely aggregated fibres.”

II. *Second Theory*; that they are the Eyes of *Fishes*.

From Dr. MacDowell of Taboga Island. *Panama Star*
and Herald, January 21st, 1865.

“The Indians were cunning workers in gold and
“precious stones, and in elegant textures of cloth. The
“Indian also took to the grave with him, his most valuable
“things;—*chicha* and favourite provisions, jugs
“and water coolers. The so-called ‘eyes’ are greatly
“sought after. They are brownish in colour, and with
“pearl-like reflections; formed of concentric cup-like
“laminæ, peeling off like the coats of an onion, on the
“convex side. Viewed in front, these laminæ form concentric
“circles, diminishing to a round minute ball in
“the centre; while numerous fine lines run like radii
“from the centre to the circumference. The form is
“that of a plano-convex lens, with a diameter of $\frac{1}{8}$ of
“an inch, and a vertical axis of $\frac{1}{16}$. The substance is
“evidently organic, but in no other way has it any affinity
“with the human eye. With the difference that the striated
“lines run transverse instead of radial, it exactly
“resembles the eye of a shark. I lately made a dissection
“of one of these eyes, and hardened the lens in
“acetic acid; and it assumed almost the exact appearance.
“I feel that they are the eyes of some similar

“ animal ;—but it is a question for the microscope and
“ for comparative anatomy.”

III. *Third Theory* ; that they are the *lenses of the eyes of a Cephalopod*.

A Paper was read at the Ethnological Society of London, 10th January, 1865, by Sir Woodbine Parish ; of which the following account is given in the *Athenæum* of January 21st :—

“ Associated with the interments of the ancient Peruvians, there have long since been found certain hemispherical amber-coloured objects, which the late Mr. Clifts of the College of Surgeons, determined, from some specimens shewn to him by Dr. Wollaston, to be the desiccated eyes of the cuttle-fish,—an opinion now confirmed by Professor Owen and Mr. Bowman. Lieut. Rising, R.N., who forwarded the present specimens to the author of this paper, found them in the sockets of the eyes of some Peruvian mummies at Arica. The purpose to which they were applied is thus definitely settled.”

To this last fact, the late Mr. Billingham adds,—

“ They are found often in the sockets, with a black matter adhering, like coagulated glue.”

This was supposed by some, to be one of the coats of the eye dried up ; and by others to be an artificial substance, for the purpose of making these foreign bodies retain their new places.

IV. *Fourth Theory* ; that they are *vegetable matter, not animal*.

Extract of a letter from Dr. C. M. Tidy, of Cambridge Heath, Hackney, London.

“ When I received the eye, I showed it to my colleague Dr. Letheby, as well as the Professor of Comparative Anatomy at our Hospital. We were all agreed in this, that it was not a human eye, nor was it the eye of an

“animal at all. Dr. Letheby's impression at once was, “and I perfectly agree with him, that it is a resinoid “exudation from some tree; and this I proved further “by analysis. The *form* is at once explained by this; “the concentric laminae also;—and the various colours “that are apparent may be explained by the length of “time that elapsed between the exudation of one lamina “and another, and the amount of oxidation it would “undergo. I have myself no hesitation in stating that “it is a *vegetable* and not an *animal* product.”

With such a wide difference of opinion among those who should be the best qualified to judge, a non-medical writer should be cautious in the expression of an opinion. Yet there are two considerations, apart from the examination of these objects themselves, that are entitled to some weight.

(i) The first is, that the idea of Immortality entertained by the heathen of all countries, including the Indian of South America, is merely that of human life re-produced, with some trifling alterations. Hence, one sees a logical reason why certain necessaries and comforts of human life, as well as the implements of war, the chase, or domestic industry, should be clustered round the bodies of the dead. It is supposed that all these things will be subservient to important uses, in the passage through the next world. But the very same principle in the Indian mind, appears repugnant to the idea of repairing the human frame with foreign materials. Why should the ancient inhabitants of Arica insert eyes,—either of animal or vegetable matter,—in the heads of their friends, any more than they would patch up a maimed person, with the leg of a mule or the teeth of a goat? They expected the man to re-appear as he had disappeared;—at all events in a condition no less perfect than that which he occupied in human life. It is just possible that the rude fishermen supposed their departed brother would pass to the world of

spirits *through the water*; in which case, one would see a reason, in their minds, for his being supplied with the eyes of a cuttle-fish, or of some other inhabitant of the water, of recognised powers of vision.

(ii) The second consideration is, that if these objects be formed by numerous coats of vegetable gum, dropped and laminated round a common centre, at considerable intervals, then something of a similar kind should be found still, in the same locality, or in neighbouring places under the same conditions. Although the forest of San Juan de Dios has disappeared, the flora of South-western Peru are well known; and there could be no difficulty in ascertaining, whether there be at the present time, exudations of the form and colour of those which we have been examining. Even if this were ascertained, two questions would still remain; viz. (1) are they produced by hundreds, so as to supply, if necessary, the requirements of a whole city of the dead? And (2) how does it happen that they are almost invariably of the same size,—viz. that of a boy's large marble, wanting a segment nearly equivalent to a hemisphere?

A very remarkable fact is, that each of the various theories is enunciated with a degree of confidence that seems to exclude even a hypothesis of a contrary kind; and yet each is encumbered with difficulties of a moral or physical kind, which, for the present at least, appear to render its reception impossible.

POSTSCRIPT.

In the interval which has elapsed between the reading of the foregoing paper, and its being formally printed off,—further information on the subject has been procured.

I. One of the eyes was exhibited at the Meeting of the British Association at Exeter, and the various theories were

stated. The almost unanimous opinion was that the eyes had originally belonged to creatures of the cuttle-fish tribe.

II. Within the maws of albatrosses, presented to the Liverpool Town Museum by Captain Cawne Warren, were found the beaks of "squids" or cuttle-fishes, and these hemispherical objects, (evidently the eyes,) identical in form with those found in the mummies, but neither so hard nor so yellow. Mr. T. J. Moore, the Curator, by whom they were exhibited, showed also several specimens in spirit, of squids taken off the British coast, in the centre of the eyes of which, amber-like objects were shown, very closely resembling the eyes from Arica.

This seems to settle, beyond a doubt, the actual character of the objects.