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NOTE: See Wallace's review published in the *Academy*. <http://wallace-online.org/content/frameset?pageseq=1&itemID=S186&viewtype=text>

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Few scientific works have excited more attention than the one just published by Mr. Charles Darwin, upon "The Descent of Man, and Selection in Relation to Sexes," the only parallel perhaps being found in some previous works by the same author. This treatise has already been discussed from almost every point of view, and it is almost impossible to take up a periodical at all interested in such subjects without finding one or more notices of the book. Among the best written of these criticisms may be cited one published in a late number of the *Academy*, from the pen of Mr. Alfred R. Wallace – himself a naturalist of a high degree of eminence, and although known to agree with Mr. Darwin in some of his views, yet entirely opposed to him in others.

As summed up in this article, the first chapter of Mr. Darwin's book discussed the evidence for the descent of man from some lower form, in which it is shown that man's entire structure is comparable, bone by bone and muscle by muscle, with that of other vertebrata, while the close relationship is shown in many ways; such, for instance, as his ability to receive certain animal diseases – as glanders and hydrophobia; his having internal and external parasites of the same families and genera as those of the lower animals; and in exhibiting an embryonic development so exactly similar to that of other vertebrates that his embryo can scarcely be distin-

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guished. Much stress is laid upon the occurrence in man of rudiments of structures characteristic of lower forms, many muscles regularly present in the apes and other mammals appearing occasionally in man, although sometimes inappreciable or wanting. When the mental powers of the lower animals are compared with those of man they are found to exhibit a strong resemblance, although more or less rudimentary; and in reference to the origin of the moral sense, Mr. Darwin maintains that this arises from the social instincts combined with an active intellect.

The manner of the development of man from some lower form is next very fully discussed, attention being called to the extreme variability of every part of his bodily structure and mental faculties, the influence of changed conditions, and the occurrence of arrested developments, reversions, and variations, just as in the lower animals. Although natural selection must have acted upon man as upon the lower animals, yet both Mr. Darwin and Mr.

Wallace agree in the view that as soon as man's mind had become moderately developed the action of natural selection would become changed as regards the general structure, and transferred to the mental faculties. This advance from animal to man, it is thought, must have taken place before the dispersal of the race over the world.

The author next discusses the special affinities of man to the lower animals, by which the line of the genealogy can be traced, and the time and place of his origin, together with the nature and the probable origin of the several races of man. The consideration of this latter subject necessitates the consideration of sexual selection. The theory presented by Mr. Darwin depends upon the almost invariable occurrence of a struggle among males for the females - a struggle carried on by actual fighting, or by rivalry in voice or in beauty. This produces two sets of modifications in male animals; first, weapons of various kinds have been developed, owing to those best able to fight having most frequently left progeny to inherit their superiority; and musical organs, bright colors, or ornamental appendages, in consequence of the females preferring males so gifted or adorned. This subject is treated of at great length, about five hundred pages of the original edition being occupied by its consideration. The sexual differences in man are stated by Mr. Darwin to be greater than in most species of monkeys, while in their general features and mode of development man agrees remarkably with those animals - one of these consisting in the fact that whenever the beard differs in color from the hair on the head, it is always lighter both in man and monkeys. The law of battle for wives still prevails among some savages, just as it does among wild animals; and the admiration of certain types of form and complexion, as involving the selection of wives and husbands, is considered to have been an important agent in determining both the races and the sexual differences of mankind. In the final summary of the whole argument, contained in the last-chapter, Mr. Darwin maintains that the whole evidence leads to the conclusion that man, whatever his present character, mental and physical, bears still in his bodily frame the stamp of a lowly origin. Most naturalists, from the times of Blumenbach and Cuvier, in a systematic arrangement of the animal kingdom, have considered man as either a type of a distinct suborder, class, or even of a higher rank. Professor Huxley, however, and other prominent men of science who have devoted special attention to the critical comparison of the structure of man and the apes, have insisted that as man, in all parts of his organization, differs less from the higher apes than these do from the lower members of the same group, there is no justification for placing him in a distinct order. In this view Mr. Darwin agrees, but thinks that he may perhaps be entitled to form a distinct suborder, or, at any rate, a family. Professor Huxley divides the primates into three

suborders, namely, the Anthropodae, with man alone; the Simiadae, including monkeys of all kinds; and the Lemuridae, or lemurs, with their variations and related forms; and Mr. Darwin thinks that, so far as differences in certain important points of structure are concerned, man may rightly claim the rank of a suborder, but that, if we look to his mental faculties alone, this rank is too low. Again, on the other hand, in a genealogical point of view, even subordinal rank is too high, and man ought to form merely a family, or possibly only a subfamily. Putting his creed into the plainest terms-namely, that man is a lineal descendant of some form of ape - and referring to the great differences between the apes of the Old and New World, Mr. Darwin proceeds to inquire to which of the two man's ancestry belongs. He finds that in the essentials of the characteristics of the nose and of the premolar teeth the relation is especially with the Old World species, and that, consequently, man must be considered as an offshoot from the Old World monkey stem. It is not, however, to be inferred, according to our author, that man was identical with, or even closely related to, any existing ape or monkey, but that he diverged at an early period from the common stock, and that both divisions have probably been more or less modified in the descent, so as to differ greatly from their ancestors.

Since man belongs to the Old World division of the anthropoid animals, his origin must have been, as already stated, in the Old World, probably in Africa, for reasons adduced by our author. The country inhabited by him was probably hot, consequently involving the loss of his hairy covering, and he is supposed to have lived upon fruits. The period of divergence of man from the monkey stock is thought by Mr. Darwin to have been as remote as that of the eocene; and at a time still more recent he supposes him to have been covered with hair, both sexes to have had beards, ears pointed and capable of movement, and tails having the proper muscles. The foot is supposed to have been prehensile at that time, judging from the position of the great toe in the fetus; and resting-places were probably occupied by him in trees, like those of many apes of the present day. The males are supposed by him to have been provided with great canine teeth, serving as formidable weapons.

After presenting a summary of Mr. Darwin's views, as understood by Mr. Wallace in the article referred to, the latter writer proceeds to take exceptions to some points enumerated, as derived from his own extended observations in the line of scientific research; but finally concludes his notice by conceding that Mr. Darwin

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has all but demonstrated the origin of man by descent from some inferior form, that he has proved the vast importance of sexual influences in modifying the characters of the more

highly organized animals, and that he has thrown fresh light upon the mode of development of the moral and intellectual nature of man.

In giving the views of Mr. Darwin as condensed by Mr. Wallace, we, of course, are not to be considered as indorsing them as having been accepted by the scientific world. The work itself, in its immense array of facts, or, at least, of statements, and in the logical precision with which they are arrayed and brought up, either to form a hypothesis or sustain it, is a store-house of information and a masterpiece of reasoning; and though the general inferences may not be accepted and adopted, there is no doubt that it will exercise a very powerful influence upon the science of the day. It may be stated, however, that the doctrine of evolution, which forms so important a feature in Mr. Darwin's views, is accepted to a very great extent by a large proportion of the leading naturalists of the day, and that their number is constantly increasing.