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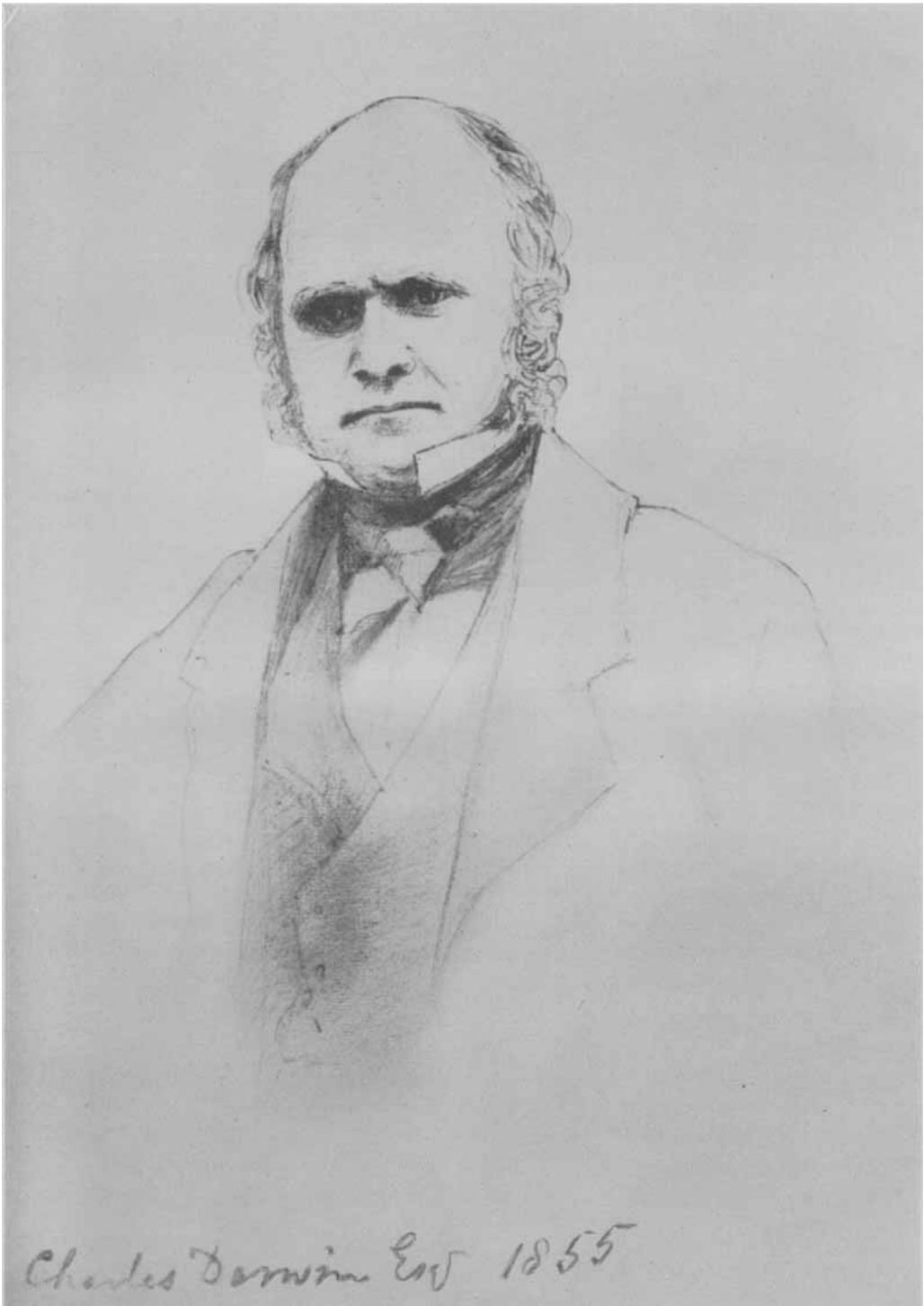
DECEMBER 1957

Editorial Notes

NEXT year the world will be celebrating the centenary of the Origin of Species, first made public by Darwin and Wallace at a meeting of the Linnaean Society in London in 1858. It was at this time that Boucher de Perthes' epoch-making discoveries at Abbeville, derided by his French colleagues, came to the knowledge of Englishmen who accepted them. The next year (1859) John Evans reported on his visit to Abbeville, and his acceptance of the discoveries as genuine and as proving the antiquity of man to be far greater than had hitherto been supposed (see Dr Joan Evans's article in ANTIQUITY XXIII, No. 91, September 1949). The two discoveries were closely related because Darwin's provided the theoretical background that explained *how* the human species could have evolved from some earlier, pre-human, animal. His theory has long been accepted by all those qualified to judge of it; and in the present Evolution number we publish articles dealing with those aspects which concern students of the history of man.



In spite of popular ideas on the subject, archaeologists as such are not qualified to discuss the biological ancestry of man, though they *do* often unearth the evidence by excavation. That is the business of human anatomists, and it is discussed here in an article by Dr Ronald Singer of Cape Town University. Archaeologists are concerned with the evolution of human culture—a word which covers everything from stone axes to ideas and social organization. The essential thing to bear in mind is that the physical evolution of the human body slowed down almost to a standstill with the invention of tools. Up to that point the survival of human (or pre-human) beings depended entirely upon favourable adaptations of their bodies to the environment in which they lived. To take an imaginary example: What would have happened to a toolless mankind overtaken by an Ice Age? Natural selection would have weeded most if not all of them out, certainly all those who could not withstand the cold or migrate to warmer regions; and it would have favoured those with hairy bodies. Eventually, if time allowed, everyone would have been clothed in a thick natural coat of fur. But this did not happen. Tools had been invented and fire discovered; both are (in this sense) tools; and instead of growing fur men used the skins of other animals, thus short-circuiting the need for any physical change. Having protected themselves against the cold by clothing and fire, it may well be that the harder conditions of life on the edges of the ice-sheets, in conditions



CHARLES DARWIN IN 1855; FROM AN UNPUBLISHED DRAWING
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otherwise favourable for the life of hunters, may have acted as a stimulus to invention and so led to more tools and an ever-increasing control of the environment. Dr Pei has had some similar ideas about *Sinanthropus* and his simian cousin, *Gigantopithecus*, who lived soft and became extinct; see the current number of *L'Anthropologie* (Vol. 61, pp. 77-83).



Whatever actually was the sequence of events, it is certain that the invention of tools marked the beginning of human culture. The essential difference between human and animal evolution is that a bodily adaptation (such as growing fur) takes hundreds of generations before it can become really effective, whereas a protective invention (such as clothing) becomes effective at once and can be passed on by teaching to the next generation. You can't teach a child to grow fur, but you can teach him to wear a fur coat.



Thus it comes about that, in all the later stages of human history, the emphasis shifts from physical evolution to the evolution of culture. 'Culture,' said Professor Leslie White ten years ago, 'is a continuous process which grows and develops in accordance with principles of its own. We are thus able to formulate the laws of this development. And the basic law relates to energy. All living organisms require energy. In order to maintain their existence, organisms must be able to control and to utilize energy in one form or another. In the human species, culture is the characteristic means of harnessing energy and of putting it to the service of man's needs. By means of tools and weapons, social organization and knowledge, man is able to harness the forces of nature, and to put them to work for him. It follows, therefore, that as more and more energy is harnessed, the more highly developed does the culture become. When only a small amount of energy is controlled *per capita*, the culture will be low; man will be a savage or a barbarian. If, however, the amount of energy harnessed and put to work be great, the culture will be high.



'We see, therefore, that civilization has developed because ways and means have been found from time to time to increase the amount of energy *per capita* under man's control and at his disposal for culture building. This is the fundamental law of the growth of civilization.' He proceeds to show how the sources of energy used have advanced from, first, those of the human body, then that of domesticated animals, to power production; and that 'the social systems of mankind are closely related to their underlying technological systems—to the ways in which energy is harnessed and put to work.'



Archaeologists and cultural anthropologists, therefore, study tools. One of the first people to do so in England was General Pitt-Rivers, who started by being commissioned to report on the development of the musket and means of improving it. He then applied the results to the implements of 'savages' (so called then) and of prehistoric men; and he found that the same principles could be observed, namely, that they evolved from simple to complex by the gradual accretion of small improvements. It is now realized that this

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process of gradual evolution was often speeded up, and sometimes replaced, by the incorporation of ideas borrowed from another culture—a process called Diffusion, discussed more fully in the present number (pp. 214–18) by Professor Leslie White himself.



Others who contributed towards the building up of this new science were Tylor, who shares with Lewis Morgan the honour of being the founder of anthropology, and Lord Avebury, who, as Sir John Lubbock, did much to popularize it. (We have to thank his daughter, the Honourable Mrs. Grant Duff, for giving us the copyright of the hitherto unpublished sketch of Charles Darwin, used as the Frontispiece of this number.)



It is very appropriate that this Evolution number of ANTIQUITY should contain an article on the action of earthworms, first studied 120 years ago by Charles Darwin. Mr. Atkinson here records the close observations of soils that he has made during his recent excavations, chiefly on Salisbury Plain. Earthworms have in their time moved more soil than all the dirt-archaeologists put together; and their activities have a most important bearing upon the problems of stratification which confront every excavator each time he digs.



In our next number (1 March, 1958) we shall publish a review of the Editor's book, *The Eye Goddess* (Phoenix House, £2 10s.), published last October. We would also repeat, for the information of new readers—of whom we welcome many since our last issue—that their subscriptions for 1958 may be renewed now, on the form inserted in this number. ANTIQUITY's Christmas present to you is an extra four pages—68 altogether—of good reading. Yours to us will, we hope, be a renewal of your subscription for 1958. If there is no form it's because you pay by banker's order, and so have nothing to worry about. Owing to a change in the British law about cheques, receipts are no longer necessary, so we are not sending any in future. You can help us budget for 1958 by 'doing it now'. We have a fine lot of stuff to print, and shall continue to keep you informed of Prof. Cyrus Gordon's exciting researches. Meanwhile a Merry Christmas and a Happy New Year to everyone.



As we go to press the death is announced of Professor Gordon Childe, an article by whom is printed on pages 210–13 of this number. He will be mourned by archaeologists all over the world, not least by the writer of these words, who had known him for over thirty years. Obituary notices appeared in the *London Times* for 21 October and following days.