

supposing that these difficulties be got over, the age of the deposit in which these fragments are stated to have been found is a matter of dispute in which the authorities are about equally balanced on either side.

The asserted inter-glacial age of the river gravels containing palæolithic implements proved equally unsatisfactory. The cases supposed to be decisive of the question in the neighbourhood of Brandon and Thetford, were considered by Prof. Hughes to throw no light upon it, since the deposits above them, supposed to be boulder clay, are not boulder clay *in situ*. It was forcibly urged by several speakers, and especially by Prof. Prestwich, that the flint implement-bearing strata are proved by their position in the valleys to be later than the glaciation of the district, in every case where it has been glaciated, or in other words, that they are decidedly of post-glacial age.

The general question of the antiquity of man in Europe was not discussed, although we gathered that the evidence of the presence of man in the Italian pleiocenes was not considered satisfactory. The general impression left upon our minds is that in Britain there is no evidence of any palæolithic men, either in caves or the river-deposits of an age older than post-glacial, and that the discoveries of the last fourteen years have merely given us interesting details as to the palæolithic savage, without telling us anything of his relation to the glacial period.

THE VALUE OF NATURAL HISTORY MUSEUMS

WELL-arranged museums are valuable to the state in many ways. The technological department ought to show in what new directions capital may and may not be invested; the geological and mineralogical should point out in what kind of rock and in what parts of the earth's crust ores and minerals are to be sought, and should save the expenditure of money in useless trials. The museum of the Royal School of Mines in Jermyn Street performs these functions. But they are valuable in a still higher sense as encouraging a love of knowledge for its own sake apart from any selfish aims. The visitors to the British Museum, however frivolous they may be, leave it all the better for having been there. It is impossible that they should not carry away some sort of idea, which otherwise would not have occurred to them, even if it be merely the recognition that outside their daily lives there is a world of knowledge vast and indefinite, but real and tangible. In this respect museums are educators of the masses, offering them a means of culture which would otherwise be out of their reach. And lastly, as instruments of training in natural history they are, as I have already observed, as necessary to the student as collections of books to the student in arts.

Natural history pursuits are in themselves one of the forms of higher education, and one that is especially adapted for the culture of the lower, sometimes falsely termed the working classes—as if the higher classes worked neither with head nor hand. In proof of this I may quote the following example, which I am free to mention by the death of the man to whom it relates. Some years ago a mechanic, one of the evening class students at Owens College, took me to see a collection of fossils made by

“a hand” in a cotton-mill at Oldham. To my astonishment I found that it consisted not merely of fossils *au naturel*, shells, and the like, but of those of coal plants, polished, and in many cases cut into slices so as to show their minute structure. This had been done by rubbing them down on the kitchen floor, cementing them to a piece of glass, and then grinding them until they became transparent. The care and labour implied in a process of this kind can only be estimated by those who have tried it. But it was necessary to have a microscope to see them, and I actually discovered that the instrument which was given me to use was made by the man himself, who could not afford to buy more than the lenses, which he mounted in tubes that were made to slide in each other after the manner of a telescope. He was also a good local botanist. His collection of fossils, along with another made by a friend of his under similar circumstances, furnished the materials on which Prof. W. C. Williamson has to a great extent founded his admirable memoirs on the coal-plants, now being published by the Royal Society. From time to time I saw a good deal of my friend, and a man more completely lifted out of the usual level of his class into what I may call the unselfish horizon I never met. This could be traced directly to the scientific pursuits to which he was led by seeing somebody one day pick up a piece of coal shale, and hearing him say that there was a fish scale in it. He disbelieved this, examined for himself, took to collecting, and ultimately became what he was, devoting his early mornings and his late evenings not merely to collecting but to knowing. His knowledge embraced other things than natural history. James Whittaker, of Oldham, may be taken as a type of the effect of natural history in elevating a man's character. He is the representative of a small, though very important, body in the Northern Counties, a body which would be largely increased by the foundation of museums of the right sort. From personal contact with men like him I have arrived at the conclusion that in this direction we have a means of spreading culture among the intelligent mechanics, artisans, and mill-hands, who go neither to church nor chapel, who do not read very much, and very often have no aims higher than those of the mere animal life. Had they access to museums on holidays and in the evenings, I am sure that the receipts of public houses would ultimately be lessened. At present they have few recreations and little chance of self-improvement; for the so-called mechanics' institutes, which were originally intended for them, have generally passed into the hands of the class immediately above them.

W. BOYD DAWKINS

PHYSIOLOGICAL ÆSTHETICS

Physiological Æsthetics. By Grant Allan, B.A. 8vo. (London: Henry S. King and Co., 1877.)

WE have here a little work of some 300 pages, which deals with the philosophy of æsthetics almost exclusively on its physiological side. Of course, in thus restricting his subject, the author neglects all the more subtle and intricate parts of that philosophy; but every competent reader will agree with him that it is desirable, for the purpose of analysis, to separate as distinctly as possible the physiological from the psychological elements