

MAN'S PREHISTORIC PROGRESS.

The caves, tombs and gravel drifts of the earth, which are of all objects the most uninteresting to the casual observer, have in our days become strangely eloquent. At the touch of science they have lent a voice to the dumb past. Raising the veil of antiquity, they have unrolled page after page of ancient history, written neither with pen, nor pencil, but stamped on the rude implements of war or the chase, imprinted on the few threads of decaying tissue that inwrap the crumbling skeleton, engraved on the bracelet of bronze or silver that encircled the slender wrist of some prehistoric beauty, or chased on the brooch of gold that clasped the mantle of some renowned but forgotten chieftain.

So exact are the deductions to be drawn from these mute records of the past that they have been divided into four well-defined ages—the drift age, the age of polished stone, the age of bronze and the age of iron; each of these marking an advance in knowledge and civilization which amounted to a revolution in the then existing manners and customs of the world. The drift age or paleolithic period is marked by deposits of rude stone implements; to it succeeds the neolithic, or age of polished stone, in which the same stone implements were in use, but of a superior class, highly polished and well finished.

The wandering savage who lived by the chase and cut up his prey with the rude, unpolished flint knives of the paleolithic age was coeval with many extinct animals which then ranged over the forests that in those early times quite generally covered the earth. In the caves the rudest occupy the lowest strata; showing that even in that remote age man had the same tendency to improve as now. Some of the remains of the ancient Nimrods have been found in caves and sepulchral tumuli; and of all the living races of men they resemble the Esquimaux most closely. With them are found the remains of such extinct animals as the cave bear, mammoth and woolly rhinoceros.

The neolithic era marked the dawn of a new and higher civilization. In many parts of England, collections of polished stone implements have been found, such as stone axes and adzes, chisels, gouges, small saws, hammers, awls for boring, stone picks for turning up the soil, pestles, mortars, querns and spindle-whorls. Needles have also been found, which imply a knowledge of the art of sewing; and vessels of rude earthenware, which show that these old-world folks could ply the potter's craft with a considerable degree of dexterity. They possessed the horse, a small short-horned ox, two kinds of swine, goats and horned sheep, with dogs of a large breed. Their dwellings seem to have consisted of pits roofed with wattle. They were all built, or rather, scooped out upon one plan. There was a circular shaft for an entrance, going down to a depth of from seven to eight feet, five to seven feet wide at the bottom, and narrowing to three at the top; and round this was a chamber or cluster of chambers. In these huts are found a variety of polished stone implements, bones of the domesticated animals and shreds of pottery. The flint of which these stone implements are made was obtained by quarrying for the flint nodules in the chalk. Many of these mines with the mining tools still remain.

In some instances, caves seem to have been used as dwellings; and, where not employed as a shelter for the living, have been frequently selected as a resting-place for the dead. In these cave mansions, numerous skeletons of both sexes and of all ages are found. From the quantities of calcined bones found in some of these graves, it is believed that, in the case of a chief, human sacrifices may have been offered. From the number of these tombs and dwellings, we are led to the conclusion that Europe had in those days a somewhat large and tolerably civilized population, who had flocks and herds, who practiced agriculture, and who were hunters and fishermen.

In the lake dwellings of Switzerland, which

are assigned to this era, many interesting discoveries have been made. Three kinds of wheat have been found; also two kinds of barley, two kinds of millet, the remains of fruit such as apples and pears, peas, flax and weeds. For their cattle and swine the lake dwellers seem to have laid up winter fodder in the shape of acorns and beechnuts. They made cloth of the flax, and could even weave it into an ornamental pattern.

However acquired, the possession of bronze marks an era of advancement. The dwellings of the people who used it were better, and their circumstances more comfortable than the tribes they succeeded. They had axes and sickles of bronze, gouges, chisels, hammers and knives; and, as a natural consequence, all the products of their labor were superior and better finished. They could weave well a tough and strong fabric, and their clothes were formed of several pieces sewed together. Their cloth is almost invariably of linen—no woolen cloth belonging to this period having been found either in France or Switzerland; but in a wooded coffin discovered in 1861 at Ribe, in Jutland, the remains of a body was found inclosed in a cloak of coarse woolen cloth; a woolen cap covered the head, the lower limbs wrapped in woolen leggings. Another coffin contained the paraphernalia of an ancient belle, a brooch, a knife, a double-pointed awl, and a pair of tweezers—all of bronze, two studs, one of bronze and one of tin, and a javelin head of flint. Bodies wrapped in woolen cloth have also been found in Britain. It is, however, worthy of remark that it is only in the exceptional cases in which the body is turned into adipocere (an unctuous, waxy substance), that woolen cloth is found; in normal circumstances that fabric would disappear far more rapidly than linen.

The bronze remains found in the Rhone valley prove that the art of metal-working, once acquired, was carried by these early races to great perfection. They were acquainted with the processes of casting, tempering, stamping and engraving metal. With this discovery of a new art came a simultaneous improvement in the potter's craft; the rude cups of the neolithic age disappear, and are succeeded by vessels of an endless variety of form and ornamentation, some of which are extremely beautiful. Some of the vases are inlaid with tin, others are marked with the same patterns employed to decorate the Etruscan vases of Italy; while others, found in the pile-dwellings of the Lake of Bourget, have representations of men and animals. The collections of bronze jewelry are also abundant and curious. They consist of bracelets, armlets, long hairpins with decorated heads, rings, ear-rings, girdles adorned with pendants, brooches, buttons, studs and torques for the neck.

In primeval times, many animals were abundant all over Europe, which seem gradually to have disappeared, such as the cave-hyena, the cave-lion, the mammoth, the woolly-haired rhinoceros, the hippopotamus, the musk-ox, the Irish elk, the wild horse, the glutton, the reindeer, the auroch, and the urus or wild ox.

With regard to the antiquity of man, Sir John Lubbock comes to the conclusion that man certainly existed in Western Europe during the period of the mammoth, and the presumption is that he also existed in Pliocene and even in Miocene times; but the proofs of that are to be sought, he thinks, in warm, almost in tropical climates.

From the manners and customs of modern savages much light may be thrown upon the early condition of prehistoric man. After considering the condition and progress of the Hot-tentots, South Sea Islanders, Esquimaux and others, Sir John Lubbock remarks that, "it is impossible not to admire the skill with which they use their weapons and implements, their ingenuity in hunting and fishing, and their close and accurate powers of observation." By all these qualities we may suppose prehistoric man to have been distinguished in at least an equal degree.

It is evident that man when he first spread over the surface of the earth must have been in

a condition represented by the lowest type of savage. Then by slow degrees, by imitation, and by the teaching of experience, the capacity of lodging and clothing himself, and of improving his simple implements, would develop and expand, until man, physically one of the weakest and most unprotected of all animals, would, by dint of that subtle force which we term mind, make himself independent of nature, and at last, "monarch of all he surveyed," and able to cope in his native coverts with the shaggy lion, and overtake in the chase the fleet stag or bounding antelope.

The wild man, like the wild beast, is always timid, always suspicious, always on the watch; and the condition of the savage woman is still more cruel. "She shares," says Sir John Lubbock, "all the sufferings of her mate, and has also to bear his ill-humor and ill-usage. Even the possession of beauty, far from being an alleviation, is only an aggravation of the evils of her lot, by securing for her a hard thralldom to many masters."

With growing civilization, on the other hand, come security and confidence, and that sense of justice and honor which is the best protection of the weak; and with the increasing and ameliorating influences of science, a great improvement may still be looked for in the condition of our race. We stand, perchance, upon the threshold of a future, brighter than even the brightest dreams of our past; on the verge of a Utopia long deemed impossible, when the moral nature, unvisited by an erring will, shall no longer fetter the eager soul to base aims and unworthy aspirations, but shall leave it to its free scope and native regality of birthright and action. Then to the human race, still in its vast masses so ineffably degraded, a new and more mighty civilization may unlock boundless stores of knowledge and power, and unseal fresh fountains of pure and unending enjoyment.—*Condensed from Chambers' Journal.*

EFFECT OF PLANTS ON THE HEALTH.—The popular belief that plants kept in the house are injurious to the inmates, is purely fanciful. Under the influence of sunlight the leaves of plants absorb carbonic acid from the atmosphere and decompose it, yielding back the life-supporting oxygen, from which the inference might be justified that they were rather wholesome than otherwise. On the other hand, it has been shown that when the influence of light is withdrawn, this action of the plant is temporarily suspended—the plant sleeps, and the excess of carbonic acid gas taken up during the day is given off at night; and because of this action, the presence of plants in sleeping apartments has been thought to be unwholesome or injurious. The bad effects to be attributed to plants from this cause are too trifling to be worth serious consideration. The inhaling of sitting and sleeping apartments warmed by baked air drawn from foul cellars, the neglect of means to secure proper ventilation, especially in sleeping apartments, and the poisoning of the atmosphere of dwelling houses by the entrance of sewer gases through leaky traps, are very real and common dangers, compared to which the one alluded to sinks into utter insignificance, if indeed it be worthy to be considered at all.—*Manufacturer and Builder.*

A MAGNET CAPABLE OF LIFTING THREE TONS. Mr. C. Bely, of Indianapolis, has lately made an 800-pound electro-magnet. The two iron cores are four inches thick by 30 inches long, and slide along a yoke 18 inches in length, so as to vary the distance of the poles. The two coils around the two cores consist of eight layers of isolated No. 6 copper wire, and the terminals are so arranged that the electrical current may be sent in various ways. Pole extension for diamagnetism is provided, and the various experiments for which it is adapted are almost numberless. This magnet was made for Prof. Jahn, of one of the schools in Indianapolis.