A PREHISTORIC WAR WOUND.

BY
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With Note by
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IN connexion with certain trenching operations there were brought to light the remains of an ancient British warrior who fought and suffered from a very grievous head wound some 3,000 years ago. In severity it rivals wounds suffered by our soldiers in the present war. The nature of the wound can be best realized from the annexed sketch of the forehead by Dr. Keith. It is not difficult to realize the manner in which the wound was produced or to picture the subsequent sufferings of the victim. In the Neolithic and Bronze periods the favourite weapon was the celt or battle-axe, pointed at one end, flattened and sharp at the other. The wound seems to have been produced by the pointed end of the celt, which fell upon the supraciliary ridge over the left orbit with such a force that it sunk clean within the skull, leaving a sharp-edged hole, about $\frac{3}{4}$ in. (20 mm.) in one diameter and $\frac{1}{2}$ in. (12 mm.) in the other (Fig. 1, c). The shivering force of the blow fissured the left supraorbital region in such a manner that the external angular process (A) and the supranasal region (B) were partially separated from the rest of the forehead. The injury was not immediately fatal for there are signs of repair all round the wound. In the supranasal region there is abundant evidence of osseous repair attended by supuration. A sinus leads into the frontal air cell, which had apparently been laid open and become infected. The edges of the primary wound are smooth and even, from absorption and from the deposit of new bone. The most remarkable and puzzling condition is seen at the outer end of the primary wound in the region between A and E. Here the bone has been absorbed or scraped away until the edges of the fissure, extending across the left side of the forehead and reaching the temporal region, are reduced to fine edges. The thinning affects merely the outer table and diploë of the bone; the inner table has not been absorbed. The absorption of the bone in the region A E is, as I have said, puzzling. It may be due to the efforts of the surgeon who attended the case, for we know that in the Neolithic and Bronze periods trephining or scraping was frequently resorted to. On the other hand, the absorption in this area may have been due to the application of some protective contrivance which exerted pressure on the underlying bone.

In any case the warrior evidently lingered on for months; the outer end of the wound extended over the third left frontal convolution. As will be seen from Dr. Keith's note, this ancient British warrior—a slim, short man—died young, and very probably from sequelae following his wound.

The discovery was made in the following manner. In a lonely spot on the Wiltshire Downs, near the site of a prehistoric camp or fort, during the making of some modern trenches, human bones were discovered. News of this reached Lieutenant-Colonel R. H. Hall, R.A.M.C., who asked me to go and investigate the circumstances. I went, accompanied by Captain Lovatt, R.A.M.C., and Lieutenant Sweetman, R.E.S.

We found that from a long section of trench 6 or 7 feet deep it had been decided to make an offset at right angles. This offset was carried down to the level of the floor of the main trench, which was cut through a layer of soil about 10 inches thick, and then through solid undisturbed chalk.

After proceeding some 10 feet along the offset a place was exposed where the upper 4 feet was composed of soil containing human bones. There was a step of about 2 feet of solid chalk, undisturbed, below the soil which contained the bones. Much of this deep soil had been thrown back in the trench for complete removal later. We set to work and carefully passed through a fine sieve the whole of the soil which was lying in the offset and the deep layer of soil. We found many human bones in fragments. Our labours exposed an oval shaft sunk into the chalk to a depth of 4 ft.; it was 3 ft. 9 in. long and 2 ft. 9 in. wide. From the position in which we found the skull, the body had been flexed, chin to knees, laid on its left side, head to north, feet to south facing east, back to west; these bearings were taken by compass. The floor was of undisturbed hard chalk; the overlying soil was about 10 in. thick as shown in all the sections of trenches thereabouts.

The skull was fairly complete, but very soft and friable when found, and of a yellow colour, which changed on drying to a chalky whiteness. This is also true of the rest of the fragments. Judging from the condition of the teeth, the whole of which were found in the upper jaw, we had found the bones of a man well under 30 years of age. Confirmation of the age was found in the scarcely yet obliterated epiphyseal lines in certain of the long bones.

When we came to fit together the "jig-saw puzzle" like pieces of the skull a very remarkable feature was observed. Over the inner third of the left orbit was an oval opening, $\frac{3}{4}$ in. long (horizontally) by $\frac{1}{4}$ in. wide, the edges of which were rounded and smoothed off by a healing process; this opening was continued outwards for a further $\frac{3}{4}$ in., the bone being irregular and very much thinner. Much new bone was thrown out round the opening over an extensive area, and in the centre of the frontal bone, just above the nasal bones, was a deep pit, suggestive of prolonged supuration and necrosis. After an examination of the fragments it does not require much imagination to picture our warrior taking part in a hand-to-hand combat with stone weapons in which he got the

FIG. 1.—Drawing of frontal region of prehistoric skull. A, External angular process. B, Supranasal region. C, Primary perforating wound. D, Sinus leading to frontal air cell. E, Part which has been attenuated either by scraping or by absorption.

worst of it. A blow from a stone battle-axe, such as we associate with men of his time, "gets home" on his forehead, exactly on the spot where a right-handed man would expect a well-aimed blow to fall on an opponent's head, perforating the frontal bone and depressing the skull. Thus, poleaxed, he should have died at once; at the least he must have been placed immediately *hors de combat*. It would only be reasonable to infer that the victor thought his work complete, or we should not have found the healed margins of the wound and evidence of suppuration and new bone pointing to a lingering death at some later period.

For how long did our warrior lose consciousness after the injury? Did he ever recover it, or, having recovered it, what symptoms persisted? What of the sight of the left eye? What treatment or remedies were applied? The answers to all these questions can only be speculative; yet one of the fragments of bone found in the grave was about $1\frac{1}{2}$ in. square, not human, but part of the orbital portion of the left malar bone of an ox, with the outer table of one of the edges quite rubbed down to the cancellous tissue! *Similia similibus curantur*? Possibly even then a belief. Also the shell of a "moor snail" was found. Had this also any supposed healing virtue? A few flint chippings, showing man's handiwork, were also found along with the bones, but nothing that could be called an instrument of any kind.

Associated with the remains was a small quantity of material, not unlike thin sheets ($\frac{1}{8}$ in.) of "hair and lime plaster." Could this be the remains of a shroud?

A fragment of one rib possesses a remarkably well developed unciform process.

NOTE BY DR. KEITH.

It was fortunate that one with so sharp an eye as Lieutenant West was at hand when the discovery was made, for it would have been easy for a casual observer to have overlooked the nature of the cranial fracture. I have shown the flint flakes found with the remains to Mr. Reginald Smith, of the British Museum, but they are not sufficiently characteristic to give an accurate date for the burial, which may be assigned to any point of a period extending from the Neolithic almost to Roman times. The posture of the skeleton and a comparison with other discoveries of a like nature lead one to assign it to the Bronze period, or perhaps a late Neolithic date. As Lieutenant West has inferred, the skeleton is that of a young man; his epiphyseal lines have just closed; his teeth are unworn. They are massive teeth, showing a slight degree of irregularity in implantation and a certain degree of contraction of the palate. Contraction of the palate, so common in our modern population, is unknown amongst the ancient British. Nor is Lieutenant West's warrior an exception; the contraction is only apparent, not real, for it is due to the massive teeth being implanted on a palate of more than average dimensions.

As regards head-form, Lieutenant West's warrior has the character of the British of Neolithic period. The skull is comparatively a small one: its maximum length is 184 mm.; its greatest width 136 mm.; its cephalic index 74—long-headed. The height of the vault above the ear-holes 120 mm.; the cranial capacity 1,420 c.cm. From the femur and other bones the stature is estimated to have been about 5 ft. 2 in. (1,658 mm.). The bones are remarkably slim; those of the thigh and leg show extreme flattening. Details of all of these characters will be placed on record in the *Journal of the Royal Anthropological Institute*. The remains may be inspected at the Museum of the Royal College of Surgeons.

ON THE SALT PACK TREATMENT OF
INFECTED GUNSHOT WOUNDS.

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THE method of dressing wounds with a firm pack of gauze and sodium chloride tablets, devised by Colonel H. M. W. Gray, C.B., combined with a preliminary free excision of the wound and lacerated and infected tissues, has in our hands given results which have effected revolutionary changes in our methods of treatment. During the last twelve months it has gradually supplanted other methods of treatment, until now we employ it in the majority of cases. At first we regarded it with suspicion and used it but half-heartedly; finding, however, that wounds dressed in this way became clean at least as speedily as those treated by other methods, and that the general condition of the patients improved owing to undisturbed sleep, increase of appetite, and absence of mental apprehension of frequent painful dressings, we ended by becoming complete converts to the method.

The operative details in connexion with a wound naturally vary with the site, nature, and degree of infection of the wound.

For example, wounds of the buttock by shrapnel ball or shell are invariably laid open in their whole extent. If there are separate entry and exit wounds they are joined by an incision dividing the glutei down to the track between them. Foreign bodies are removed and the necrotic tissue lining the track excised. Bleeding points are tied with catgut, and after examination for bony or visceral lesions a salt pack is applied. Such a wound is often ready for suturing within ten days to a fortnight.

Wounds of Limbs.

The superficial wound if small is excised so that it will admit a finger. The full extent of the wound is then determined as far as possible by digital examination, and unless essential structures are involved the whole area is laid open, all pockets being exposed to the end. Foreign

bodies, including pieces of cloth and blood clot, are carefully searched for and removed, and all necrotic tissue cut away with scissors until a freely bleeding surface remains. If the deep fascia or superficial muscles tend to come together and close the mouth of the wound sufficient tissue is excised to ensure that, when the salt pack is in place, the mouth of the wound will be widely open. A conical wound not requiring the use of drainage tubes is thus produced.

Where there exist entry and exit wounds and their junction would involve the sacrifice of essential structures, such as a large motor nerve, two conical excisions with their apices meeting in the centre of the track may be made and a pack applied at each end.

In all cases side tracks and pockets are opened up so that they may be packed to the bottom. Where a fracture exists, fragments, unless small and completely detached, are not removed. These proceedings are not really so heroic as at first sight may appear, for, first, most of the muscle excised is infected, and secondly, it has been shown that muscular tissue even though not infected has lost its striation and contains haemorrhagic areas for a considerable distance around a gunshot wound. Such muscle will not regain its function and will ultimately be replaced by fibrous tissue. Fascia and tendinous structures are badly supplied with blood and invariably slough when exposed in infected wounds. They should be cut away at the primary operation. On the other hand, the sheaths enclosing intact muscles should not be unnecessarily opened. When infection is confined to a single muscle it is sometimes advisable to remove the whole belly in its sheath, for instance, the rectus femoris or one of the hamstring group. Thrombosed veins should be dissected out to their full extent and excised.

With the exception of iodine for the skin we do not apply any antiseptic to the wound.

The wound having been thus prepared the salt pack is applied in the following manner. A piece of plain gauze, four to six layers thick, is lightly wrung out of 5 per cent. salt solution and carefully laid in the wound so that it is in contact with the whole of the surface. Care should be taken that this sheet of gauze is sufficiently large to cover the whole surface of the wound. If several smaller overlapping pieces are used, small spaces in which pus collects form at the lines of junctions and there is also great danger of the pieces being displaced when the rest of the packing is inserted, thus leaving bare surfaces. When the wound is a deep one the gauze lining is carefully carried down by the fingers within it to the deepest recesses of the wound. No spaces should be left, as they rapidly fill up with pus. A few 40 grain tablets of salt* are now placed in the deepest part of the wound, or, if the wound is flat, placed on the surface of the gauze about an inch apart. The interior of the gauze-lined wound is now firmly packed, somewhat in the manner of the old-fashioned petticoated tube, with a roll or long strip of gauze moistened in the same way. This strip is carried alternately from one end of the wound to the other and numerous tablets of salt are laid between the successive layers. A handful of tablets should not be thrust in all together, as when they dissolve a cavity is formed. For a wound 4 in. long by 3 in. deep ten to twenty tablets would be used. When the pack becomes flush with the skin surface a few more layers of gauze are applied and over that a thick wool dressing, composed of at least three layers, completely encircling the limb. The whole is then firmly bandaged, so that the surface of the wound is kept in intimate contact with the pack, and all spaces which tend to form are obliterated. Really firm pressure should be used both in applying the pack and in bandaging. The elasticity of the thick wool dressing distributes the pressure and effectually prevents anaemia of the wound surface and congestion of the limb below.

Where a compound fracture is present it is not usually possible to avoid leaving spaces between and around the fragments of bone, and therefore in such cases, after placing the lining sheet of gauze, a large rubber tube is introduced down to the fracture and the remainder of the gauze and tablets packed around it. This serves to prevent the tracking of pus along the bone. A hole cut in the lining gauze allows any discharge to gain free access to the tube.

* These tied up in convenient numbers in small gauze bags may be sterilized along with other dressings in the autoclave.