have predominated, and are very numerously attended.

It is much to be regretted that the Board of Arts here are not in that position of usefulness which it is desirable it should be. The construction of the Exhibition building has so involved it in debt, that without some extraordinary relief or assistance it cannot move; but I hope that the Government will be able to possess the building for some public purpose and give the Western Board something like an equivalent, one item of which I would suggest should be duplicates of all useful material in the collection of the geological survey.

I am, dear Sir, yours very obediently,

J. E. P.

THE ANTIQUITY OF MAN.

The lecture recently delivered by Professor Huxley, at the Royal Institution, on the Fossil remains of man was bold, comprehensive, and eloquent. After glancing at the different forms of human heads in different parts of the world, the professor said:—Passing to the old world, accurate knowledge was confined in Europe. Archæology shows us beyond the middle ages and beyond the epoch of the Romans, another group, a longheaded people of Germanic origin, well acquainted with the use of iron. Beyond this came another race of greater antiquity, of smaller stature, and in general character more like the Hindu, who worked in bronze. Beyond this again, archæologists produce another race, neither characterized by manufactures of iron nor of bronze, but forming their weapons and tools of the hardest stone. These stone implements are found in their tumuli, with the skeletons of the race who made them. The buried warrior is found sitting upright, with his heavy stone axe beside him, ready to meet, in the "fields of happiness," his companions or his enemies face to face. The crania of these people were rounder than those of the iron or of the bronze age; and some of them had flat foreheads and strong ridges over the eyes, with large but not prognathic jaws. Such were the skulls of the people of the stone epoch. If it be asked, how far distant was this stone epoch in time, it would be difficult to give the precise date beyond the birth of history, and yet there is a mode by which the period can be given with considerable comparative accuracy.

Denmark is covered by numerous peat-bogs, often very deep. In digging into these, trees, which have fallen in, are often met with—great beech trees, such as are now the glory of the country. Digging deeper, we come to the relics of another forest—a forest of oaks, large, too, in size, with their tops lying towards the centre of the bog. Cutting down again still lower, we meet with yet another buried forest, neither of beech, nor of oak, but of pine,—great trees of 3 or 4 feet in diameter, and with the straightest trunks, showing themselves thus of forest growth. In the memory of man there have been no other trees than beech. The climate of the country, then, must have changed since the ancient growth of oaks; it must have changed again since the indigenous growth of the pine forests.

Men of the iron age are found in the peat; beneath the oak forest men of the bronze epoch; and from beneath the pines the stone implements of those of the stone age are brought to light. Still lower, in the lowest peat, there are no weapons, no traces of man at all. What is meant by this chronicle, not of time, but of facts? How vast must be its remoteness if measured by ordinary human standards? But so far as we have yet been speaking, the physical geography of the earth remained like to what it is, with rivers running in their present channels, sea coasts bounding seas of like extent, while the dry land of to-day was dry land then. The hill-caves too, were high and dry, without water flowing through them.

By a singular accident we have gained a knowledge of the habits of these stone-workers, and from their refuse bone-heaps we know that in Denmark they hunted the Aurochs and the *Bos primigenius*. We know that these "stone" people built huts on piles in the lakes of Switzerland, what implements they had, what weapons, what food. The animals which supplied the last were much the same as now, except the *Bos urus* and *Bos primigenius*.

Beyond all traces of the stone age, there was an utterly different period—a time when what is now sea and seashore held different relations, when what was forest and much of what is now dry land was under water, when other rivers flowed in other channels, and have left their deposits now raised a hundred feet above the flow of existing rivers—a time when the physical features of the country were altogether different. And when we arrive at this age we find the whole fauna of the region to be largely changed.

Mammoths and rhinoceroses swarmed over the land, just as badgers and weasels do now, and their bones, with those of the cave-bears and hyænas, have been washed down in the *débris* of the soil and preserved. Where was man in that age? Until within a few years the answer would have been, "Not there." Preconceived belief was so strong that, although the evidence existed thirty years ago, his presence was ignored. But of late the proofs have so rapidly accumulated as to break down all the barriers of predjudice, and the evidence that man was associated with the *Bos primigenius*, the cave-bear, and tichoner rhinoceros, by the discovery, within the last few years, of such numbers of his worked flint implements—not ground to a face or edge, but simply chipped into form—in proximity to the bones of those great beasts, has been so well authenticated that no instructed person now doubts for one moment the contemporaneity of man with the mammoths.

ON SUBSTITUTES FOR RAGS IN PAPER MAKING.

During the last five or six years the paper manufacture has been in an extraordinary state of, if we may use such an expression, disturbed equilibrium. First came a sort of furore for the discovery of some material to take the place of rags, the supply of which, it was believed, was fast becoming insufficient to meet the constantly increasing demand. After that set in the agitation in connection