A PREHISTORIC BURIAL GROUND.

BY HAROLD J. SHEPSTONE.

In anthropological circles considerable interest is being manifested in the ancient burial ground at Harlyn Bay, a little seaside resort on the north coast of Cornwall, England. Here a wonderful collection of prehistoric remains has been unearthed, the finest collection in fact ever discovered in any one spot in the whole of Great Britain.

In August, 1900, a private gentleman, Mr. Reddie Mallett, attracted by the quiet beauty of the spot—for at that time Harlyn Bay was almost unknown—purchased some three acres of land here for the erection of a dwelling house. During the work of digging for foundations and prospecting for water, a slate cist, or tomb, was unearthed at a depth of about fifteen feet, and therein was found an interment with characteristic ornaments and implements of a very early stage of civilization. Mr. Mallett at once communicated with various antiquarian bodies, and within a short time an influential committee was formed. They examined the ground, and were not long in discovering that the site was nothing less than a very ancient burial ground of the neolithic or bronze age.

Funds were raised for carrying out systematic excavations, which were conducted under the direction of the Royal Society of Cornwall. In all, their excavators opened no less than one hundred graves, going down to a depth of 15 feet and removing no less than 2,000 tons of blown shell-sand which had accumulated on the spot. The find was the richest in the number of stone cists, skeletons, and their accompaniments that has ever been discovered in any one spot in the British Isles, and the burial ground naturally attracted wide attention, not only in anthropological circles, but also among the general public. It would seem too that there are many more treasures yet to be unearthed. Only a few weeks ago the present proprietor of the place, Col. Bellers, discovered another cist, while during the spring of this year he has found a number of ancient slate implements and other relics.

Nearly all the skeletons and the objects found in or near the graves by the excavators of the Royal Institution of Cornwall were removed to the Truro Museum, but quite a large number has since been found and is now to be seen in a specially-equipped museum on the spot, while some six cists in the burial ground have been roofed over with glass, to enable the general public as well as anthropologists to view them. Hence the Harlyn Bay Prehistoric Museum is one of the quaintest in the United Kingdom, and thousands from all parts of the country travel to Harlyn to see it.

The Harlyn Bay Museum was founded by the late proprietor, Mr. Reddie Mallett. In it there are some twenty cases, as well as a complete cist with a skeleton exposed. To describe in detail the various relics in the cases would occupy too much space. They include spindles, whorls, rings, bracelets, beads, and brooches found with the skeletons. In addition to the above there are numerous slate, shell, and flint implements. At present a prejudice exists in the minds of some against the belief in the quaint workmanship of the slate implements, it being urged that they are merely pieces of sea-washed rubble. No such relics are to be found in the beach, however, although if they were, the fact would be but parallel to the frequent occurrence of abraded neolithic flakes that have been found in other parts of Great Britain, in the neighborhood of Lowestoft, for instance, and other places. But one has to remember this fact, that the sand in the immediate neighborhood of Harlyn Bay is composed of comminuted shell-fragments, in themselves too soft to grind slate into "implements" with well-developed edges, even if such irresponsible agencies as sand grains could do so. Then some of the slate fragments found in the graves—for they have been discovered both inside and outside the cists—are naturally rounded and smooth, and have been seemingly placed therein because of their fanciful forms. Again, some of them show decided attempts at rude ornamentation, such as the scratching of lines and even crude designs. That these flakes are "worked" in many instances there can be no reasonable doubt, as a glance at their shapes plainly indicates.

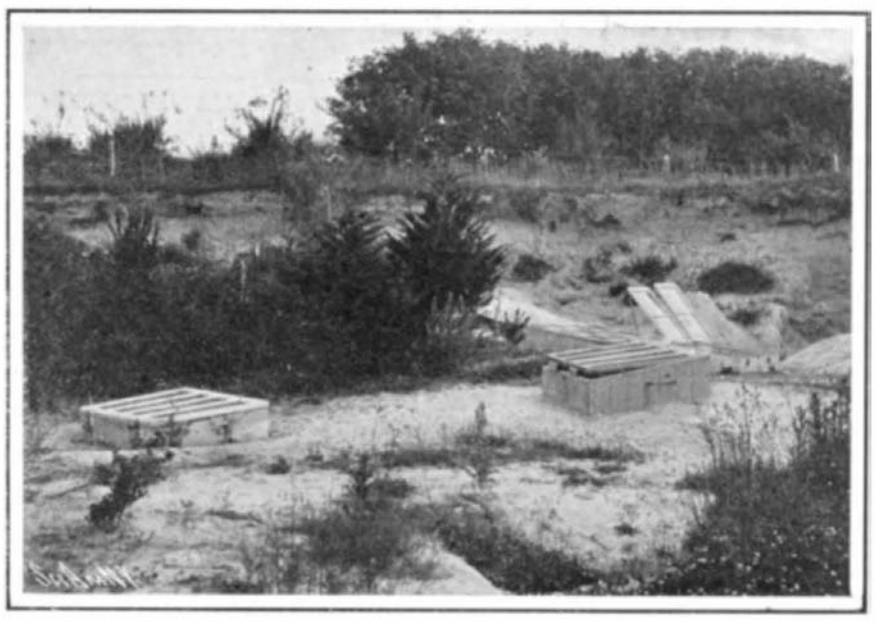
The Characteristic Posture of the Skeletons.

Looking Into One of the Slate-Lined Cists.

The museum boasts of a number of skulls, bones, a case of human teeth, etc., as well as the bones of various animals. At the time of the writer's visit there were eleven skulls in the museum, seven of which belonged to males, two to females, and of two the sex was doubtful. They were mostly of fair size and development. One skull which the writer measured had a length of 7⅛ inches and a breadth of 5⅛ inches. The cranial index in the males taken individually was 70.0, 72.54, 72.69, 76.18, 77.28, 78.61, and 82.22; in the females it was 73.41 and 76.60 and in the doubtful cases 75.28, and 77.22; the average of the eleven being 75.64. One could not help noticing the ape-like formation of the heads. The forehead was low and receding, while the under jaw was broad and heavy. An examination of the bones makes it clear that the average stature of these ancient people was rather low. This is estimated from the length of what are called "the long bones," such as the femur, tibia, humerus, radius, and ulna. It is supposed that the average stature of the men was about 5 feet 4½ inches, or 1,635 millimeters, and that of the women, 5 feet 1½ inches, or 1,560 millimeters.

More interesting than the museum is the burial ground, which has the appearance of an untidy garden, with here and there a number of glass-covered cases. It is through these that one can inspect the cists or tombs with the skeletons in them. There are some six in all, some containing only one skeleton, and others two and more. They are in a sitting posture, with the knees almost up to the head, and the hands crossed or pointing up or down. In every instance the graves are in straight lines, one head to another, all running toward the north or south. There were many lines of graves side by side, about three feet apart. Beneath these were other rows of graves. In every instance, too, the graves were lined with great slate slabs. It is not without interest to note that in one grave the skeletons are flattened. They must have been flattened before they were placed there. That is an indisputable fact. It is supposed by many that this is a proof that the people of those days indulged in human sacrifice. After the feast or religious rite, the remains, or rather the bones, of the sacrificed one were purposely flattened by some heavy instrument and then interred. Then in another grave the skull is broken in several places, and the nasal bone severed by a clean cut across the front. There are three teeth out of position projecting through the side of the left ramus of the lower jaw, beneath the normal row of teeth. This is supposed to show that these people were in the habit of hastening the end of a dying person by killing him either in the grave or on the naked rocks by breaking his head with a stone.

As to the age of these prehistoric remains, there would seem to be now no doubt that they belong to the neolithic period, and anthropologists are virtually agreed that the skeletons recently found must have been buried 2,500 years ago. It may even be earlier still. One popular writer has stated that the cemetery must have been founded at the time of King Solomon; but this is mere conjecture. Objects found with the skeletons, such as spindles, rings, bracelets, beads, brooches, etc. were submitted to Sir John Evans and to Mr. Read, of the British Museum, London, for their opinion as to their age, and several of the skulls were sent to the eminent craniologist and anthropologist, Dr. John Beddoe, F.R.S., for a like purpose. All these authorities are agreed that the cemetery was no doubt a burial place of the neolithic age or bronze age. Dr. Beddoe pointed out that the skulls represented people of a very old race, and were of a kind which existed before the rounded head of the bronze people. Only one appeared to be of a different variety. "As for the date of these deposits," wrote Dr. Beddoe in his report, "we may conjecture with some confidence that it was after the Gallo-Belgic and before the Roman conquest"—about 500 B. C. Dr. Beddoe also examined the teeth. He found the surfaces, particularly in the adults, excessively worn, which shows, he declares, that "these ancient people fed largely on grain or other coarse food. This would accord with the conclusion to be drawn from the absence of weapons and of notable



Glass-Covered Cases Placed Over the Cists.

Unearthing the Prehistoric Slate-Lined Graves.

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wounds, that this was a peaceable and sedentary community, not a nomadic or predatory one." It is interesting here to note that not a single coin has been unearthed, which, as Sir John Evans, who made an exhaustive examination of the implements, said, virtually confirmed the very ancient age of the cemetery. "The discovery of a single coin," he declared, "might have put a different aspect on the matter."

THE CAPE TO CAIRO RAILROAD.

BY THE ENGLISH CORRESPONDENT OF THE SCIENTIFIC AMERICAN.

One of the most remarkable railroad enterprises that is at present in process of development is the construction of the railroad bisecting the African continent from Cape Town to Cairo. The scheme is rapidly approaching completion, from both the southern and northern termini simultaneously, so that what was considered purely a dream on the part of Cecil Rhodes when he first mooted his project gives every sign of becoming *un fait accompli* during the present generation. The southern road from Cape Town has already penetrated to the interior of the African continent, having reached a point about 374 miles north of the Victoria Falls on the Zambesi River and some 2,014 miles north of Cape Town.

The scheme was started in 1889. At that time the northern terminus of the Cape Colonial railroad system was at Kimberley, 647 miles from Cape Town. Mr. Rhodes decided to start from this point, carrying the track through the center of the African continent to link with the Egyptian railroad in the Soudan, and thus form a continuous track from the Cape to Cairo. This original scheme, however, has since been considerably modified, because in the interior of the continent the engineering difficulties that would have to be surmounted are so prodigious, that a continuous line could only be carried through those regions at an enormous expense, whereas by availing themselves of the excellent waterways offered by the various lakes lying in the line of the projected route, and linking them together with short spans of railroad, a combined railroad and water artery of communication through the continent equally efficient can be assured at much less cost.

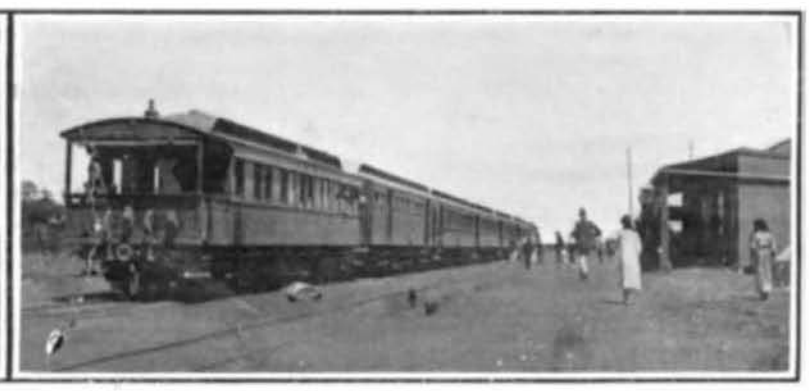
In regard to the character of the roadbed and track, in view of the fact that rapidity in construction was insisted upon, the builders were given full liberty to carry out this phase of operations in the manner which they considered to be the most desirable to attain the object in view. In laying the railroad, but little regard is paid to formation, the location following the surface of the ground pretty closely, and the cross-ties being packed up with a minimum of ballast, in order to give a moderately smooth running top. The second section of the road, extending from Vryburg to Mafeking, was originally laid with rails of 46¼ pounds to the yard, but was subsequently relaid with rails of 60-pound section, in order to correspond with the standard adopted on the north extension. For the 492 miles between Mafeking and Buluwayo, steel Vignoles rails were utilized in 30-foot and 33-foot lengths, of 60-pound section, connected by fishplates weighing 15 pounds per pair with four bolts to each joint.

Owing to the ravages of white ants and other termites, it was found impossible to use wooden cross-ties. Under these circumstances, the rails are laid upon steel trough cross-ties of the India state pattern, weighing 68¼ pounds each, and numbering 1,940 to the mile. These ties have been found to answer very well, and when well packed with ballast afford an excellent road, which can be easily maintained.

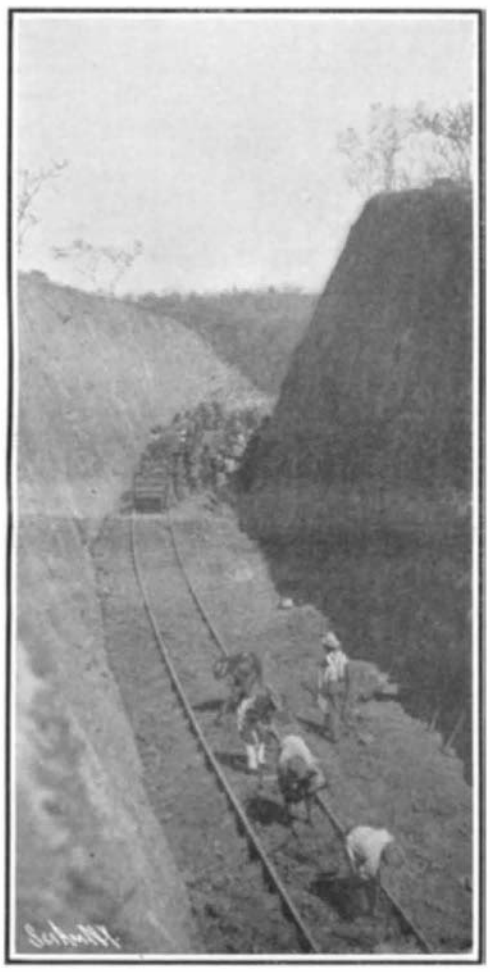
The greatest difficulty that has been encountered in the course of the constructional work has been the obtaining of adequate supplies of water. As far as

Temporary Wooden Water Tanks and New Overhead Cast-Iron Tank of 30,000 Gallons Capacity.

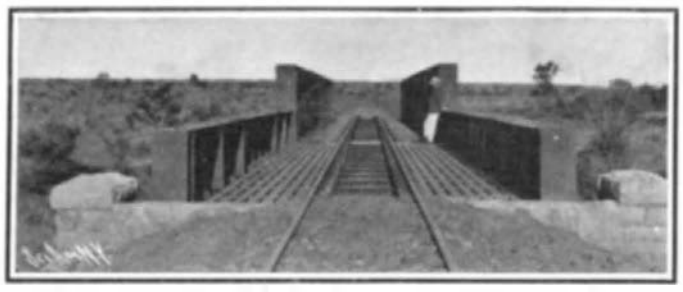
Standard Eight-Coupled Locomotive of the Cape to Cairo Railway.



The "Train de Luxe," Zambesi Express, Which Runs Between Buluwayo and Cape Town, a Distance of 1,736 Miles.



Typical Cutting in the Wankie District, 1,545 Miles From Cape Town.



The Umgusa River Bridge, 56 Miles From Buluwayo.

Typical Double Gangers' Cottage.

Type of Bridge Adopted for 50-Foot Spans on the Victoria Falls Section.

The Luxuriant Country Through Which the Road Passes After Crossing the Victoria Falls.

Construction Party North of the Zambesi River in Northwestern Rhodesia.

THE CAPE TO CAIRO RAILROAD.