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PITT-RIVERS.

The Evolution of Culture and other Essays. By the late Lieut.-General A. Lane-Fox Pitt-Rivers. Edited by J. L. Myres, with an introduction by Henry Balfour. Pp. xx+232; twenty-one plates. (Oxford: The Clarendon Press, 1906.) Price 7s. 6d. net.

IN language and in all ideas communicated by word of mouth there is a hiatus between the limits of our knowledge and the origin of culture which can never be bridged over, but we may hold in our hand the first tool ever created by the hand of man" (p. 31).

The great collection at Oxford needed this book, as a monument needs its inscription. These lectures, written during the actual collection and arrangement of the specimens, show the author's method of classification and explain the evolutionary principles which are concretely embodied in the objects themselves, from "the first tool ever created by the hand of man" to the highest effort of barbaric manufacture.

As every student of man knows, General Pitt-Rivers devoted a lifetime and a fortune to the application of the idea of evolution to the origin and development of the material arts. It was

"during his investigations, conducted with a view to ascertaining the best methods whereby the service firearms might be improved, at a time when the old Tower musket was being finally discarded, he was forcibly struck by the extremely gradual changes whereby improvements were effected. He observed that every noteworthy advancement in the efficiency, not only of the whole weapon, but also of every individual detail in its structure, was arrived at as a cumulative result of a succession of very slight modifications, each of which was but a trifling improvement upon the one immediately preceding it. Through noticing the unfailing regularity of this process of gradual evolution in the case of firearms, he was led to believe that the same principles must probably govern the development of the other arts, appliances, and ideas of mankind."

This extract, from Mr. Balfour's excellent introduction, puts on record a case of material inspiration very similar to that by which Darwin was led to his own great work. Colonel Lane-Fox began to put his ideas to a practical test in 1851. Evolution was in the air during the 'fifties, and it should not be forgotten that Pitt-Rivers, like E. B. Tylor in a parallel direction, worked out its principles independently of Darwin.

Taking what we may call *conscious* evolution at its first beginnings in the application of human hands and brains to the materials supplied by nature, he traces the development of utensils and weapons through savagery and barbarism into civilised culture. He takes as an axiom the principle that the earlier a weapon is the nearer it lies to some natural form. The consideration of these natural forms is extremely interesting, and the way in which, not only the form, but the material itself, flint, for instance, limited, or

in some cases suggested, the use of a weapon or tool is an instructive psychological lesson. The author's analysis of variation, retardation, and other qualitative differences in the chain of continuity is full of interesting analogies with biological processes. Thus he can say that man "can no more be said to have invented the boomerang than he can be said to have invented the art of sustaining life by nourishment" (p. 124). Knowledge of the theory of projectiles renders the author's account of savage missiles scientific in the truest sense; there is nothing *a priori* about it. The evolution of the shield from the club will be strange news to the layman. A detail of development, which illustrates the interchange of use and ornament, is the following, from the lecture on "Early Modes of Navigation":—

"The *oculus*, which, on the sacred boats of the Egyptians, represented the eye of Osiris guiding the mummy of the departed across the sacred lake, is still seen eastward—in India and China—converted into an ornamental device, while westward it lived through the period of the Roman and Grecian *biremes* and *triremes* and has survived to this day on the Maltese rowing-boats and the *Xebecque* of Calabria, or has been converted into a hawser-hole in modern European craft."

The italics are not the author's, and serve to point out his tendency at times to make coincidence into causal connection. The bow of a boat is, of course, the obvious place for various gear to be put, failing which it is no less the obvious place for ornament, imaginative, as in the case of the "eye," or purely decorative. But the author did not mean that the hawser-hole of a modern ship is *sans phrase* a development from the Egyptian "eye."

The lectures deal generally with principles of classification (as applied to the Pitt-Rivers collection), the evolution of culture, primitive warfare and weapons (the largest section of the book), and early modes of navigation, and are filled with abundance of detail. Mr. Balfour in his introduction does full justice to his author's achievement and his inspiring of other workers on the same lines. A luminous example of the principles set forth in the book is given in a sketch of his own history of the origin of stringed instruments from the bow of the archer (*cf.* "The Natural History of the Musical Bow," by H. Balfour). He holds that some have taken exception to the use of the term "evolution" in connection with the development of implements and weapons, and adequately vindicates such use. So at least it seems to me; and a study of the earliest facts of "invention," so-called, would be most instructive to those who are inclined to draw too sharp a line between biological change and mental adjustments to environment. Psychologists and students of invention will find this a masterly book, and of unusual value in directing attention to many a fruitful series of facts and many examples of what Mr. Balfour well calls "hybridisation of ideas." There is no index. Many would prefer photographic process-work for the plates instead of woodcuts. Why should there not be some typical photographs of the Pitt-Rivers collection? A. E. CRAWLEY.