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REMARKS ON THE STRUCTURE OF THE GORILLA.

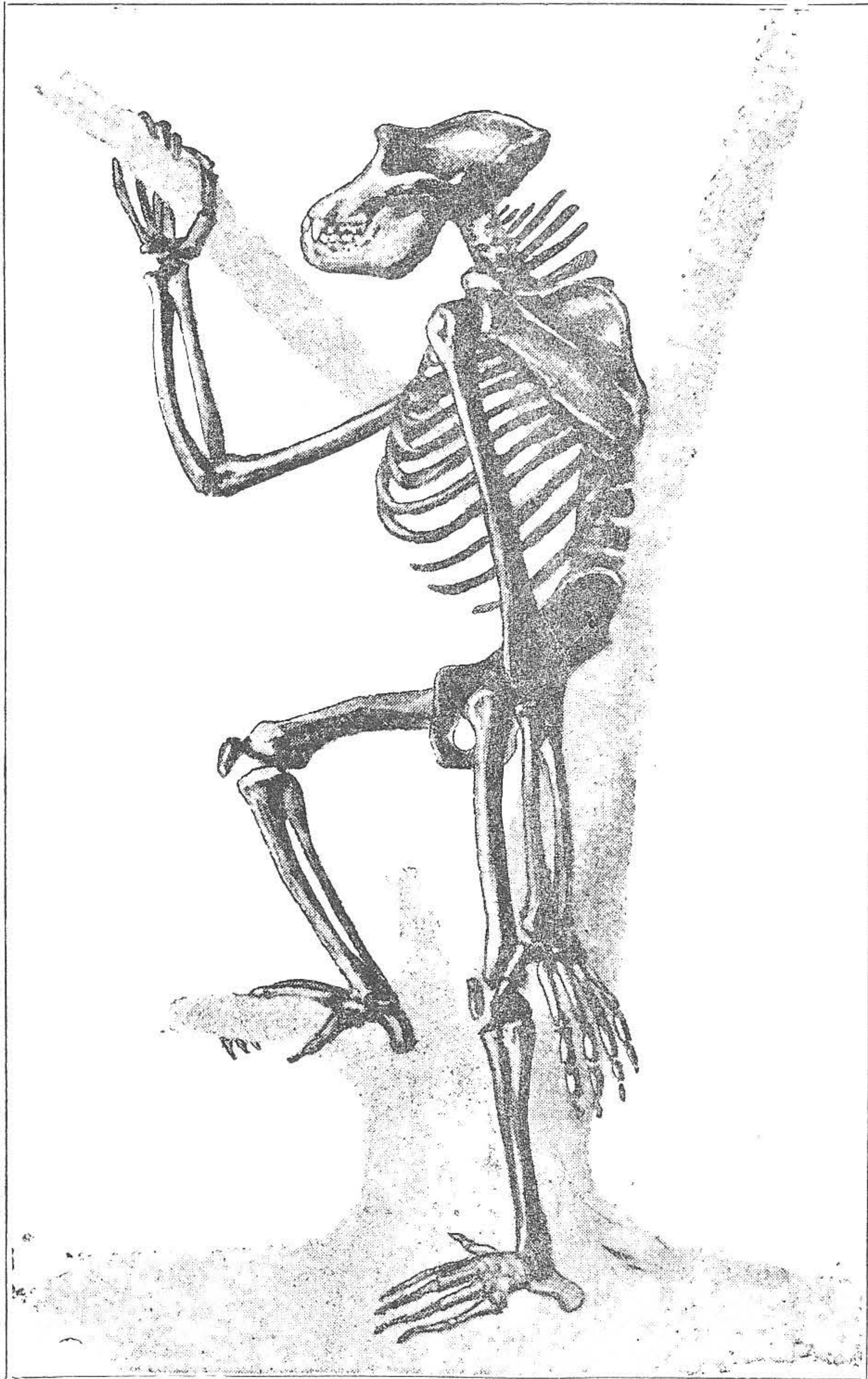
By E. CHARLESWORTH, Esq., F.G.S.

I SHOULD not have brought forward the subject of the gorilla had I not been led to do so by two different reasons. Only a few weeks ago two leading daily papers contained long and interesting articles on the gorilla. What led those widely-circulated papers to treat their readers to a history of the gorilla, was that a few days before one of those extraordinary animals had arrived at Liverpool alive, a fact which, of course, to all naturalists, was one of great importance; unhappily, that gorilla did not live more than forty-eight hours after its arrival, and it was owing to its death and the consequent lamentations that went on in the natural history world, that the papers I have referred to published those articles. The other reason why I have brought the subject forward is that the specimen of the gorilla I now produce—which is one of the most remarkable that has ever reached this country, as far as the skeleton is concerned—will be out of my possession to-morrow. It would have been sent off to-night to Southport, but, hearing of this meeting, I thought it would interest the members of the Victoria Institute to examine such a unique specimen. Another matter of painful interest connected with this subject has reference to the late Dr. Carpenter, of whose recent sad death I dare say most of my hearers are aware. More than half a century ago (in 1835), our life-long friendship began, as co-members of the General Committee, at a meeting of the British Association held at Bristol, and it was only the other day that the last address he gave before his fatal accident was delivered at the University of London, on this very skeleton. He then mentioned that, when the first skull of a gorilla reached this country, it was taken to the Bristol Museum, where he and other naturalists were certain they had in their possession a grand addition to what was called the quadrumanous fauna of the world—that is to say, the ape and monkey tribe. That skull remained in the Bristol Museum for a number of years before any announcement was made to the world of the nature of the prize they had obtained. In the course of time more

specimens came over, and these fell into the hands of Sir Richard Owen, who wrote a series of most elaborate papers on this new and grand wild man of the woods, entitled "The Gorilla": these papers appeared in the transactions of the Zoological Society.

The next step in the history of the gorilla was the work by M. du Chaillu, in which some say he drew on his imagination when giving an account of his gorilla experiences. Yet we do know that as regards its structure—as shown by its skeleton—it is one of the most formidable creatures in existence. I do not know whether I might give you the degree of relationship the gorilla bears to the longer known orang, or the still longer known chimpanzee; but I will mention two or three special points on which it differs from man. In Darwin's theory of evolution, man is represented as the last forged link in a chain of life forms, starting from sea slugs or still lower organisms, and ascending step by step in the scale of organisation until the monkey and ape tribes are reached; and finally man. Now, in this evolution theory the gorilla must have a prominent place, seeing that so great an authority as Sir R. Owen considers the gorilla the most human like of the ape family. But the structural points in which the gorilla differs from man are very strongly marked, yet it must be borne in mind that, although these differences are very formidable and wide, there might still be a possibility that, as our knowledge of the gorilla has come to us after hundreds of years of research in Africa, there may be other forms of the ape family, still to be made known, that come even nearer to man than the gorilla, and that in the fossil state there may be found an ape still more close. I put that before you merely as a possibility. The main differences between the gorilla and man are these: in the first place, there is an enormous disproportion between the brain cavities in the skull of the gorilla and that of man. Looking at the skull of the gorilla in a casual way, you would be inclined to say it was nearly as large as that of a human being; but this approximation is deceptive, being principally due to the extraordinary thickness of the skull. When, however, you take it in sections, and compare the brain cavities of the two skulls, you will at once see the wide difference between the cranium of the human being and that of the gorilla. So wide, indeed, is that difference, that it is in the proportion of something about 40 to 100; or, in other words, if the brain of man weighed 100 oz., that of the gorilla would weigh near 40 oz. When we consider what the relation of brain to mind is, we are at once enabled to understand, from this one fact,

the enormous difference there is between the gorilla and man. With regard to other points of structure, the teeth of the gorilla are of the same number as in man; but there is this essential difference, that what we call the eye or canine teeth



Kate Sowerby, Del.

SKELETON OF A GORILLA.

are formidable tusks in the gorilla, while in the human being they are scarcely elevated above the rest of the teeth. Then, you have a structure in which the gorilla differs not only from man but from all the other ape and monkey tribes, and that

is, in the extraordinary crest which divides the exterior of the skull into two equal portions. This ridge stands up something like three-quarters of an inch, and the only other case I know of an animal that has any such crest, is that of the hyæna, which has a skull crust very like that of the gorilla, but not nearly so largely developed. Then, in addition to all this, there is in the gorilla an enormous development of what is called by anatomists the superciliary ridge—a strong ridge of bone above the eyebrows. The next great distinction between man and the gorilla is seen in the enormous length of the latter's arms. This I am able to illustrate by comparison, as I have here the shoulder-bone of a gorilla and the shoulder-bone of a human being. The latter, as you will see, is a complete pigmy contrasted with the former. Dr. Carpenter told us, in the address to which I have referred, that the gorilla had actually been known to wrest a gun from the hands of a hunter, put the barrel between its teeth, and while thus holding it bend the weapon double. Whether this feat upon the part of a gorilla rests on reliable evidence I cannot say, but the enormous strength of the gorilla, proved by the teeth, jaws, and other parts of the skeleton, will point to the possibility of this being done. Look at the enormous difference in the shoulder-blades of man and the gorilla; here are the shoulder-blades of each, and it will be remembered that these bones have a most important relation to the muscles which move the arms; therefore, when you consider what a strong man can do with his arms, you may easily imagine what a gorilla could do with a shoulder-blade like the one before you, and with the other bones of the arm in the same proportion. I do not know how many in this audience are of the medical profession; but perhaps there may be some present who are not aware that there is a single bone from the shoulder to the elbow, and then two bones from the elbow to the wrist. I produce the corresponding bones in the arm of man and the gorilla. If you contrast them, you will understand the prodigious power residing in the arm of the latter. M. du Chaillu brought over to this country a number of gorillas, some in skins and some as skeletons, and from them we can believe everything he said about their strength. If any of my hearers should have any questions to ask, I shall be happy, if the time will permit, to answer them.

The CHAIRMAN (D. HOWARD, Esq., V.P.C.S.).—I am sure we are all exceedingly indebted to Mr. Charlesworth for the interesting opportunity he has afforded us of seeing the remains of this wonderful creature, and of hearing his very able and lucid statement. It is very useful and in-

structive to be able thus to realise the remarkable characteristics of so extraordinary an animal, and to have them put before us under the guise of comparative anatomy, which is one of the most attractive sciences within the regions of human knowledge—though, unfortunately for me, owing to want of opportunity, “unknowable.” It seems to me that the wonderful adaptation of the gorilla to its own modes of life is most remarkable, while the contrast instituted between the skeletons of that animal and of the human being, as showing the adaptability of both to their different surroundings, is one of the most fascinating of the features of comparative anatomy. I suppose the bones of the thigh and leg are not so disproportionate as those of the arms, as between man and the gorilla ?

Mr. CHARLESWORTH.—No ; the great disparity is in the arms. That we can readily understand, because the gorilla is arboreal. The actual height of the gorilla is said, by Du Chaillu, to be six feet, within three or four inches ; but I believe this is over-stated, and that the animal's real height is nearer five than six feet.

The CHAIRMAN.—I do not think the bending of a musket barrel by the gorilla is so unlikely a thing as some may suppose. I have seen a poker bent over a man's arm by a clever blow, and if the very small bone of a human arm will stand that, we need not wonder at the tremendous power possessed by the arm bones of the gorilla, with their corresponding muscles. It seems to me very strange how some of the old traditions are confirmed. In the case of the gorilla tribe, you have undoubtedly the traditional men whose heads grew beneath their shoulders.

The meeting was then adjourned.