

Surgery and superstition in Neolithic times / by A.W. Buckland.

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valley to the north-west, but surrounded by hills on the other sides, the chief of these being the fine mass of Corndon Hill in Montgomeryshire, the top of which is as nearly as possible at the same distance as the top of Stapeley Hill, and about $22\frac{1}{2}$ degrees east of south from the circle. A number of tracks meet and cross at or near the spot, and within a radius of half-a-dozen miles or so there are as many tumuli and camps, though none of the latter appear to be of any very great extent.

It will be observed that in these two circles, although there are, as in many other cases, outlying stones and possibly prominent hill tops in other directions than the north-east, there is still that paramount reference to the north-east which may be traced in most of the British circles, and from which the practice of placing churches east and west, so much more frequent in Britain and Gaul than elsewhere, is probably derived. In these circles this north-easterly reference is towards a prominent hill-top, like that of the circle on Penmaenmawr, pointed out by me in the "Journal of the Anthropological Institute" for November, 1877, and the special lesson to be derived from this circumstance is the necessity of observing the natural features of the country, and especially of noting the bearings of any prominent hill-tops surrounding monuments of this description.

Explanation of Plate I.

Map of a part of Shropshire, enlarged by a photographic process from the Ordnance map, showing the relative positions of the remains described in the foregoing paper. Scale two inches to one mile.

The following paper was then read by Miss Buckland :—

SURGERY and SUPERSTITION in NEOLITHIC TIMES.

By Miss A. W. BUCKLAND, M.A.I.

DURING a sojourn in Paris in November, 1879, I had the honour of an introduction to the late Dr. Paul Broca, whose loss is deplored by the whole scientific world. He very kindly took me over the Anthropological Museum which he had formed, in connection with the school of medicine over which he presided; and among the many interesting objects there, particularly pointed out and explained to me the curious evidences of surgical skill and the superstitions connected therewith in neolithic times, afforded by numerous trepanned

skulls in the Museum, presenting me at the same time with a copy of his pamphlet on "Prehistoric Trepanning and Cranial Amulets."

Believing that this subject will probably be as new to many of those present as it then was to me, and that it will be looked upon with double interest in consequence of the recent death of the distinguished man whose researches have made that clear and definite, which would otherwise have remained mysterious and doubtful, I venture to lay before the Anthropological Institute the facts as I have gleaned them from Dr. Broca's book and from his personal explanations.

It would appear that in 1868 M. Prunières discovered in a fine dolmen which he explored near Aiguères, a human skull, from which a large portion had been removed apparently by means of a flint saw. This hole M. Prunières looked upon as having been made in order to transform the skull into a drinking cup, according to a practice well known to have existed among semi-barbarous races; whilst a polished portion of the hole he regarded as that part to which the lips were applied in drinking. Five other fragments of skulls, partially polished, were found in the same dolmen, and these were supposed to be fragments of other skulls prepared in like manner to serve as drinking vessels. But in examining more nearly his collection of skulls from the caves or dolmens of La Lozère which he had explored, and all of which were assigned to neolithic times, he found several mutilated in the same manner, although not all to the same extent, and he became convinced that the portions removed had been cut away to serve as amulets, several of which he afterwards found, some carefully rounded, polished and bored for suspension, and others remaining rough and shapeless as when cut from the skull, whilst, singular to relate, some of these pieces were found *inside* the mutilated skulls, although evidently cut from other skulls.

Dr. Broca having been called upon to examine both the skulls and the amulets cut from them, discovered that the polished portion of the hole, which M. Prunières had at first supposed to have been the part to which the lips were applied in drinking, represented in reality an ancient cicatrised wound, healed many years before death, whilst, for some mysterious reason, most of the amulets bore traces of a portion of a similar cicatrix in some part of their circumference. Pondering upon the frequent recurrence of these curious facts, he came to the conclusion that it was the cicatrised wound which made both the skull and the amulets fashioned from it valuable, and set himself to discover the reason for this apparent veneration. His first conclusions were :—

- (1.) That during the neolithic period a surgical operation was practised, which consisted of making an opening in the skull for the treatment of certain internal maladies, and that this operation was performed almost, if not quite, exclusively upon children. This he designates *trépanation chirurgicale*.
- (2.) That the skulls of those individuals who survived this operation, were regarded as possessed of particular properties of a mystical order, and when such individuals died, rounds or fragments were often cut from the skull, to serve as amulets, and that these were cut by preference from the part adjoining the cicatrised opening. This latter operation he designates *trépanation posthume*.

I need not here give the arguments whereby Dr. Broca proves the correctness of his own theory, and refutes those who would assign these singular holes in the human skull to accident or disease, to a blow from a flint axe, or to the natural decay of the bone after death. On all these points Dr. Broca brings his great surgical and anatomical skill to the aid of his antiquarian researches, and proves conclusively that neither of the causes named could account for the appearances observed. Happily the posthumous mutilation was not carried out in all the trepanned skulls, and consequently Dr. Broca has been able to show from the shape and condition of the cavity the manner in which it was formed. He believes that it was not made, as in the present day, by an instrument which would cleanly cut away the desired part at once; but that the perforation was laboriously made by scraping or grating away the substance of the skull, until the end was attained. This he ascertained, by experiment upon skulls in his possession, could be effected on the skull of a child in less than five minutes, whilst on an adult skull it would take an hour; this alone he considered sufficient to prove that the neolithic trepanners operated solely upon children, although, as he justly remarks, "even the longer period of torture is not beyond the endurance either of operator or patient in Oceania at the present day, for there can be no doubt that endurance is far greater among savage than among civilized races." But the proof that this painful operation was performed during infancy or early childhood does not rest upon probability only, for Dr. Broca found among these perforated skulls one which, from its peculiarity of growth, showed conclusively that the wound had been made and healed at an early period. One circumstance in connection with this seems rather difficult to explain: it is that among all the trepanned skulls hitherto discovered there has not been one of a child found. Now as

it is certain that some, and probably a large proportion of those operated upon died from its effects, we should naturally expect to find at least a few children's skulls thus treated. Dr. Broca explains this by showing how much more readily the bones of infants decay, and how much more subject an imperfect and unhealed skull would be to natural disintegration than one perfectly sound, and shows that even in ordinary interments children's skulls are rarely met with. There seems great plausibility in this explanation: nevertheless, it would certainly be more conclusively in favour of Dr. Broca's argument to find a child's skull thus treated.

Another curious point noted by Dr. Broca is that, although these perforations are found in various parts of the skull and the posthumous mutilations are often of great extent, the forehead is always carefully exempted in both cases; this he adduces as one proof among many that these holes were not wounds received in battle; and also as showing a desire not to interfere with the personal appearance either during life or after death, lest the deceased should not be recognised in the world of spirits.

Presuming that Dr. Broca has proved the existence during neolithic times of a practice of trepanning, consisting of scraping or grating away the substance of the skull with a flint or obsidian scraper, and leaving a hole of considerable size;—that this operation was generally performed upon young children;—that those who survived the operation were looked upon with peculiar veneration, and that after death their skulls were sawn away from the cicatrised hole, in order to provide amulets of peculiar value for the living, a portion of the cicatrised hole being carefully left upon the mutilated skull, whilst an amulet cut from another skull was frequently placed within the cavity made after death:—the question naturally arises as to the reason of these singular practices.

Dr. Broca believes that this dangerous and painful operation was performed for the cure of epilepsy and convulsions, and he argues justly from the superstitious practices found in connection with it, that at that period, as well as long subsequently, these diseases were regarded as peculiarly the work of spirits, and that consequently neolithic peoples had attained to some conception of religion and of a future state. He shows that even as late as the seventeenth century, all convulsive diseases were regarded as epilepsy, especially in infancy, although true epilepsy seldom shows itself before the age of ten, and he thinks that this explains why the operation was so constantly practised upon young children, since the apparent cures effected by the process would be more numerous at that

age—experience having proved that sufferers at a later age, that is true epileptics, were not cured thereby; whilst those who in early infancy were submitted to the operation, might grow up as living witnesses of its efficacy. Dr. Broca quotes from a treatise upon epilepsy by Jehan Taxil published in 1603, not only to prove that at that date infantine convulsions were confounded with true epilepsy, but also as showing that up to that time epilepsy and kindred diseases were looked upon as spiritual diseases, the work of gods or demons, whilst the remedies recommended in this treatise are highly suggestive, consisting sometimes of the ashes of a human skull applied as a plaster on the crown of the head, sometimes the same administered in potions or pilules, and sometimes as nodules to be worn round the neck, whilst sometimes also *scraping* the skull was recommended. Dr. Broca goes on to show that all through the middle ages and even after the Renaissance the substance of the human skull was used in the treatment of epilepsy, the skulls of Egyptian mummies being regarded as the most efficacious; whilst in the last century all the pharmacies contained a bottle labelled “Ossa Wormiana,” for the treatment of epilepsy, the peculiar efficacy of the triangular lambdoidian bone consisting in its form, which resembles that of the amulets cut from the human skull; thus showing the step between prophylactic and mystic medicine.

Neither was the use of trepanning as a remedy for convulsive disorders confined to neolithic times: it is still in favour with Oceanic races, with the Kabyles, and also, it is said, with the mountaineers of Montenegro. Even in the last century a certain number of practitioners employed trepanning as a cure for epilepsy, and Taxil, before quoted, writing in 1603, gives minute directions for the process, which in epileptic cases differed from that employed in cases of fracture of the skull, that being its sole use in the present day, especially when that fracture is likely to produce epileptic convulsions, all modern practitioners regarding it as useless in the case of spontaneous epilepsy. “But,” says Dr. Broca, “how came it introduced into the practice of medicine? No one knows; Hippocrates, Galen, and other ancient authors, the Arabs and the Arabists had not spoken of it; it was doubtless one of those popular practices which low empirics transmitted from one to another, and which sometimes got introduced into therapeutics.” M. Prunières supposed that this practice of trepanning was extended to idiots and insane, as well as to convulsive patients, and this Dr. Broca considers possible, although he believes its chief use was for infants suffering from convulsions, who were consequently supposed to be possessed by spirits. Among the skulls

examined by Dr. Broca is one particularly noteworthy, because from the appearance it presents it would seem to have been *partially* trepanned; a large surface appears to have been scraped away, but the operation was not finished, or at least it was not continued so as to produce the usual hole.

Dr. Broca thinks several similar cases may be found of this incomplete trepanning, of which he possessed three specimens, one from Roknia, Algiers, and two others. This he supposes to have been either a lesser operation for a minor malady, or more probably that it was adopted by some unbelieving or less credulous individuals, who attributed the cure rather to the scraping of the substance of the skull, than to the hole made to facilitate the escape of the evil spirit of disease, but at the same time he sees in this incomplete operation a sign of the decay of an old superstition, and points out that in the comparatively late treatise of Taxil upon epilepsy, he recommends a treatment which consists of scraping the whole external table of the bone, but which was sometimes to be continued so as to expose the dura-mater. Hence he says, "The empiric operators of the middle ages, whose barbarous practices are reflected in Taxil's book, did precisely that which had been done many centuries before by neolithic operators, with this difference, that with the former incomplete trepanning was the rule and complete the exception, whilst with the latter it was just the reverse, the complete operation being the rule and incomplete the exception."

I have before mentioned the amulets cut from the trepanned skulls, some of which were found inside the skulls thus treated, although these invariably belonged to other skulls, and not to that within which they were found. These amulets are of various forms and sizes. A glance at the mutilated skull figured in Dr. Broca's book will show how they have been cut away from the hole made in trepanning, and how much they must have differed in shape. Some of those found are carefully rounded and polished, and have a hole bored in the centre for suspension; some are triangular, some oblong, and some quite unpolished, just in the state in which they were cut from the skull; but in almost all there is a portion to be detected of the original cicatrised hole, and it is probably to this that they owed their value. Dr. Broca thinks they were probably worn as a charm against those convulsive disorders for which trepanning was practised, and that so great was their reputation that they became articles of commerce, so that it was necessary to preserve some visible token of their origin, in order to prove that they were really taken from a trepanned skull. This however will not explain their presence within the

skull from which others had been cut. Dr. Broca supposes that having gone as far as possible in robbing the deceased of his cranial substance, fear of his anger in a future state induced them to make some sort of restitution, by placing within the despoiled skull a valued amulet cut from another sufferer. I cannot say that this hypothesis is quite satisfactory, and I may perhaps be allowed to offer another, which has suggested itself to me as probable. It would appear to me that the permanent hole in the skull, whether of child or adult, would necessitate some sort of shield for the exposed portion of the brain, the least injury to which would be fatal; and what more appropriate covering could be found than a portion of the skull of one who had suffered in like manner, and had lived and grown old notwithstanding, and to whose skull therefore a specially preservative power might be assigned by superstition? One might imagine a mother hastening to provide her suffering child with this preservative shield, either polished or unpolished according to her means, which worn by him in a fillet bound round the head during life, would, as well as other precious possessions, be buried with him. But when, perhaps, after a lapse of years the skull of the trepanned was again mutilated to provide amulets or coverings for the living, this amulet would be displaced, and of course, being found too small for covering the enlarged cavity, it would naturally be placed inside, perhaps with the vague notion that the departed spirit finding the accustomed covering, would not miss the pieces taken from the skull, or would suppose the loss to be the result of accident or natural decay; for it is not without significance we read that the skulls wherein the amulets have been found, and which are always posthumously mutilated, are filled up with earth so tightly packed into the cavity as to require some patience to remove it. One point in favour of this hypothesis is that two out of the three amulets hitherto found in the interior of mutilated skulls, have been of the rare type styled *rondelles* by Dr. Broca, that is they are nearly round, highly polished and neatly fashioned at the edge; the third being also rounded and polished, although of a more irregular shape, having likewise been broken; whilst the ordinary cranial amulets are irregular in form, and generally left in the state in which they were cut from the skull. We must also bear in mind that we are treating of a time when metal was unknown, so that if a shield was required for the exposed brain, some hard substance such as stone, shell, or bone must have been chosen, and this would add to the probability of cranial amulets having been so applied. This however would account for very few, three only having hitherto been found within the cavity of trepanned

skulls, so that by far the larger number were doubtless used and worn as charms, probably to ward off or cure convulsive disorders.

Those who have followed this singular account of prehistoric surgery thus far, will naturally inquire whether the custom can be traced to its origin, and whether it was peculiar to one tribe, and to one period. To both these questions Dr. Broca gives an answer, although necessarily an incomplete answer. He says that these pre-historic trepannings were in use through the whole of the neolithic age, for they have been found in the cavern of the "Homme Mort" (Lozère), which dates from the commencement of the polished stone period, also in the sepulchral grottoes of Baye, which date probably from the latter part of that epoch, and again in certain dolmens of Lozère in which a few rare objects in bronze testify to the end of the neolithic period. Traces of the practice have also been found on skulls partially cremated, and if it could be clearly demonstrated that cremation was never used in neolithic times, this would prove that trepannings extended into the age of bronze, but in the sepulchres from which these skulls were taken, no trace of metal was found, and the two modes of interment by inhumation and cremation were found to exist side by side. On the other hand, one of these perforated skulls was discovered by M. Gassies at Entre-roches near Angoulême, among relics which he assigned to the palæolithic period, but Dr. Broca shows that from pottery and a polished hatchet having been found in the same sepulchre, as also bones of animals all belonging to existing species, this interment was certainly neolithic, and he does not think trepanning can be traced to an earlier epoch than the neolithic. As regards its area and origin, he says the custom obtained in a large part of France, from the artificial grottoes of the department of Marne on the north, to the natural grotto of Sordes (Basses-Pyrénées) on the south; the extreme stations to the south-east being those of Lozère discovered by Prunières. Similar discoveries have been made by various archæologists in the department of Charente on the west, in the great dolmen of Bougon (Deux Sevres), and in two sepulchres near Moret (Seine-et-Oise). "Pre-historic trepanning therefore," says Dr. Broca, "was not a local practice confined to a single tribe; it occupied an extensive area among peoples who without doubt were numerous and distinct, but who were certainly bound together by strict social and religious ties, and by a common civilisation. Whence came this curious practice? If we judged according to the frequency of the facts, we should be disposed to believe that it originated in the region which now forms the department of Lozère, since it is there that the greater number

of specimens have been found. But this result is probably due to the indefatigable activity, and the rare aptitude of M. Prunières, whose sagacious eye allows no detail to escape. It is not yet three years (1879) since the first discussion in the Anthropological Society of Paris drew the attention of French pre-historians to the subject; it is only since then that other neolithic stations have been studied with this especial object, and the already numerous facts gathered will doubtless soon be multiplied. It is no less probable that similar facts will soon show themselves beyond the geographical area indicated. I am not of the number of those who attribute to one people all the megalithic monuments, and all neolithic civilisation; but it appears to me indisputable that this civilisation has been spread most frequently by means of migration, and the determination of the places to which the practice of trepanning has been extended may throw much light on the direction of these migrations."

"If the incomplete trepannings were as well known and as clearly demonstrated as the perfected, if in other words their witness was as decisive, the skull of Roknia described above would lead us to believe that the therapeutic surgery of the neolithic epoch had been imported into northern Africa by the constructors of the dolmens of that region; perhaps we see there the origin of these trepannings, which have been in use from a very remote period among the Kabyles, and of which M. le Baron Larrey has spoken before the Medical Academy of Paris. But a fact at present unique is not sufficient to establish such a conclusion."¹

I wish to draw your attention particularly to these words of Dr. Broca, because it is chiefly in regard to them that I have brought this subject before you.

There can be no doubt that neolithic monuments similar to those wherein these trepanned skulls have been found in France exist in great numbers in our own country, and more especially in Ireland, Wales, and Cornwall, but as far as I am aware no record of a skull thus treated in Great Britain or in Ireland has hitherto been noted by our archæologists. It is true that since my attention was called to the subject by Dr. Broca, I have had but little opportunity of minutely examining such books as would be likely to give full details, but I find no mention of the subject in the "*Crania Britannica*," and other well known archæological works, which however were published prior to these discoveries in France. Are we then to conclude that the practice of trepanning never extended to our shores, or that the connection which doubtless existed during neolithic times between Great

¹ "*Sur la Trepanation du Crane et les Amulettes Craniennes à l'époque Néolithique.*" Par M. Paul Broca, 1877, pp. 69, 70.

Britain and France, had been severed before the adoption of trepanning in the latter country? I think not, and feel sure that a minute examination of many of the apparently broken skulls found in the sepulchral caves and dolmens of the neolithic period will reveal the fact that the custom extended to our shores. I need not point out that every additional ascertained fact is important in anthropological research; but in this case it is doubly so, as bearing not only upon the surgical practices of identical or allied races, but also upon their religious beliefs. There can be no doubt that the hole bored in the human skull had its origin in the belief in spiritual possession, formerly so universal in the case of epilepsy and other convulsive disorders. "The intervention of a supernatural agent," says Dr. Broca, "appeared still more evident because certain individuals displayed in their convulsive movements a strength quite beyond their ordinary strength. Nothing but a spirit imprisoned in the body could produce such effects; he is agitated and angry in his prison; if a door could be opened for him he would escape, and the sick would be healed. This probably gave birth to the idea of pre-historic trepanning."¹

This of course pre-supposes a belief in spirits beings supernatural and intangible, yet requiring visible means of egress and ingress. It may be regarded as almost certain that the holes found in the stones forming the entrance to dolmens in India as well as in our own country have their origin in this belief, and the custom which has hardly yet died out of passing children through such holes for the cure of certain diseases, appears to bear some analogy to the practice of trepanning, although whether the custom of trepanning originated in the holed stone, or whether the hole in the stone made for the passage of the spirit was taken from the surgical operation, is yet to be ascertained. I fancied I observed a survival of this curious custom of trepanning during my recent sojourn in the south of France. At Cannes I saw several dogs with oblong patches of red leather stuck on their heads, and on inquiring of a man who had one of these dogs the meaning of this curious adornment, he replied, "You see, Madame, all young dogs are subject to fits, and it is supposed that this piece of leather worn just on the brain will prevent these attacks." "And does it really have that effect?" I asked, desirous of finding out how far the idea extended. "Ah, Madame," was the answer, with the inimitable French shrug of the shoulders, "how can I say, I am not a patron of dogs, but *they say so*." I observed also in Milan that almost every dog wore under the compulsory muzzle on the top of the head a little

¹ "Sur la Trepanation du Crane et les Amulettes Craniennes à l'époque Néolithique." Par M. Paul Broca, 1877, pp. 69, 70.

ornamental patch of cloth or leather, generally red, but whether with the same idea of warding off madness or fits I could not ascertain.

Dr. Broca has told us that even to the present day the shepherds of Lozère trepan giddy sheep, by taking the head of the sheep between their knees, applying the point of their large knife to the skull, and turning it between the hands until a hole is made, and he thinks this might have been done by a flint knife in neolithic times, although this process would not make a similar perforation to that in the trepanned skulls; but the people of some of the South Sea Islands, who still practice trepanning, perform the operation by scraping with a piece of glass, which—substituting flint for the glass—Dr. Broca thinks to have been the process in neolithic times, since he found by experiment that he could by that instrument, used as a scraper, make just the elliptic opening found upon the neolithic skulls. “The Kabyles of Algeria,” says Dr. Broca, “who often practice trepanning, use saws, by the aid of which they circumscribe the piece to be removed.” Mr. Squier discovered in an ancient Peruvian tomb a skull which had been trepanned by means of four sections cut at right angles, so as to take away a square piece. The Greek surgeons opened the skull by means of a turning instrument called the *trepan*, but this, as Dr. Broca points out, could only have been after the discovery of metals, and yet the origin of the operation had been forgotten in the time of Hippocrates, in the fifth century before our era.

With regard to cranial amulets, Dr. Broca says that although those of which he has spoken are all of the neolithic period, yet there are traces of their use long after that time. “There is one in the Collection Morel at Chalons-sur-Marne, suspended from a Gallic torque by a hole in the centre. A similar amulet pierced with holes was found by M. de Baye, also in the Department of Marne, and he possesses several others, which although not suspended to torques, were in all probability made to be hung round the neck like medals, and we may believe that this Gallic custom had descended from neolithic times, although perhaps the Gauls did not attach to them the same ideas as their predecessors; and that which had originally been an amulet, might in time have become simply an ornament, for we know how persistently certain popular customs become perpetuated under their material sign, even when the original design of the custom is lost.”¹

It will thus be seen that both the custom of trepanning, and the use of cranial amulets, extend not only over a very large

¹ “Les Trepanations Préhistoriques.” Broca, p. 6.

area, including as it would appear the Pacific Islands and Peru, as well as Africa and France, but also occupied a very considerable space of *time*, since we have traced both customs either in full operation, or in a state of survival, from neolithic times to the seventeenth century, and even to the present day among the Kabyles and inhabitants of Polynesia. Nevertheless there are some very curious points in connection with these customs as revealed to us by Dr. Broca, which require to be cleared up. In the first place all the trepanned skulls hitherto discovered, belong, as Dr. Broca believes, to the neolithic period, extending from the beginning to the end of that period, when they suddenly cease, and yet the belief in the efficacy of the operation in epileptic and convulsive disorders continued even to the seventeenth century, as is witnessed by the quotation from Taxil's treatise on epilepsy, wherein he recommends the treatment of epilepsy to consist "of the application of a cautery or issue obtained by exposing the bone by grating and taking away the outer portion, *as they do generally*."¹

Dr. Broca attributes the sudden cessation of trepanning to a change of religion at the commencement of the bronze age; he says: "The adoption of a new mode of sepulture necessarily implies a great change in religious ideas. But it is quite to be understood that a people is not converted at once and entirely to new beliefs, and that superstitions would survive during some time. The practice of trepanning, therefore, may well in certain places have survived the neolithic epoch for a short time, without our being justified in attributing it to the bronze age, and everything leads to the belief that it became extinct at the same time as neolithic civilisation."²

Dr. Broca has, however, himself shown that there has been no such great change in religious belief in regard to trepanning, for he has pointed out that in all ages epilepsy and convulsive disorders have been attributed to spirits and demons, and that trepanning was resorted to as a cure for these disorders as late as the seventeenth century, whilst exorcism to drive out the evil spirit, and that sort of survival which consisted in passing children through a holed stone for the cure of these disorders, may be traced even to the present day. Therefore that the custom of trepanning should suddenly cease with neolithic times is strange *if proved*. The practice of cremation, which became almost universal in the bronze age, may have destroyed in a great measure the necessary proofs, although Dr. Broca relates that among numerous fragments partially cremated, discovered by M. Chouquet, two bore traces of surgical and posthumous

¹ "Les Trepanations Préhistoriques," Broca, p. 34.

² *Ibid*, p. 72.

trepanning, but from the absence of metal he puts this instance of cremation down to neolithic times. My own impression is, that the custom once introduced was continued both by tradition and practice to a late epoch, although perhaps it became less and less frequent, as superstition gradually died out among the better educated, and surgery became confined to an educated class, instead of being the privilege of witch doctors or medicine men, which was doubtless the case in neolithic times, as it still is in uncivilised countries.

Another singular circumstance with reference to these pre-historic trepannings is, that some of the skulls have been left entire, whilst others have been largely mutilated to provide cranial amulets. Dr. Broca thinks that the exemption from mutilation was due to the opposition of the survivors, but I would suggest whether it might not rather be that the un-mutilated had not been cured, and that therefore their skulls were not regarded with the same veneration, or perhaps the posthumous mutilations may have taken place at a later date, in consequence of a new superstition, and the un-mutilated may have remained undiscovered.

At all events I hope I may have said enough on this, to me, interesting subject, to draw the attention of some of our anthropological students to it, that they may be induced to examine minutely such skulls or portions of skulls as may fall in their way, for traces of the existence of this curious custom in Great Britain in neolithic or later times, for I cannot believe that the practice could have been confined to France, whilst the superstition with which it is so obviously connected certainly reached our shores with that neolithic civilisation of which it is a part; being as I believe still to be traced in the holed stone called *Men-an-Tol* in Cornwall, and in many other holed stones forming the entrance to dolmens, several of which exist certainly in Wales, and it is particularly in connection with these that I should expect to find traces of pre-historic trepanning, either in mutilated skulls or cranial amulets.¹

Among the relics of the Swiss Lake dwellers, Keller describes a tomb at Auvernier having a large slab of gneiss, in which is an opening more or less square, made apparently intentionally, sufficiently large for a human body to be carried through, and among the relics within this tomb "a little bone $1\frac{1}{8}$ inches in diameter, carefully polished on both sides, and perforated in the centre."² This was probably a cranial amulet, and if so it would

¹ Dr. Broca mentions holed skulls, and coffins also with holes in them, found in Michigan, but these are evidently posthumous, and he does not think they have any affiliation with the neolithic trepanned skulls, although showing a similar stage of religious belief.

² Keller's "Lake Dwellings," vol. i, p. 251.

be extremely interesting as showing the extension of similar practices and religious beliefs to the Lake dwellers. Many such relics might, I believe, be found among the neolithic tombs of Great Britain and Ireland, and the great light which would thus be thrown, not only upon the habits and customs, but also upon the superstitions, the belief in spirits and in a future state, by these mute records of an age and people long passed away, renders the search for them peculiarly interesting. In addition to this the ethnological value of these things must not be overlooked. It seems barely possible that the Kabyles of Africa, the natives of the South Sea Islands, and the neolithic people of France, would have hit upon this peculiar custom of trepanning, and have carried it out in the same manner, and for the same cause, unless the custom acquired in one spot had been conveyed from that one spot to others, either as Dr. Broca says by means of migration, or by some mode of intercommunication at present unknown to us.

I trust, therefore, that ere long our ethnological and anthropological museums may be furnished with examples of this curious custom taken from the dolmens of Great Britain; and in order that searchers may know how to distinguish these remarkable trepannings from other injuries, either during life or after death, I would refer them to the plates and explanations in Dr. Broca's book on "*Prehistoric Trepanning and Cranial Amulets*," from which I have so largely quoted.

DISCUSSION.

Mr. RUDLER, having had an opportunity, in company with Mr. Brabrook, and under the courteous guidance of Dr. Broca and Dr. Topinard, of examining the prehistoric trepanned skulls in the Museum of the Anthropological Society of Paris, bore testimony to the great interest of the subject introduced to the notice of English anthropologists by Miss Buckland. At the same time he called attention to several discoveries of perforated skulls, which had been submitted to the Anthropological Society of Berlin. The connection which was sought to be established between the perforations in the skulls and the holes in the walls of certain dolmens had been extended to those perforated sepulchral urns which are well known to German archaeologists. In all these cases it had been assumed that the opening was intentionally made as a means of egress for the spirit. The notion that an aperture is needed for the free passage of a ghost still lingers in the wide-spread practice among superstitious people in this country, not less than on the Continent, of opening the window of the sick chamber immediately after a death. It must be remembered, however, that some of the instances of skull perforation cited in the paper were of an entirely different character. Thus the practice of piercing the skull of a sheep

suffering from staggers, as stated to be still practised in Lozère, rests upon a more rational basis, inasmuch as the operation, rudely performed by the shepherd, may occasionally effect a cure by the actual removal of the cystic worm (*Coenurus cerebralis*) which occasioned the cerebral disturbance.

Some remarks were also made by Lieut-Colonel GODWIN-AUSTEN, Mr. G. M. ATKINSON, and the PRESIDENT.

NOTES on the ORIGIN of the MALAGASY.

By C. STANILAND WAKE, Esq., M.A.I.

[A paper read before the Institute on November 23, 1880.]

SOME years ago I read before the Anthropological Society of London, a paper on the "Race Affinities of the Madecasses," or Malagasy, in which I traced the numerous points of agreement between the inhabitants of Madagascar and the natives of South Africa. The conclusion I then arrived at, was that the Malagasy are "more truly autochthonous than any other existing race, except perhaps the aborigines of Australia." This view is an intermediary one between that which would trace the former people to an African origin, and that which would connect them closely with the native inhabitants of the Pacific Islands. Since the publication of the paper referred to, I have somewhat changed my opinion as to the origin of the Malagasy. Many as are the features in which they agree with various African peoples, they may be due either to intercourse between the inhabitants of Madagascar and those of the adjacent continent or to derivation from a common source. That the Malagasy had at one time much closer relations with the natives of the East Coast of Africa than at present cannot well be doubted. I would rather, however, explain the points of agreement presented by those races as being due to the intercourse which they have had in common with the Hamitic or Semitic peoples of South-Western Asia. The great influence exercised by these peoples over the African races is now generally admitted, and it is becoming recognized that they have left strong marks of their influence in the island of Madagascar.

A writer in the "Antananariv Annual" (No. 2, 1876), the Rev. L. Dahle, refers to the traditional arrival on the south-east coast of this island, in the eighth century, of Arabian or Persian settlers, to which he traces the history of the origin of the Antaimours and Zafiraminis, the descendants of the mother of the Arabian Prophet, in the same part of Madagascar. It has long been known that the Hova names of the days of the week

and names of the lunar months, were derived from the Arabic, and it has recently been shown, not only that the latter are the Arabic names of the constellations of the Zodiac, but that the days of the Malagasy month were originally the Arabic names of the twenty-eight moon stations. Mr. Dahle supposes that the descendants and proselytes of the Arab settlers on the south-east coast carried into the interior the names of the constellations, which, to enable them to teach the natives the system of divination founded on the idea of lucky and unlucky days, they transferred to the lunar months. Not only does he trace the Malagasy notion of *vintana*, or destiny as depending on time, to this source, but also the practice of divination, or counter-charming, by the *sikidy*. Moreover, Mr. Dahle affirms, also on the evidence of language, that the Arabs have introduced to the Malagasy the use of dress (although not many of the different kind of clothes), and the knowledge of money; have given them the names of most of their musical instruments, their words referring to books and writings, and the terms of salutation, besides many other words. Whether Mr. Dahle's opinion as to the extent of "the Arabic contribution to Malagasy civilisation and superstition" will be fully accepted is perhaps doubtful, but his general conclusion cannot be denied. A reference to certain Malagasy customs will sufficiently prove its truth.

Thus, the offering of human sacrifices was formerly prevalent on the south-east coast, the position where Arabian immigrants are supposed to have landed, and the sacrifice of persons of high rank was thought by the Malagasy of that region to be the most appropriate offering to their divinities, as we know was the case also with various Semitic peoples.

The practice of *faditra*, or the use of expiatory offerings to avert evil, reminds us of the scape-goat, which had almost its counterpart in the sheep on which the evils to be removed were imprecated by the Malagasy priest.

The *tangena* ordeal closely resembled the ordeal by bitter water mentioned in the Hebrew Scriptures. The superstitious use of large stones, and the anointing of them with sacrificial blood and fat, is probably due to Arabian influence.

The custom of building towns on the tops of hills prevalent in central Madagascar is not specially Semitic, but the use of large circular stones for the purpose of closing the entrance to their house enclosures, formerly customary among the Hovas, was probably thus derived. The rite of circumcision, which the Malagasy look upon as of great importance, cannot well be traced to any other but an Arab source, especially if it is a remnant of human sacrifice, unless it was practised by the