THE ANCIENT SAVAGES OF EUROPE.

The week before last we gave an account of the evidences which have recently been discovered of the early existence in Denmark of a race of savages a little lower in the scale of being than the Indians who inhabited the eastern coast of North America at the time of the discovery of this continent, and just about on a par with the degraded Digger Indians of California. Like the ancient Danish savages, our Indians were unacquainted with the use of metals, and had not subdued the lower animals to their service; but the Indians on the Atlantic coast had made some feeble efforts to cultivate corn and tobacco, while the food of those on the Pacific consisted of roots, from which their name of Diggers is derived, and of other natural products, as acorns, grasshoppers and shellfish.

We now proceed to give an account of two periods previous to historic times, which succeeded the Age of Stone, and which are properly called the Age of Bronze and the Age of Iron; deriving our facts principally from Mr. Morlot's pamphlet mentioned in our article last week. Numerous evidences of the existence of these three ages have been collected by the archæologists of Europe, especially by Mr. Thomsen, of Copenhagen, and Professor Nilsson, of Lund, in Sweden, but the recent discoveries in Denmark have been made principally in the peat bogs of that country.

The peat bogs in Denmark are numerous and those of a certain class are small and very deep, frequently thirty feet or more. On examination they are found to be composed to a large extent of trunks of trees which have fallen into the depressions and filled them up; the tops of the trees very curiously all pointing inwardly toward the center. Some of the bogs are so small that the trees upon opposite sides reach to the center and overlap, while others are of too great extent for this, and the central portion of these has been filled by a smaller class of vegetation. The bottom—to the depth of one, two or three feet—is formed of clay, upon which is deposited a mass of amorphous peat formed of plants so broken and decomposed that the species cannot be determined. In the border of forest trees the bottom is found to be formed of gigantic pines, next above are oaks, and lastly beeches. This change in the vegetation is supposed to be due to improvement in the soil, both in its dryness and its fineness.

The peat bogs contain innumerable remains of human industry, which tell with absolute certainty the story of three successive ages of stone, bronze and iron. No traces of man are found in the clayey substratum nor in the amorphous peat at the bottom, but commencing near the bottom of the pine stratum and extending upward into the lower edge of the oak, are numerous implements of flint, and some of the pine trees show that they were cut off by fire. Soon after the oak began to grow, the use of bronze was introduced, and there are reasons for believing that the art was brought by a superior and conquering race. The Age of Iron corresponds pretty nearly with that of the beech, which is the most common tree at the present time in the forests of Denmark.

The savages of the Age of Stone had subdued only one of the lower animals, the dog; but the barbarians of the Bronze Age had learned to breed the sheep, the ox, the horse, the hog and the goat. The utensils of bronze found in the oak stratum of the peat bogs are of a workmanship far superior to that of the flint implements of the Stone Age, and there are other indications of advancing civilization, from the earliest period of the Stone Age forward to that of iron.

Numerous relics of the three ages, Stone, Bronze and Iron, are found in other portions of Europe. Among the most remarkable of these are charred remains of piles and pieces of houses in the lakes of Switzerland. It is supposed that the ancient savages built their villages in the lakes for the better security against their enemies. Some of these villages were built in the Stone Age and others in that of the Bronze; a very few only belonging to the Age of Iron. This fact is fully established by the implements with which the bottoms of the lakes are strewn among the ruins of these ancient habitations. In the small lake of Mosseedorf, for instance, in the ruins of a large village, hundreds of implements of stone, bone, horn and wood are found, but not the smallest vestige of any metal, either iron or bronze. In others bronze implements are abundant, and in a small number there are a few implements of iron.

The savages who inhabited Switzerland in the Age of Stone seem to have been a grade higher in the scale of being than those of Denmark. At Mosseedorf charred grain has been found, indicating the practice of agriculture, and at Waugen the interesting discovery has been made of pieces of cord and shreds of tissue formed of a vegetable substance resembling hemp and flax; this proves the ancient cultivation of a textile plant. As these fabrics were plated and not woven, it would seem that the loom was not known to these people.

The stone implements found in Switzerland are inferior to those found in Denmark, but this is accounted for by the circumstance that there is no stone in Switzerland so suitable for this purpose as the flint of Denmark. Many of the implements found were made from stone which must have been brought from some other country, probably the south of France; showing the beginning of commerce in that age.

One of the most interesting facts developed by this investigation is the increasing size of the human race. By the skeletons, the sword handles, and other implements, it is plainly shown that the men of the Age of Stone were smaller than those of the Bronze Age, while those of the Age of Bronze were smaller than those of the Iron Age. The same is true of all the domestic animals, the sheep especially being so much smaller that none but skilled comparative anatomists would pronounce the ancient skeletons to be those of sheep.

Archæologists, in tracing back the history of our race, find man everywhere slowly emerging from the lowest state of savage life; with exceedingly circumscribed knowledge of the forces of nature and corresponding feebleness in control over them; poorly protecting himself by great toil from hunger and cold; and waging, during his short and miserable life, a doubtful warfare with the wild beasts to whom he seemed so nearly allied.

A SPLENDID SPECIMEN OF CALIFORNIA WORKMANSHIP---HANSBROW'S PUMP.

A few days since we had the pleasure of examining one of Mr. Thomas Hansbrow's double-acting pumps, intended for exhibition at the World's Fair in London. The cylinder, valve-box, air-chamber, plates and standard are of polished copper, mounted with silver, all secured to a slab of beautiful California black walnut. The cylinder of this pump is three inches in diameter and the stroke five inches. It is an exquisite piece of workmanship, and is a credit to the taste and skill of California mechanics. Mr. Hansbrow is one of Sacramento's first citizens, and he goes to London to represent the industry of the golden State of California as its Commissioner. This pump received the first premium last year from the State Agricultural Society of California, and the demand for it has been greater than the facilities of the manufacturer rendered it possible for him to supply. The valve-box is situated above the cylinder, and the valves are set upon an inclined plane; it is, therefore, not liable to leak or choke. Easy access is afforded to its interior for examining and packing the valves and piston, and its parts are few, simple and well arranged. It is eminently adapted for mines, ships and all other purposes for which small pumps are used. Although the variety of pumps is legion, we are confident that this one will receive deserved attention at the World's Fair. European patents have been applied for through the Scientific American Patent Agency, through which the American patent was obtained in 1861.

Improvements in the Steam Engine.—The best steam engines, as at present constructed, yield only a very small fraction of the power of the heat resulting from the combustion of the coal. Our own calculations, taking for data the amount of water which has been evaporated by a pound of coal, show that only about $\frac{1}{10}$th of the power is utilized; but Cooke, in his Chemical Physics, a work of the very highest authority, going a step further back for his data, states that the very best engines yield but $\frac{1}{25}$th of the power of the coal. The direction in which improvements are now principally sought is in the use of very high pressure—500 pounds and upward.

TOO HEAVY SHOT FOR LIGHT GUNS.

Experience is the best, although oftentimes a sad teacher. Great advantages had been expected from light rifled guns using long heavy shot, in comparison with guns of similar caliber using spherical shot, and no doubt they have a much greater range. But the strain upon light guns firing long heavy shot is so great, that we have scarcely had a single engagement in which one or more of such guns have not burst. In the late attack by Com. Foote, upon Island No. 10, one of the rifled guns on board of the gun-boat *St. Louis* burst and killed two men outright, mortally wounded two and severely injured ten others. The havoc caused by this accident, was much greater than that by the shot of the enemy. The bolts used for our rifled cannon are too heavy. They are generally more than double the weight of sperical shot used for smooth bore guns. The friction of elongated shot in rifle guns is also much greater than round shot in smooth bored guns; this also increases the strain upon them. We advise the use of lighter bolts for our rifled cannon.

Waked Up at Last.

One of the daily papers announces that the Secretary of the Navy has authorized the commander of the Brooklyn navy yard to complete an iron-clad gunboat within the next sixty days. Very good, Mr. Secretary, but why on earth did you not do this soon after you came into power? If you had then ordered half a dozen such gunboats the brave tars who sank in the waters of Hampton Roads, while vainly fighting for their beloved flag, would be alive to-day, to defend it still. We have no personal quarrel with the Secretary of the Navy. We believe him to be an estimable man, but we want to save life and property, and, above all, our nation. It is our opinion that the Secretary is surrounded by a lot of old fogies, who have deceived him in this business of creating a navy.

The "Great Eastern."

This huge vessel seems destined to bring disaster on all who come near her. On leaving her moorings, lately, at Milford, in order to swing her round with the tide, a hawser attached to a boat from the frigate *Blenheim* got foul of her screw, and the boat's crew were sucked under. Two men were drowned. Soon after the hawsers that held her parted, and she drifted helplessly down the channel, striking the *Blenheim*, and carrying away her bowsprit, jibboom, mainyard and moorings, springing her foremast, and narrowly missing smashing a little steamer that happened to be close by. Mismanagement seems to reign in all her departments. It was with difficulty she was brought back and placed on the "gridiron." She deserves a good coasting for her misconduct.

The Concussion in the Turret of the "Monitor."

Messrs. Editors:—In the account of the fight between the *Monitor* and the *Virginia* it is stated that three of the crew on board of the former were knocked down and stunned by the concussion caused by the shot of the latter striking the turret of the *Monitor*. Now, would not an extra thickness of plating, say one inch in thickness, placed on the inside of the turret, at a distance of say one inch from the outside thickness of eight inches (leaving a space between, filled with air), deaden or destroy this concussion?

Cenci Bull.

Hartford, March 14, 1862.

[We should suppose that it would be better to have the inner lining of wood, and the space between that and the wall of the turret filled with sawdust or ground cork.—Eds.

An experiment is being made at the Manchester locomotive station of the Manchester, Sheffield, and Lincolshire Railway, to employ metallic packing instead of hemp in the stuffing-boxes of locomotives. Small brass rings are applied (cut into segments) around the piston-rod, light springs being employed to keep the rings tight. It has long been necessary to keep two men at the station, one throughout the day and the other throughout the night, constantly employed in packing the locomotive piston-rods with hemp. At Crewe even this staff of packers is insufficient.