THE LAKE-DWELLINGS IN EAST YORKSHIRE.

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The consideration of phenomena which have a tendency to illumine the history or habits of the early inhabitants of this country must at all times be looked upon with a large amount of interest. From this point of view the discovery of the remains of a number of ancient Lake Dwellings in Holderness, the low-lying district between Hull and Bridlington affords a glimpse of the habits of a people who lived during ages of which there is no written history, and of whose existence there is no record but such as can be gathered from the remains of rude platforms built on the edge of a lake or mere, on which to erect dwellings affording a scanty shelter from the inclemency of the weather, some protection from the wild animals of the neighbourhood, or the attacks of their human but more dangerous foes. Living over the water they naturally found that the readiest method of disposing of the refuse was to throw it into the lake below : and so it happens, that in digging beneath the platform there are found, mixed with the natural accumulation of peat, large numbers of the bones of animals which had been used as food, charred wood from their fires, implements of stone used as adzes in shaping and pointing the piles, rounded stones for pounding and grinding corn, arrow and spear-heads, rudely-fashioned objects of bone used for fastening skins round the loins, or for personal adornment of the primeval inhabitants of our island, as well as other objects of less definite purpose.

Holderness occupies an area circumscribed by the chalk hills which extend from Flamborough Head to the Humber on the one side and the sea on the other. It is a low-lying district, the almost uniform flatness of which is but slightly relieved by little rounded hills of gravel. The central part, extending north and south, is in some instances below the level of the sea, whilst along the coast the ground rises, so that the drainage instead of seeking an outlet towards the sea runs inland and is emptied into the Humber. Formerly the lower levels of Holderness formed a series of plant-laden meres, connected by streams one with another, and ramifying in every direction.

These once characteristic semi-stagnant expanses of water have all been drained, and with the exception of Hornsea Mere, which is below the sea-level, the sites they occupied are only indicated by the names which the places still retain. It is with difficulty that the richly-cultivated and fertile plains of the Holderness of to-day can be conceived as a country full of swamps, bogs and lakes, almost impenetrable either on foot or by other means. The slightly higher ground was for the most part densely wooded, and much vegetation covered the whole of the country. It extended far out over the area now occupied by the North Sea. The rapidity with which the land has been washed away may be inferred from the fact that during some years as much as fifty feet have gone during one winter ; and since the days of the Stuarts the sites of villages and churches which were considerably within the coast line, are now far out at sea.

There rolls the deep where grew the tree.

* * * *

The hills are shadows, and they flow

From form to form, and nothing stands ;

They melt like mist, the solid lands,

Like clouds they shape themselves and go.

The woods and higher ground were infested with wolves ; and the wild boar grovelled in the slimy margin of the pools, rooting up succulent morsels from the luxuriant vegetation, thriving in the damp and vapour-laden atmosphere. The red-deer and the horse roamed in herds over the district, making incursions from the higher ground to the westward, and numerous small animals lurked in the recesses of the forest. It is probable that at this time the beaver had formed its wonderful habitation in the more rapid streams of the district, and unconsciously competed with its human neighbours in the stability and comfort of its water-protected home. Birds were common, the wild goose being so abundant that even to this day the higher ground in the vicinity of one of the lake-dwellings retains the name of Goose Island, though it is long since it was an island and the wild goose is a *rara avis* now.

It was on the edge of one of these semi-stagnant, reed-grown meres at Ulrome that Mr. Thomas Boynton discovered the remains of an ancient lake-dwelling. The edge of the lake was towards the east,

and at no great distance was an island the surface of which at the present time is twenty-five feet above the sea-level. It was between the shore of the lake and this island, still named Goose Island, that the pile structure was placed. It consists at the base of a number of trunks of trees placed horizontally on the bottom of the lake, and held in position by rudely-pointed stakes. The largest timbers, twenty feet in length and eighteen inches in diameter, extend from east to west across the course of the stream, which appears to have run in a northerly direction. The direction of the flow of the water is indicated by the addition of diagonal piles placed to lean against the larger trunks, in order to prevent their being disturbed by floods or other circumstances causing more than the ordinary pressure. Between the large timbers, which were laid parallel to each other, with as great regularity as their rough unhewn surfaces allowed, shorter trunks were placed transversely, resulting in a rude but solid and compact framework. The whole, fastened in position by stakes, four to six feet in length, driven into the bottom of the lake, formed a rectangular platform thirty yards in length from east to west, and eighteen in breadth from north to south. At the south-east corner a pair of large timbers extend parallel with each other, about five feet apart, from the platform to the shore of the lake; they have been prepared with greater care than those used for the platform itself; the upper surface is hewn flat, and they have been carefully fixed in position, evidently to form a means of communication between the habitations and the adjoining land. The trunks and branches of trees are mostly oak, ash, birch, willow, and hazel. The interstices between the timbers of the platform were filled up to the top with broken wood and twigs until a level surface was obtained; this was covered with bark and sand. On the foundation thus securely formed, probably reaching a little above the surface of the water, were erected the dwellings of the builders.

The structure exposed during the excavations proved that the original platform, after the lapse of a considerable period of time, either subsided beneath the water, or for some other reason became untenable, and a second one was added. The newer or upper platform is arranged much in the same way as the lower one. The

horizontal timbers of the superstructure are held in position by piles, which may be distinguished from the earlier ones by the long and sharp point, evidently cut by a sharp metal instrument. The points of the later piles are not unfrequently found piercing the timbers of the earlier stage, which may be taken as an indication that the latter were more or less decayed, and consequently had become depressed beneath the water, hence the reason for the erection of the second structure. The two platforms together are between four and five feet in thickness. The top of the upper one is four feet beneath the surface of the ground, the intervening strata consisting of three feet of peat immediately overlying the wooden platform, and a foot of warp and soil. Beneath the base of the lower platform the thickness varies with the position; near the edge it rests on a bed of sand and gravel which forms the bottom of the old lake; further out it is separated from the sand by an increasing thickness of peat. The gravel forming the bottom of the old lake is about ten feet beneath the present surface of the ground.

Amongst the sticks and bark filling up the interstices between the timbers of the lower dwelling a number of implements and some fragments of pottery have been found. The latter is dark-coloured and possesses all the characters of pottery made by the Celtic inhabitants of the country of the earliest period. The implements are made either of stone or bone, and consist of pointed or sharpened stones pierced in the middle for the introduction of a wooden handle, used as hammers; picks and hammers are also made from the antlers of the red deer. The large leg-bones of oxen, broken diagonally midway between the two extremities, and pierced near the joint with a circular hole for the insertion of a stick, appear to have been used as hoes; the diagonal fracture is more or less smoothed by use, and an implement of this form would serve very well to break up the light soil on the higher ground adjacent to the mere. Flint flakes, used as knives and for other purposes, such as cleaning the skins of animals, have been found. A large stone of oval form and coarse granitoid texture, with a flat smooth surface exceeding a foot in largest diameter, may have been used for grinding food, and other smaller rounded stones were apparently used for pounding grain.

Hazel nuts were numerous. In addition to the bones of animals already mentioned, there have been found the jaws of wolves, tusks of wild boars, portions of the head of red deer and horse, and the bones of sheep, dog, and smaller animals, as well as the bones of birds. They were mostly at a depth of about six feet below the surface, and four feet from the bottom of the lake.

Between the first and second platform a fine bronze spear-head was discovered. The occurrence of bronze, together with the form of the pointed piles, evidently cut by a metal instrument, naturally leads to the inference that the later platform was erected during the period usually termed the Bronze age. An approximate idea may be formed of its age if it be remembered that the knowledge of bronze was succeeded by that of iron; of the latter metal there is no evidence in the lake-dwelling, but it was known to the people whom Julius Cæsar found occupying this country, and was probably in use for two or three centuries previously. It will be safe, therefore, to fix the date of the more recent portion of the pile structure not later than the second or third century B.C. The objects found beneath the lower platform indicate a much earlier period, when the use of bronze had not been discovered, and the articles and implements were made from either flint or bone; the older structure is probably of the earlier portion of the later stone age. Its great antiquity is shown by the depth at which the objects already mentioned were found, and by the circumstance that the parts of the lake surrounding the pile-dwellings became filled up to a depth of four or five feet with peat, before the second platform was constructed. The Barmston and Skipsea Drain follows the course of what was undoubtedly, in pre-historic times, a chain of lakes extending from Skipsea to its present termination on the sea-shore. Along this line five or six other pile-structures have been found, in some instances considerably larger than the one explored at Ulrome. There is every probability that careful examination of the surrounding districts will disclose the fact that numerous other erections exist over a considerable area, and as each of the platforms afforded space for several dwellings, it is reasonable to suppose that the pile-dwellers were a somewhat numerous people. The great preponderance of implements useful for tilling the soil over

those of warlike character seems to indicate that they were peaceably disposed, and inclined to agricultural pursuits ; they were acquainted with the use of pottery, which they shaped into rude vessels without the use of the potter's wheel, and decorated by making incisions, either with the finger-nail or a pointed flint, on the surface. The nodules of flint, which occur abundantly in the neighbouring chalk, chipped into the form of an arrow-head, spear-head, and such other objects as they had skill to make or comprehension to use, served them for offensive and defensive purposes. The antlers of the red deer and the humerus of the ox, broken diagonally, probably assisted in breaking up and tilling the soil.* The harder bones of animals were scraped and carved into the form of pins and other implements for personal use and adornment.

Tolerably safe from the attacks of wild animals, which prowled in the neighbouring woods, when in their habitations over the water, this hardy people protected themselves from the chill east winds which swept over the North Sea, as best they could, with the skins of wild animals caught in the chase, or killed for food. It may be desirable to consider the relationship of the pile-dwellers to the population existing in the adjacent parts of the country at the time the dwellings were erected. The objects found in the exploration of the pile structures indicate that they were used as the ordinary home of the people, and not merely as an occasional retreat for defensive purposes ; and we may conclude that they formed only a comparatively small proportion of the entire population. Whilst in this particular district the circumstances were especially favourable to the construction of this species of dwelling, the adjacent district was occupied by branches of the same people who erected a quite different kind of habitation. The country surrounding the low-lying lake-covered area of Holderness is constituted of rounded chalk hills

* Exactly as the writer saw the tenant of a small plot of arable land operating a short time ago. The grassland had been dug with a spade and remained in hard clods ; to break up these the man had inserted a long stick in a solid piece of wood, pierced in a similar manner, and nearly the same size as the broken leg-bones of the ox, and with this was pounding away at the masses of dry earth ; a peculiar exemplification of an old-world custom revived by the force or necessity of circumstances.

intersected by deep river-less valleys. There is abundant evidence still existing on these hills that they were inhabited by a numerous and energetic people. Their summits are entrenched in every direction, culminating on Flamborough Head with the so-called Danes Dyke. These entrenchments were probably erected for purposes of defense, and as a last resort should they be driven from the Wold entrenchments, the inhabitants could retreat to the more strongly fortified area on Flamborough Head, difficult of access from the sea, and rendering a prolonged resistance on the land comparatively easy. Over the whole Wold district there are large numbers of mounds or tumuli which were erected as memorials of the dead, and the investigations of these has thrown much light on the habits and character of the people. The mounds are stated by Canon Greenwell (*British Barrows*, 1877) to contain the bodies of two distinct races of men; the older one characterized by a long head, much longer from back to front than broad; whilst more recent mounds contain bodies with round heads, in which the breadth equals or exceeds the length; with the latter implements of bronze, ornaments of bone and jet, and pottery of varied forms have been discovered, whilst in the earlier graves only implements of flint and stone have been found, together with pottery of a rude character, and quite distinct from that associated with the implements of bronze. Rounded stones for pounding grain are frequently found. The relationship between the long-headed, stone-using people and the broad-headed people, acquainted with the use of bronze, who lived on the Wolds, and the similar races who occupied the lake-dwellings is sufficiently remarkable, and indicates more than a probability that the race who built the entrenchments and erected mounds over their dead, occupied their strongholds at the same time that their neighbours, the lake-dwellers erected their island platforms. The implements found beneath the lower structure are similar to those got from diggings in the older tumuli, and there is simultaneous evidence of the introduction of bronze in the later pile-dwellings and the most recent of the mounds. Other examples of pile-dwellings have been recorded principally from the eastern counties, where in bygone centuries morasses and meres abounded. One at Barton Mere, near Bury St.

Edmunds, was explored by the Rev. H. Jones in 1867 ; another at Wretham Mere, in Norfolk, by Sir Charles Bunbury in 1856 ; and Dr. Palmer has reported that in 1869 oaken piles and planks had been dug out of boggy ground on Cold Ash Common, Berkshire. In each instance piles were found driven into the ground, at Barton supported by large stones ; associated with them were vast quantities of broken bones of animals used for food, and occasionally bronze spear-heads and other implements have been found. It is probable that these structures belonged to the bronze age, and the objects discovered in them point rather to the later than to the earlier part of it ; to that portion which immediately precedes the historic period. Compared with the lake-dwellings of Holderness they would be coeval with the more recent structures in which the bronze implements are found. A single example of a Crannoge or pile-dwelling has been recorded as occurring in Llangorse Lake, near Brecon, in South Wales. It consists of an island of piles supported by stones ; it is ninety yards in circumference, and situated in two or three feet of water a short distance from the northern shore of the lake. The piles are oak and show evidence of having been hewn with a metal adze. Outside the island are groups of piles of softer wood, and it is inferred that the island formed a central platform from the circumference of which the dwellings extended to the adjacent groups of piles. Large quantities of bones were found in the shallow water between the island and the margin of the lake. The bones were submitted to the late Professor Rolleston, who found them to be entirely those of the pig, sheep, cow, and horse ; they were all representative of small animals. The horse was used as an article of food, its bones were of two kinds, one small, probably the progenitor of the Welsh pony, and the other of a larger breed. To the above list Professor Boyd Dawkins afterwards added the red deer and wild boar. Some fragments of pottery were found interspersed with the bones.

In Ireland and Scotland numerous Island Lake-dwellings or Crannoges have been discovered. A large number of the Irish ones were described by Sir W. R. Wilde in the proceedings of the Royal Irish Academy, dating from 1840. The Irish Crannoges have been inhabited from a period hidden in remote antiquity until compara-

tively recent times. In many instances they may have been deserted for long periods, and afterwards repaired and re-inhabited. The remains of implements of war; those used in agricultural pursuits and others for personal adornment, range through all the varieties of stone and flint, bone, bronze and iron, and consist of daggers, spears, knives and swords, shears, axes, querns, beads, pins, combs, brooches, chains, pots, &c. The amount of broken bones left by the occupiers is enormous, and instances are recorded where a hundred and fifty cart-loads had been removed and used as manure from a single platform. The ordinary form of the Irish Crannoge is a circular or oblong structure forming an island, surrounded by one or more rows of piles, pointed and driven into the bed of the lake. Inside the circle of piles the space is filled with stones, branches of trees and peaty *débris*. On those artificially-built islands, wooden dwellings were erected. The latter consisted of a combination of piles and wicker-work with boarded floors. In districts where wood was scarce, they are sometimes built up entirely of stone. Generally the dwellings were erected in a circle round the outer extremity of the structure, similarly to that already spoken of in Wales; in other and rare instances the houses were built on wooden platforms supported by piles and brushwood, held in position by stones. They were erected without connection with the shore, communication being made by means of a canoe, hewn from the bole of a single tree: it is a common occurrence to find the canoe in immediate proximity to the pile structure buried in the peat or bog. Sir W. R. Wilde describing a Crannoge exposed at Lagore, County Meath, which was 173 feet in diameter, says—

“The circumference of the circle was formed by upright posts of black oak, measuring from six to eight feet in height; these were mortised into beams of a similar material, laid flat upon the marl and sand beneath the bog, and nearly sixteen feet below the present surface. The upright posts were held together by connecting cross-beams, and (?) fastened by large iron nails; parts of a second upper tier of posts were likewise found resting on the lower ones. The space thus enclosed was divided into separate compartments by septa or divisions that intersected each other in different directions; these

also were formed of oaken beams in a good state of preservation, joined together with greater accuracy than the former, and in some cases having their sides grooved or rabbeted to admit large panels driven down between them. The interiors of the chambers so formed were filled with bones and black moory earth, and the heaps of bones was raised up in some places within a foot of the surface."

The animals whose remains were thus preserved were principally oxen, horses, asses, pigs, sheep, goats, deer, dogs and foxes. Some human bones were also found.

Nearly one hundred lake-dwellings have been discovered in Ireland, and about the same number is recorded as having received more or less attention in Scotland; of the latter fifty are entirely built of wood, and the remainder wood and stone combined or other materials. The Scotch Crannoges, in all essential particulars, are similar to those of Ireland, and were probably erected by the branch of the Celtic people who migrated northwards, whilst those of Ireland and Wales were the result of the influx of the Celtic element in its extension westwards. "The ordinary construction of the Crannoge proper" says Dr. Stuart "was by logs of wood in the bed of the lake, supporting a structure of earth and stones, or of a mixture of both, the mass being surrounded by piles of young oak trees in the bed of the lake, the inner row of which kept the island in shape, and the external rows acted as defences and breakwaters." Dr. Monro after prolonged investigation and experience was able to supplement the description given above as follows:—"For defence and protection which I presume no one will doubt, were the primary objects of these islands, a small mossy lake, with its margin overgrown with reeds and grasses, and situated in a secluded locality amidst the thick meshes of the primeval forest of those days, would present the most desirable topographical conditions. Having fixed on such a locality the next consideration would be the selection of materials for building the island. In a lake containing the soft and yielding sediment due to decomposed vegetable matter, it is manifest that any heavy substance, as stones and earth, would be totally inadmissible owing to their weight, so that solid logs of wood, provided there was an abundant supply at hand, would be the best and cheapest material that could

be used. To construct in ten or twelve feet of water, floating over a quagmire, a solid compact island, with a circular area of 100 feet or more, and capable of enduring for centuries as a retreat for men and animals, was a work requiring no small amount of engineering and mechanical skill on the part of these early Crannoge builders. The method of procedure suggested by Dr. Monro is that immediately over the chosen site a circular raft of trunks of trees, laid above branches and brushwood was formed, and above it additional layers of logs, together with stones, gravel, etc., were heaped up till the whole mass grounded. As this process went on upright piles, made of oak and of the required length, were inserted into prepared holes in the structure, and probably also a few were inserted into the bed of the lake. When a sufficient height above the water line was attained a prepared pavement of oak beams was constructed, and mortised beams were laid over the tops of the encircling piles, which bound them firmly together. When the skeleton of the island was thus finished a superficial barrier of hurdles, or some such fence, was erected close to the water. Frequently a wooden gangway, probably submerged, stretched to the shore, by means of which secret access to the Crannoge could be obtained without the use of a canoe.

The remains of pile structures were exposed near London Wall in 1866, when excavations were made for the foundation of a wool warehouse; associated with the piles there was a large number of various implements of a comparatively modern date, together with Roman coins which had been used by the inhabitants.

The lake-dwellings of Holderness bear the impress of greater age than any others in the British Islands, and they are of sufficiently characteristic structure to distinguish them from the island-like Crannoges of Ireland and Scotland. The ancient people who built them, having found a suitable situation, proceeded to cut down large trees by means of their rude flint axes; these, cleared of branches, were dragged to the lake side, and in five or six feet of water were laid horizontally along the bottom, and held there by stakes driven into the sandy or peaty shore. The level of the platform was raised by means of smaller trunks and branches to the level of the water, and an even surface obtained by twigs, gravel, and sand. On this

there was probably erected a number of huts. As to the character of the huts there is no information. The several operations in connection with so large an undertaking, conducted by a people possessing no mechanical appliances and only the rudest tools, implies a large amount of intelligent co-operation, and consequently a comparatively advanced stage of civilization. The men appear for the most part to have been peaceable and industrious, dividing their time between the chase and the cultivation of the soil ; whilst the women attended to household duties, cooked the flesh of animals caught in the chase, or pounded the corn with rounded stones to make bread. Probably they spun the wool of sheep, as indicated by the presence of whorl stones, and made a coarse cloth. But the skin of the sheep with the wool attached was most likely to be the ordinary covering for the body. They appear to have had all the essential elements of happiness, and unfettered by the trammels of the intensely complicated civilization of their successors of subsequent centuries, to have pursued a tranquil and easy existence. This picture has its shadows, and no doubt occasional disagreements arose, and neighbouring tribes would quarrel and fight ; or perhaps combine against some more distant foe. After such engagements there is the probability that, like nearly all existing peoples in a similar stage of development from rudest barbarism, the captives were killed. The presence of the skull and bones of a human being amongst the *débris* found in the excavations of the lake-dwelling at Ulrome, as well as other evidences in the neighbouring Wolds, goes a long way to show that the people were cannibals.

Mention has been made of the principal lake-dwellings found in the British Islands ; it would be interesting, did space permit, to trace their relationship with others found on the Continent of Europe, and more especially with those, the remains of which exist, on the shores of the lakes of Switzerland, so admirably investigated and described by Dr. Ferdinand Keller, and which have afforded so good an opportunity for investigation during the past year by the low level of the waters of Lake Constance. The Swiss lake-dwellings are, with few exceptions, of an older type than those found in Great Britain, and extend throughout the stone age, the succeeding period

characterized by the use of bronze, and to the earlier stages of iron. Dr. Keller considers that the Swiss lake-dwellers were a branch of the great Celtic family which occupied Central Europe prior to the incursions of the Romans, and it is also the opinion of Dr. Monro and others that all the pile dwellings in this country were erected by the Celts, or Brit-Welsh as they have been styled, who occupied the country in pre-historic times. If such be the fact, the relative age of the structures in Holderness as compared with those of Scotland and Ireland would be the natural result of the migration of that people westwards. Their first access to the country was gained on the east coast, and the pile-dwellings found in the eastern counties and in Yorkshire were probably the first erected. As the Celts were driven westward and northward by the incursions of succeeding nationalities they crossed over to Wales, Ireland, and Scotland, and erected pile-dwellings or Crannoges in those countries. It is probable that the Holderness dwellings were in a state of disuetude before the historic period; they contain no traces of any objects of Roman or other civilized manufacture. On the other hand those of Ireland and Scotland are known to have been used as places of habitation and for defensible retreats, as recently as the sixteenth or seventeenth centuries. The pile-dwelling found near the old walls of London is also comparatively modern as compared with those of Holderness, and is replete with objects bearing the impress of the Roman occupation. It indicates a period when that part of the city was neither more or less than a great bog extending from the banks of the Thames.

It appears that the people in those old days adapted themselves to the circumstances of their environment very much as the savage nations of the present day do in New Guinea, in parts of Africa, and in other places. Where the country is full of lakes and of a wet and boggy character the inhabitants have found it necessary to provide a dwelling place raised above the water, and this has been done by driving piles into the soft ground and building on the top of them. At the same time their neighbours, of the same tribe, under more favourable circumstances, have erected their huts on the adjacent dry land.