ART. II.—*The Descent of Man, and Selection in Relation to Sex.* By Charles Darwin, M.A., F.R.S., &c. 2 vols. London, 1871.

IN Mr. Darwin's last work we possess at length a complete and thorough exposition of his matured views. He gives us the results of the patient labour of many years' unremitting investigation and of the application of a powerful and acute intellect, combined with an extraordinarily active imagination, to an unequalled collection of most varied, interesting and important biological data. In his earlier writings a certain reticence veiled, though it did not hide, his ultimate conclusions as to the origin of our own species; but now all possibility of misunderstanding or of a repetition of former disclaimers on the part of any disciple is at an end, and the entire and naked truth as to the logical consequences of Darwinism is displayed with a frankness which we had a right to expect from the distinguished author. What was but obscurely hinted in the 'Origin of Species' is here fully and fairly stated in all its bearings and without disguise. Mr. Darwin has, in fact, 'crowned the edifice,' and the long looked for and anxiously awaited detailed statement of his views as to the human race is now unreservedly put before us.

We rise from the careful perusal of this book with mingled feelings of admiration and disappointment. The author's style is clear and attractive—clearer than in his earlier works—and his desire to avoid every kind of conscious misrepresentation is as conspicuous as ever. The number of interesting facts brought forward is as surprising as is the ingenuity often displayed in his manipulation of them. Under these circumstances it is a most painful task to have to point out grave defects and serious shortcomings. Mr. Darwin, however, seems in his recent work even more than in his earlier productions to challenge criticism, and to have thrown out ideas and suggestions with a distinct view to their subsequent modification by others. It is but an act of fairness to call attention to this:—

'False facts,' says Mr. Darwin, 'are highly injurious to the progress of science, for they often long endure; but false views, if supported by some evidence, do little harm, as every one takes a salutary pleasure in proving their falseness; and when this is done, one path towards error is closed and the road to truth is often at the same time opened.' —*Descent of Man*, vol. ii. p. 385.

Although we are unable to agree entirely with Mr. Darwin in this remark, it none the less contains an undoubted truth. We cannot

cannot agree, because we feel that a false theory which keenly solicits the imagination, put forward by a writer widely and deservedly esteemed, and which reposes on a multitude of facts difficult to verify, skilfully interwoven, and exceedingly hard to unravel, is likely to be very prejudicial to science. Nevertheless, science cannot make progress without the action of two distinct classes of thinkers: the first consisting of men of creative genius, who strike out brilliant hypotheses, and who may be spoken of as 'theorizers' in the good sense of the word; the second, of men possessed of the critical faculty, and who test, mould into shape, perfect or destroy, the hypotheses thrown out by the former class.

Obviously important as it is that there should be such theorizers, it is also most important that criticism should clearly point out when a theory is really proved, when it is but probable, and when it is a mere arbitrary hypothesis. This is all the more necessary if, as may often and very easily happen, from being repeatedly spoken of, and being connected with celebrated and influential names, it is likely to be taken for very much more than it is really worth.

The necessity of caution in respect to this is clearly shown by Mr. Darwin's present work, in which 'sexual selection,' from being again and again referred to as if it had been proved to be a *vera causa*, may readily be accepted as such by the uninstructed or careless reader. For many persons, at first violently opposed through ignorance or prejudice to Mr. Darwin's views, are now, with scarcely less ignorance and prejudice, as strongly inclined in their favour.

Mr. Darwin's recent work, supplementing and completing, as it does, his earlier publications, offers a good opportunity for reviewing his whole position. We shall thus be better able to estimate the value of his convictions regarding the special subject of his present inquiry. We shall first call attention to his earlier statements, in order that we may see whether he has modified his views, and, if so, how far and with what results. If he has, even by his own showing and admission, been overhasty and seriously mistaken previously, we must be the more careful how we commit ourselves to his guidance now. We shall endeavour to show that Mr. Darwin's convictions have undergone grave modifications, and that the opinions adopted by him now are quite distinct from, and even subversive of, the views he originally put forth. The assignment of the law of 'natural selection' to a subordinate position is virtually an abandonment of the Darwinian theory; for the one distinguishing feature of that theory was the all-sufficiency of 'natural selection.' Not the

the less, however, ought we to feel grateful to Mr. Darwin for bringing forward that theory, and for forcing on men's minds, by his learning, acuteness, zeal, perseverance, firmness, and candour, a recognition of the probability, if not more, of evolution and of the certainty of the action of 'natural selection.' For though the 'survival of the fittest' is a truth which readily presents itself to any one who considers the subject, and though its converse, the destruction of the least fit, was recognised thousands of years ago, yet to Mr. Darwin, and (through Mr. Wallace's reticence) to Mr. Darwin alone, is due the credit of having first brought it prominently forward and demonstrated its truth in a volume which will doubtless form a landmark in the domain of zoological science.

We find even in the third edition of his 'Origin of Species' the following passages:—'Natural selection can act only by taking advantage of slight successive variations; she can never take a leap, but must advance by short and slow steps' (p. 214). Again he says:—'If it could be demonstrated that any complex organ existed, which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down. But I can find out no such case' (p. 208). He adds:—

'Every detail of structure in every living creature (making some little allowance for the direct action of physical conditions) may be viewed, either as having been of special use to some ancestral form, or as being now of special use to the descendants of this form—either directly, or indirectly through the complex laws of growth;' and 'if it could be proved that any part of the structure of any one species had been formed for the exclusive good of another species, it would annihilate my theory, for such could not have been produced through natural selection' (p. 220).

It is almost impossible for Mr. Darwin to have used words by which more thoroughly to stake the whole of his theory on the non-existence or non-action of causes of any moment other than natural selection. For why should such a phenomenon 'annihilate his theory'? Because the very essence of his theory, as originally stated, is to recognise only the conservation of minute variations directly beneficial to the creature presenting them, by enabling it to obtain food, escape enemies, and propagate its kind. But once more he says:—

'We have seen that species at any one period are not indefinitely variable, and are not linked together by a multitude of intermediate gradations, partly because the process of natural selection will always be very slow, and will act, at any one time, only on a very few forms; and partly because the very process of natural selection almost implies

implies the continual supplanting and extinction of preceding and intermediate gradations.'—P. 223.

Such are Mr. Darwin's earlier statements. At present we read as follows:—

'I now admit, after reading the essay by Nägeli on plants, and the remarks by various authors with respect to animals, more especially those recently made by Professor Broca, that in the earlier editions of my "Origin of Species" I probably attributed too much to the action of natural selection or the survival of the fittest.' . . . . 'I had not formerly sufficiently considered the existence of many structures which appear to be, as far as we can judge, neither beneficial nor injurious; and this I believe to be one of the greatest oversights as yet detected in my work.'—('Descent of Man,' vol. i. p. 152.)

A still more remarkable admission is that in which he says, after referring to the action of both natural and sexual selection:—

'An unexplained residuum of change, perhaps a large one, must be left to the assumed action of those *unknown agencies*, which occasionally induce strongly marked and abrupt deviations of structure in our domestic productions.'—vol. i. p. 154.

But perhaps the most glaring contradiction is presented by the following passage:—

'No doubt man, as well as every other animal, presents structures, which as far as we can judge with our little knowledge, are not now of any service to him, nor have been so during any former period of his existence, either in relation to his general conditions of life, or of one sex to the other. Such structures cannot be accounted for by any form of selection, or by the inherited effects of the use and disuse of parts. We know, however, that many strange and strongly marked peculiarities of structure occasionally appear in our domesticated productions; and if the unknown causes which produce them were to act more uniformly, they would probably become common to all the individuals of the species.'—vol. ii. p. 387.

Mr. Darwin, indeed, seems now to admit the existence of internal, innate powers, for he goes on to say:—

'We may hope hereafter to understand something about the causes of such occasional modifications, especially through the study of monstrosities.' . . . . 'In the greater number of cases we can only say that the cause of each slight variation and of each monstrosity lies much more *in the nature or constitution of the organism** than in the nature of the surrounding conditions; though new and changed conditions certainly play an important part in exciting organic changes of all kinds.'

* The italics in the quotations from Mr. Darwin's book in this article are, in almost all cases, our's, and not the author's.

Also

Also, in a note (vol. i. p. 223), he speaks of 'incidental results of certain unknown differences in the constitution of the reproductive system.'

Thus, then, it is admitted by our author that we may have 'abrupt, strongly marked' changes, 'neither beneficial nor injurious' to the creatures possessing them, produced 'by unknown agencies' lying deep in 'the nature or constitution of the organism,' and which, if acting uniformly, would 'probably' modify similarly 'all the individuals of a species.' If this is not an abandonment of 'natural selection,' it would be difficult to select terms more calculated to express it. But Mr. Darwin's admissions of error do not stop here. In the fifth edition of his 'Origin of Species' (p. 104) he says, 'Until reading an able and valuable article in the "North British Review" (1867), I did not appreciate how rarely single variations, whether slight or strongly marked, could be perpetuated.' Again: he was formerly 'inclined to lay much stress on the principle of protection, as accounting for the less bright colours of female birds' ('Descent of Man,' vol. ii. p. 198); but now he speaks as if the correctness of his old conception of such colours being due to protection was unlikely. 'Is it probable,' he asks, 'that the head of the female chaffinch, the crimson on the breast of the female bullfinch, —the green of the female chaffinch,—the crest of the female golden-crested wren, have all been rendered less bright by the slow process of selection for the sake of protection? *I cannot think so*' (vol. ii. p. 176.)

Once more Mr. Darwin shows us (vol. i. p. 125) how he has been over-hasty in attributing the development of certain structures to reversion. He remarks, 'In my "Variations of Animals under Domestication" (vol. ii. p. 57) I attributed the not very rare cases of supernumerary mammæ in women to reversion.' 'But Professor Preyer states that *mammæ erraticæ* have been known to occur in other situations, even on the back; so that the force of my argument is greatly weakened or perhaps quite destroyed.'

Finally, we have a postscript at the beginning of the second volume of the 'Descent of Man' which contains an avowal more remarkable than even the passages already cited. He therein declares:—

'I have fallen into a serious and unfortunate error, in relation to the sexual differences of animals, in attempting to explain what seemed to me a singular coincidence in the late period of life at which the necessary variations have arisen in many cases, and the late period at which sexual selection acts. The explanation given is wholly erroneous,

erroneous, as I have discovered by working out an illustration in figures.'

While willingly paying a just tribute of esteem to the candour which dictated these several admissions, it would be idle to dissemble, and disingenuous not to declare, the amount of distrust with which such repeated over-hasty conclusions and erroneous calculations inspire us. When their Author comes before us anew, as he now does, with opinions and conclusions still more startling, and calculated in a yet greater degree to disturb convictions reposing upon the general consent of the majority of cultivated minds, we may well pause before we trust ourselves unreservedly to a guidance which thus again and again declares its own reiterated fallibility. Mr. Darwin's conclusions may be correct, but we feel we have now indeed a right to demand that they shall be proved before we assent to them; and that since what Mr. Darwin before declared '*must* be,' he now admits not only to be unnecessary but untrue, we may justly regard with extreme distrust the numerous statements and calculations which, in the 'Descent of Man,' are avowedly recommended by a mere '*may* be.' This is the more necessary, as the Author, starting at first with an avowed hypothesis, constantly asserts it as an undoubted fact, and claims for it, somewhat in the spirit of a theologian, that it should be received as an article of faith. Thus the formidable objection to Mr. Darwin's theory, that the great break in the organic chain between man and his nearest allies, which cannot be bridged over by any extinct or living species, is answered simply by an appeal 'to a *belief* in the general principle of evolution' (vol. i. p. 200), or by a confident statement that 'we have *every reason to believe* that breaks in the series are simply the result of many forms having become extinct' (vol. i. p. 187). So, in like manner, we are assured that 'the early progenitors of man were, *no doubt*, once covered with hair, both sexes having beards; their ears were pointed and capable of movement; and their bodies were provided with a tail, having the proper muscles' (vol. i. p. 206). And, finally, we are told, with a dogmatism little worthy of a philosopher, that, '*unless we wilfully close our eyes*,' we must recognise our parentage (vol. i. p. 213).

These are hard words; and, even at the risk of being accused of wilful blindness, we shall now proceed, with an unbiassed and unprejudiced mind, to examine carefully the arguments upon which Mr. Darwin's theory rests. Must we acknowledge that 'man with all his noble qualities, with sympathy which feels for the most debased, with benevolence which extends not only to other

other men but to the humblest living creature, with his god-like intellect which has penetrated into the movements and constitution of the solar system,' must we acknowledge that man 'with all these exalted powers' is descended from an Ascidian? Is this a scientific truth resting on scientific evidence, or is it to be classed with the speculations of a bygone age?

With regard to the Origin of Man, Mr. Darwin considers that both 'natural selection' and 'sexual selection' have acted. We need not on the present occasion discuss the action of natural selection; but it will be necessary to consider that of 'sexual selection' at some length. It plays a very important part in the 'descent of man,' according to Mr. Darwin's views. He maintains that we owe to it our power of song and our hairlessness of body, and that also to it is due the formation and conservation of the various races and varieties of the human species. In this matter then we fear we shall have to make some demand upon our readers' patience. 'Sexual selection' is the corner-stone of Mr. Darwin's theory. It occupies three-fourths of his two volumes; and unless he has clearly established this point, the whole fabric falls to the ground. It is impossible, therefore, to review the book without entering fully into the subject, even at the risk of touching upon some points which, for obvious reasons, we should have preferred to pass over in silence.

Under the head of 'sexual selection' Mr. Darwin includes two very distinct processes. One of these consists in the action of superior strength or activity, by which one male succeeds in obtaining possession of mates and in keeping away rivals. This is, undoubtedly, a *vera causa;* but may be more conveniently reckoned as one kind of 'natural selection' than as a branch of 'sexual selection.' The second process consists in alleged preference or choice, exercised freely by the female in favour of particular males on account of some attractiveness or beauty of form, colour, odour, or voice, which such males may possess. It is this second kind of 'sexual selection' (and which alone deserves the name) that is important for the establishment of Mr. Darwin's views, but its valid action has to be proved.

Now, to prove the existence of such a power of choice Mr. Darwin brings forward a multitude of details respecting the sexual phenomena of animals of various classes; but it is the class of birds which is mainly relied on to afford evidence in support of the exercise of this power of choice by female animals. We contend, however, that not only is the evidence defective even here, but that much of his own evidence is in direct opposition to his views. While the unquestionable fact, that male sexual characters (horns, mane, wattles,

wattles, &c., &c.) have been developed in many cases where sexual selection has certainly not acted, renders it probable, *à priori*, that the unknown cause which has operated in these numerous cases has operated in those instances also which seem to favour the hypothesis supported by Mr. Darwin. Still he contends that the greater part of the beauty and melody of the organic world is due exclusively to this selective process, by which, through countless generations, the tail of the peacock, the throat of the humming-bird, the song of the nightingale, and the chirp of the grasshopper have been developed by females, age after age, selecting for their mates males possessing in a more and more perfect degree characters which must thus have been continually and constantly preferred.

Yet, after all, Mr. Darwin concedes *in principle* the very point in dispute, and yields all for which his opponents need argue, when he allows that beautiful and harmonious variations may occur *spontaneously* and *at once*, as in the dark or spangled bars on the feathers of Hamburgh fowls ('Descent of Man,' vol. i. p. 281). For what difference is there, other than mere difference of degree, between the spontaneous appearance of a few beautiful new feathers with harmonious markings and the spontaneous appearance of a whole beautiful clothing like that of the Tragopans?

Again, on Mr. Darwin's own showing, it is manifest that male sexual characters, such as he would fain attribute to sexual selection, may arise without any such action whatever. Thus he tells us, 'There are breeds of the sheep and goat, in which the horns of the male differ greatly in shape from those of the female;' and 'with tortoise-shell cats, the females alone, as a general rule, are thus coloured, the males being rusty-red' (vol. i. p. 283). Now, if these cats were only known in a wild state, Mr. Darwin would certainly bring them forward amongst his other instances of alleged sexual selection, though we now know the phenomenon is not due to any such cause. A more striking instance, however, is the following:—'With the pigeon, the sexes of the parent species do not differ in any external character; nevertheless, in certain domesticated breeds the male is differently coloured from the female. The wattle in the English carrier-pigeon and the crop in the pouter are more highly developed in the male than in the female;' and 'this has arisen, not from, but rather *in opposition to*, the wishes of the breeder;' which amounts to a positive demonstration that sexual characters may arise spontaneously, and, be it noted, in the class of birds.

The uncertainty which besets these speculations of Mr. Darwin is evident at every turn. What at first could be thought a better

better instance of sexual selection than the light of the glowworm, exhibited to attract her mate? Yet the discovery of luminous larvæ, which of course have no sexual action, leads Mr. Darwin to observe: 'It is very doubtful whether the primary use of the light is to guide the male to the female' (vol. i. p. 345). Again, as to certain British field-bugs, he says: 'If in any species the males had differed from the females in an analogous manner, we *might have been justified* in attributing such conspicuous colours to sexual selection with transference to both sexes' (vol. i. p. 350). As to the stridulating noises of insects (which is assumed to be the result of sexual selection), Mr. Darwin remarks of certain Neuroptera:—'It is rather surprising that both sexes should have the power of stridulating, as the male is winged and the female wingless' (vol. i. p. 366); and he is again surprised to find that this power is not a sexual character in many Coleoptera (vol. i. p. 382).

Moths and butterflies, however, are the insects which Mr. Darwin treats of at the greatest length in support of sexual selection. Yet even here he supplies us with positive evidence that in certain cases beauty does not charm the female. He tells us:—

'Some facts, however, are opposed to the belief that female butterflies prefer the more beautiful males; thus, as I have been assured by several observers, fresh females may frequently be seen paired with battered, faded, or dingy males.'—vol. i. p. 400.

As to the Bombycidæ he adds:—

'The females lie in an almost torpid state, and appear not to evince the least choice in regard to their partners. This is the case with the common silk-moth (*B. mori*). Dr. Wallace, who has had such immense experience in breeding *Bombyx cynthia*, is convinced that the females evince no choice or preference. He has kept above 300 of these moths living together, and has often found the most vigorous females mated with stunted males.'

Nevertheless, we do not find, for all this, any defect of colour or markings, for, as Mr. Alfred Wallace observes (*Nature*, March 15th, 1871, p. 182), 'the Bombyces are amongst the most elegantly coloured of all moths.'

Mr. Darwin gives a number of instances of sexual characters, such as horns, spines, &c., in beetles and other insects; but there is no fragment of evidence that such structures are in any way due to feminine caprice. Other structures are described and figured which doubtless do aid the sexual act, as the claws of certain Crustacea; but these are often of such size and strength (*e. g.* in *Callianassa* and *Orchestia*) as to render any power of choice

choice on the part of the female in the highest degree incredible.

Similarly with the higher classes, *i.e.* Fishes, Reptiles, and Beasts, we have descriptions and representations of a number of sexual peculiarities, but no evidence whatever that such characters are due to female selection. Often we have statements which conflict strongly with a belief in any such action. Thus, *e.g.*, Mr. Darwin quotes Mr. R. Buist, Superintendent of Fisheries, as saying that male salmon

> 'Are constantly fighting and tearing each other on the spawning-beds, and many so injure each other as to cause the death of numbers, many being seen swimming near the banks of the river in a state of exhaustion, and apparently in a dying state.' . . . 'The keeper of Stormontfield found in the northern Tyne about 300 dead salmon, all of which with one exception were males; and he was convinced that they had lost their lives by fighting.'—vol. ii. p. 3.

The female's choice must here be much limited, and the only kind of sexual selection which can operate is that first kind, determined by combat, which, we before observed, must rather be ranked as a kind of 'natural selection.' Even with regard to this, however, we may well hesitate, when Mr. Darwin tells us, as he does, that seeing the habitual contests of the males, 'it is surprising that they have not generally become, through the effects of sexual selection, larger and stronger than the females;' and this the more as 'the males suffer from their small size,' being 'liable to be devoured by the females of their own species' (vol. ii. p. 7). The cases cited by our Author with regard to fishes, do not even tend to prove the existence of sexual selection, and the same may be said as to the numerous details given by him about Reptiles and Amphibians. Nay, rather the facts are hostile to his views. Thus, he says himself, 'It is surprising that frogs and toads should not have acquired more strongly-marked sexual differences; for though cold-blooded, their passions are strong' (vol. ii. p. 26). But he cites a fact, than which it would be difficult to find one less favourable to his cause. He adds: 'Dr. Günther informs me that he has several times found an unfortunate female toad dead and smothered from having been so closely embraced by three or four males.' If female selection was difficult in the case of the female salmon, it must be admitted to have been singularly infelicitous to the female toad.

We will now notice some facts brought forward by Mr. Darwin with regard to beasts. And first, as to the existence of choice on the part of the females, it may be noted that 'Mr. Blenkiron, the greatest breeder of race-horses in the world, says that

that stallions are so frequently capricious in their choice, rejecting one mare and without any apparent cause taking to another, that various artifices have to be habitually used.' 'He has *never known a mare to reject a horse;*' though this has occurred in Mr. Wright's stable.

Some of the most marked sexual characters found amongst mammals, are those which exist in apes. These are abundantly noticed by Mr. Darwin, but his treatment of them seems to show his inability to bring them within the scope of his theory.

It is well known that certain apes are distinguished by the lively colours or peculiarities as to hair possessed by the males, while it is also notorious that their vastly superior strength of body and length of fang, would render resistance on the part of the female difficult and perilous, even were we to adopt the utterly gratuitous supposition, that at seasons of sexual excitement the female shows any disposition to coyness. Mr. Darwin has no facts to bring forward to prove the exercise of any choice on the part of female apes, but gives in support of his views the following remarkable passage:—

'Must we attribute to mere purposeless variability in the male all these appendages of hair and skin? It cannot be denied that this is possible; for, with many domesticated quadrupeds, certain characters, apparently not derived through reversion from any wild parent-form, have appeared in, and are confined to, the males, or are more largely developed in them than in the females,—for instance, the hump in the male zebu-cattle of India, the tail in fat-tailed rams, the arched outline of the forehead in the males of several breeds of sheep, the mane in the ram of an African breed, and, lastly, the mane, long hairs on the hinder legs, and the dewlap in the male alone of the Berbura goat.'—vol. ii. p. 284.

If these are due, as is probable, to simple variability, then, he adds,—

'It would appear reasonable to extend the same view to the many analogous characters occurring in animals under a state of nature. Nevertheless I cannot persuade myself that this view is applicable in many cases, as in that of the extraordinary development of hair on the throat and fore-legs of the male Ammotragus, or of the immense beard of the Pithecia (monkey).'—vol. ii. p. 285.

But one naturally asks, Why not? Mr. Darwin gives no reason (if such it may be called) beyond that implied in the gratuitous use of the epithet 'purposeless' in the passage cited, and to which we shall return.

In the Rhesus monkey the female appears to be more vividly coloured than the male; therefore Mr. Darwin infers (grounding his

his inference on alleged phenomena in birds) that sexual selection is *reversed*, and that in this case the male selects. This hypothetical reversion of a hypothetical process to meet an exceptional case will appear to many rash indeed, when they reflect that as to teeth, whiskers, general size, and superciliary ridges this monkey 'follows the common rule of the male excelling the female' (vol. ii. p. 294).

To turn now to the class on which Mr. Darwin especially relies, we shall find that even Birds supply us with numerous instances which conflict with his hypothesis. Thus, speaking of the battling of male waders, our author tells us:—'Two were seen to be thus engaged for half an hour, until one got hold of the head of the other, which would have been killed had not the observer interfered; the female all the time looking on as a quiet spectator' (vol. ii. p. 41). As these battles must take place generally in the absence of spectators, their doubtless frequently fatal termination must limit greatly the power of selection Mr. Darwin attributes to the females. The same limit is certainly imposed in the majority of Gallinaceous birds, the cocks of which fight violently; and there can be little doubt but that, as an almost invariable rule, the victorious birds mate with the comparatively passive hens.

Again, how can we explain, on Mr. Darwin's hypothesis, the existence of distinguishing male sexual marks, where it is the male and not the female bird which selects? Yet the wild turkey-cock, a distinguished bird enough, is said by Mr. Darwin (vol. ii. p. 207) to be courted by the females; and he quotes (vol. ii. p. 120) Sir R. Heron as saying, 'that with peafowl, the first advances are always made by the female.' And of the capercailzie he says, 'the females flit round the male while he is parading, and solicit his attention.'

But though, of course, the sexual instinct always seeks its gratification, does the female *ever* select a particular plumage? The strongest instance given by Mr. Darwin is as follows:—

'Sir R. Heron during many years kept an account of the habits of the peafowl, which he bred in large numbers. He states that the hens have frequently great preference for a particular peacock. They were all so fond of an old pied cock, that one year, when he was confined though still in view, they were constantly assembled close to the trellice-walls of his prison, and would not suffer a japanned peacock to touch them. On his being let out in the autumn, the oldest of the hens instantly courted him, and was successful in her courtship. The next year he was shut up in a stable, and then the hens all courted his rival. This rival was a japanned or black-winged peacock, which to our eyes is a more beautiful bird than the common kind.'—vol. ii. p. 119.

Now

Now no one disputes as to birds showing preferences one for another, but it is quite a gratuitous suggestion that the pied plumage of the venerable paterfamilias was *the* charm which attracted the opposite sex; and even if such were the case, it would seem (from Mr. Darwin's concluding remark) to prove either that the peahen's taste is so different from ours, that the peacock's plumage could never have been developed by it, or (if the taste of these peahens was different from that of most peahens) that such is the instability of a vicious feminine caprice, that no constancy of coloration could be produced by its selective action.

Mr. Darwin bases his theory of sexual selection greatly on the fact that the male birds display the beauty of their plumage with elaborate parade and many curious and uncouth gestures. But this display is not exclusively used in attracting and stimulating the hens. Thus he admits that 'the males will sometimes display their ornaments when *not* in the presence of the females, as occasionally occurs with the grouse at their balz-places, and as may be noticed with the peacock; this latter bird, however, evidently wishes for a spectator *of some kind*, and will show off his finery, as I have often seen, before poultry or even pigs' (vol. ii. p. 86). Again, as to the brilliant *Rupicola crocea*, Sir R. Schomburgk says: 'A *male* was capering to the apparent delight of several *others*' (vol. ii. p. 87).

From the fact of 'display' Mr. Darwin concludes that 'it is obviously probable that the females appreciate the beauty of their suitors' (vol. ii. p. 111). Our Author, however, only ventures to call it 'probable,' and he significantly adds: 'It is, however, difficult to obtain direct evidence of their capacity to appreciate beauty.' And again he says of the hen bird: 'It is not probable that she consciously deliberates; but she is most excited or attracted by the most beautiful, or melodious, or gallant males' (vol. ii. p. 123). No doubt the plumage, song, &c., all play their parts in aiding the various processes of life; but to stimulate the sexual instinct, even supposing this to be the object, is one thing —to supply the occasion for the exercise of a power of choice is quite another. Certainly we cannot admit what Mr. Darwin affirms (vol. ii. p. 124), that an 'even occasional preference by the female of the more attractive males would almost certainly lead to their modification.'

A singular instance is given by Mr. Darwin (vol. ii. p. 111) in support of his view, on the authority of Mr. J. Weir. It is that of a bullfinch which constantly attacked a reed-bunting, newly put into the aviary; and this attack is attributed to a sort of jealousy on the part of the blackheaded bullfinch of the black head

head of the bunting. But the bullfinch could hardly be aware of the colour of the top of its own head!

Mr. Wallace accounts for the brilliant colours of caterpillars and many birds in another way. The caterpillars which are distasteful must have gained if 'some outward sign indicated to their would-be destroyer that its prey was a disgusting morsel.' As to birds, he believes that brilliance of plumage is developed where not hurtful, and that the generally more sober plumage of the hens has been produced by natural selection, killing off the more brilliant ones exposed during incubation to trying conditions.

Now as Mr. Wallace disposes of Mr. Darwin's views by his objections, so Mr. Darwin's remarks tend to refute Mr. Wallace's positions, and the result seems to point to the existence of some unknown innate and internal law which determines at the same time both coloration and its transmission to either or to both sexes. At the same time these authors, indeed, show the *harmony* of natural laws and processes one with another, and their mutual interaction and aid.

It cannot be pretended that there is any evidence for sexual selection except in the class of Birds. Certain of the phenomena which Mr. Darwin generally attributes to such selection must be due, in some other classes, to other causes, and there is no *proof* that sexual selection acts, *even* amongst birds.

But in other classes, as we have seen, sexual characters are as marked as they are in the feathered group. Mr. Darwin, indeed, argues that birds select, and assumes that their sexual characters have been produced by such sexual selection, and that, therefore, the sexual characters of beasts have been similarly evolved. But we may turn the argument round and say that sexual characters not less strongly marked exist in many beasts, reptiles, and insects, which characters cannot be due to sexual selection; that it is, therefore, probable the sexual characters of birds are not due to sexual selection either, but that some unknown internal cause has equally operated in each case. The matter, indeed, stands thus: Of animals possessing sexual characters there are some in which sexual selection cannot have acted; others in which it may possibly have acted; others again in which, according to Mr. Darwin, it has certainly acted. It is a somewhat singular conclusion to deduce from this that sexual selection is the one universal cause of sexual characters, when similar effects to those which it is supposed to cause take place in its absence.

But, indeed, what are the data on which Mr. Darwin relies as regards birds? As before said, they are 'display' by the males,

males, the 'greater brilliancy and ornamentation of these,' and the 'occasional preference' by females in confinement for particular males. Is there here any sufficient foundation for such a superstructure? In the first place, in insects, *e.g.* butterflies, we have often many brilliant males crowding in pursuit of a single female. Yet, as Mr. Wallace justly observes, 'Surely the male who finally obtains the female will be either the most vigorous, or the strongest-winged, or the most patient—the one who tires out or beats off the rest.' Similarly in birds strength and perseverance will, no doubt, generally reward the suitor possessing those qualities. Doubtless, also, this will generally be the most beautiful or most melodious; but this will simply be because extra beauty of plumage, or of song, will accompany supereminent vigour of constitution and fulness of vitality. What has been before said as to the fierce combats of cock-birds must be borne in mind.

But that internal spontaneous powers *are* sufficient to produce all the most varied or bizarre sexual characters which any birds exhibit, is actually demonstrated by the class of insects, especially caterpillars which from their sexless undeveloped state can have nothing to do with the kind of selection Mr. Darwin advocates. Yet amongst caterpillars we not only find some ornamented with spots, bands, stripes, and curious patterns, 'perfectly definite in character and of the most brilliantly contrasted hues. We have also many ornamental appendages; beautiful fleshy tubercles or tentacles, hard spines, beautifully coloured hairs arranged in tufts, brushes, starry clusters, or long pencils, and horns on the head and tail, either single or double, pointed or clubbed.' Mr. Wallace adds, 'Now if all these beautiful and varied ornaments can be produced and rendered constant in each species by some unknown cause quite independent of sexual selection, why cannot the same cause produce the colours and many of the ornaments of perfect insects;'—we may also add, the colours and ornaments of all other animals, including birds?

There is, however, another reason which induces Mr. Darwin to accept sexual selection; and it is probably this which, in his mind, mainly gives importance to the facts mentioned as to the plumage and motions of birds. He says of 'display,' 'It is incredible that all this display should be purposeless' (vol. ii. p. 399); and again (vol. ii. p. 93), he declares that any one who denies that the female Argus pheasant can appreciate the refined beauty of the plumage of her mate, 'will be compelled to admit that the extraordinary attitudes assumed by the male during the act of courtship, by which the wonderful beauty of his plumage is

is fully displayed, are purposeless; and this is a conclusion which I for one will never admit.' It seems then that it is this imaginary necessity of attributing purposelessness to acts, which determines Mr. Darwin to attribute that peculiar and special purpose to birds' actions which he does attribute to them. But surely this difficulty is a mere chimæra. Let it be granted that the female does not select; yet the display of the male may be useful in supplying the necessary degree of stimulation to her nervous system, and to that of the male. Pleasurable sensation, perhaps very keen in intensity, may thence result to both. There would be no difficulty in suggesting yet other purposes if we were to ascend into higher speculative regions. Mr. Darwin has given us in one place a very remarkable passage; he says:—

'With respect to female birds feeling a preference for particular males, we must bear in mind that we can judge of choice being exerted, only by placing ourselves in imagination in the same position. If an inhabitant of another planet were to behold a number of young rustics at a fair, courting and quarrelling over a pretty girl, like birds at one of their places of assemblage, he would be able to infer that she had the power of choice only by observing the eagerness of the wooers to please her, and to display their finery.'—vol. ii. p. 122.

Now here it must be observed that, as is often the case, Mr. Darwin assumes the very point in dispute, unless he means by 'power of choice' mere freedom of physical power. If he means an internal, mental faculty of choice, then the observer could attribute such power to the girl only if he had reason to attribute to the rustics an intellectual and moral nature similar in kind to that which he possessed himself. Such a similarity of nature Mr. Darwin, of course, does attribute to rational beings and to brutes; but those who do not agree with him in this would require other tests than the presence of ornaments, and the performance of antics and gestures unaccompanied by any evidence of the faculty of articulate speech.

Such, then, is the nature of the evidence on which sexual selection is supposed to rest. To us the action of sexual selection scarcely seems more than a possibility, the evidence rarely raising it to probability. It cannot be a 'sufficient cause' to account for the phenomena which it is intended to explain, nor can it even claim to be taken as a *vera causa* at all. Yet Mr. Darwin again and again speaks as if its reality and cogency were indisputable.

As to the alleged action of natural selection on our own species we may mention two points.

First, as to the absence of hair. This is a character which Mr. Darwin admits cannot be accounted for by 'natural selection,'

tion,' because manifestly not beneficial; it is therefore attributed to 'sexual selection,' incipient man being supposed to have chosen mates with less and less hairy bodies; and the possibility of such action is thought by Mr. Darwin to be supported by the fact that certain monkeys have parts of the body naked. Yet it is a fact that the higher apes have not this nakedness, or have it in a much smaller degree.

Secondly, as to the races of mankind, Mr. Darwin's theory, indeed, requires the alternation of constancy and caprice to account for the selection and the conservation of marked varieties. In order that each race may possess and preserve its own ideal standard of beauty we require the truth of the hypothesis that 'certain tastes may in the course of time become inherited;' and yet Mr. Darwin candidly admits (vol. ii. p. 353): 'I know of no evidence in favour of this belief.' On the other hand, he says (p. 370), As soon as tribes exposed to different conditions came to vary, 'each isolated tribe would form for itself a slightly different standard of beauty,' which 'would gradually and inevitably be increased to a greater and greater degree.' But why have not the numerous tribes of North American Indians diverged from each other more conspicuously, inhabiting, as they do, such different climates, and surrounded by such diverse conditions?

Again, far from each race being bound in the trammels of its own features, all cultivated Europeans, whether Celts, Teutons, or Slaves, agree in admiring the Hellenic ideal as the highest type of human beauty.

We may now pass on to the peculiarities of man's bodily frame, and the value and signification of the resemblances presented by it to the various structures which are found to exist in lower members of the animal kingdom.

Mr. Darwin treats us to a very interesting account, not only of man's anatomy, but also of the habits, diseases, and parasites (internal and external) of man, together with the process of his development. He points out (vol. i. p. 11) not only the close similarity even of cerebral structure between man and apes, but also how the same animals are 'liable to many of the same non-contagious diseases as we are; thus Rengger, who carefully observed for a long time the *Cebus Azaræ* in its native land, found it liable to catarrh, with the usual symptoms, and which when often recurrent, led to consumption. These monkeys suffered also from apoplexy, inflammation of the bowels, and cataract in the eye. The younger ones, when shedding their milk-teeth, often died from fever. Medicines produced the same effect on them as on us. Many kinds

kinds of monkeys have a strong taste for tea, coffee, and spirituous liquors; they will also, as I have myself seen, smoke tobacco with pleasure.' He also tells us of baboons which, after taking too much beer, 'on the following morning were very cross and dismal, held their aching heads with both hands, and wore a most pitiable expression: when beer or wine was offered them, they turned away with disgust, but relished the juice of lemons.' He notices, besides, the process of development in man with the transitory resemblances it exhibits to the immature conditions of other animals, and he mentions certain muscular abnormalities.

Mr. Darwin also brings forward an observation of Mr. Woolner, the sculptor, as to a small projection of the helix or outermost fold of the human ear, which projection 'we may safely conclude' to be 'a vestige of formerly pointed ears—which occasionally reappears in man' (vol. i. p. 23). Very many other interesting facts are noted which it would be superfluous here to recapitulate. It is, however, in connexion with man's bodily structure and its resemblances that we have observed slight errors on the part of Mr. Darwin, which it may be as well to point out; though it should be borne in mind that he does not profess to be in any sense an anatomist. Thus, at vol. i. p. 28, he mistakes the supra-condyloid foramen of the humerus for the inter-condyloid perforation. Did the former condition frequently occur in man—as, through this mistake, he asserts—it would be remarkable indeed, as it is only found in the lower monkeys and not in the higher. A more singular mistake is that of the malar bone for the premaxilla (vol. i. p. 124).

To return to the bodily and other characters enumerated at such length by Mr. Darwin. They may, and doubtless they will, produce a considerable effect on readers who are not anatomists, but in fact the whole and sole result is to show that man *is* an animal. That he is such is denied by no one, but has been taught and accepted since the time of Aristotle. We remember on one occasion meeting at a dinner-table a clever medical man of materialistic views. He strongly impressed the minds of some laymen present by an elaborate statement of the mental phenomena following upon different injuries, or diseased conditions of different parts of the brain, until one of the number remarked as a climax, 'Yes; and when the brain is entirely removed the mental phenomena cease altogether'—the previous observations having only brought out vividly what no one denied, viz., that during this life a certain integrity of bodily structure is requisite for the due exercise of the mental powers. Thus Mr. Darwin's remarks are merely an elaborate statement of what

what all admit, namely, that man is an animal. They further imply, however, that he is no more than an animal, and that the mode of origin of his visible being must be the mode of his origin as a whole—a conclusion of which we should not question the legitimacy if we could accept Mr. Darwin's views of man's mental powers.

All that can be said to be established by our author is, that if the various kinds of lower animals have been evolved one from the other by a process of natural generation or evolution, then it becomes highly probable *a priori* that man's body has been similarly evolved; but this, in such a case, becomes equally probable from the admitted fact that he is an animal at all.

The evidence for such a process of evolution of man's body amounts, however, only to an *a priori* probability, and might be reconciled with another mode of origin if there were sufficient reason (of another kind) to justify a belief in such other mode of origin. Mr. Darwin says:—'It is only our natural prejudice, and that arrogance which made our forefathers declare that they were descended from demi-gods, which leads us to demur to this conclusion' (vol. i. p. 32). But this is not the case; for many demur to his conclusion because they believe that to accept his view would be to contradict other truths which to them are far more evident.

He also makes the startling assertion that to take any other view than his as to man's origin, 'is to admit that our own structure and that of all the animals around us, is a mere snare laid to entrap our judgment' (vol. i. p. 32). Mr. Darwin is, we are quite sure, far enough from pretending that he has exhausted the possibilities of the case, and yet could anything but a conviction that the whole field had been explored exhaustively, justify such an assertion? If, without such a conviction, it were permissible so to dogmatize, every theorizer who had attained to a plausible explanation of a set of phenomena might equally make use of the assertion, and say, until a better explanation was found, that to doubt him would be to attribute duplicity to the Almighty.

In tracing man's origin Mr. Darwin is again betrayed into slight inaccuracies. Thus, in combating the position, advanced in this 'Review,'* that the hands of apes had been preformed (with a view to man) in a condition of perfection beyond their needs, he says:—

'On the contrary, I see no reason to doubt that a more perfectly constructed hand would have been an advantage to them, provided, and it is important to note this, that their hands had not thus been

* See 'Quarterly Review,' April, 1869, p. 392.

rendered less well adapted for climbing trees. We may suspect that a perfect hand would have been disadvantageous for climbing; as the most arboreal monkeys in the world, namely Ateles in America and Hylobates in Asia, either have their thumbs much reduced in size and even rudimentary, or their fingers partially coherent, so that their hands are converted into grasping-hooks.'—vol. i. p. 140.

In a note, Mr. Darwin refers to the Syndactyle Gibbon as having two of the digits coherent. But these digits are not, as he supposes, digits of the hand but toes. Moreover, though doubtless the Gibbons and spider-monkeys are admirably organized for their needs, yet it is plain that a well-developed thumb is no impediment to climbing, for the strictly arboreal Lemurs are exceedingly well furnished in this respect. Again he says (vol. i. p. 143) of the Gibbons, that they, 'without having been taught, can walk or run upright with tolerable quickness, though they move awkwardly, and much less securely than man.' This is a little misleading, inasmuch as it is not stated that this upright progression is effected by placing the enormously long arms behind the head or holding them out backwards as a balance in progression.

We have already seen that Mr. Darwin tries to account for man's hairlessness by the help of 'sexual selection.' He also, however, speculates as to the possibility of his having lost it through heat of climate, saying:—'Elephants and rhinoceroses are almost hairless; and as certain extinct species which formerly lived under an arctic climate were covered with long wool or hair, it would almost appear as if the existing species of both genera had lost their hairy covering from exposure to heat' (vol. i. p. 148).

This affords us a good example of hasty and inconclusive speculation. Surely it would be as rational to suppose that the arctic species had *gained* their coats as that the tropical species had lost theirs. But over-hasty conclusions are, we regret to say, the rule in Mr. Darwin's speculations as to man's genealogy. He carries that genealogy back to some ancient form of animal life somewhat like an existing larval Ascidian; and he does this on the strength of the observations of Kowalevsky and Kuppfer. He assumes at once that the similarities of structure which those observers detected are due to descent instead of to independent similarity of evolution, though the latter mode of origin is at least possible,* and can hardly be considered improbable when we reflect on the close similarity independently induced in the eyes of fishes and cephalopods.

* See Professor Rolleston's 'Address at the Liverpool Meeting of the British Association, 1870.'

Quite

Quite recently, however, observations have been published by Dr. Donitz,* which render it necessary, at the least, to pause and reconsider the question before admitting the Ascidian ancestry of the Vertebrate sub-kingdom.

We now come to the consideration of a subject of great importance—namely, that of man's mental powers. Are they, as Mr. Darwin again and again affirms that they are,† different only in degree and not in kind from the mental powers of brutes? As is so often the case in discussions, the error to be combated is an implied negation. Mr. Darwin implies and seems to assume that when two things have certain characters in common there can be no fundamental difference between them.

To avoid ambiguity and obscurity, it may be well here to state plainly certain very elementary matters. The ordinary antecedents and concomitants of distinctly felt sensations may exist, with all their physical consequences, in the total absence of intellectual cognizance, as is shown by the well-known fact, that when through fracture of the spine the lower limbs of a man are utterly deprived of the power of feeling, the foot may nevertheless withdraw itself from tickling just as if a sensation was consciously felt. Amongst lower animals, a decapitated frog will join its hind feet together to push away an irritating object just as an uninjured animal will do. Here we have coadjusted actions resulting from stimuli which normally produce sensation, but occurring under conditions in which cerebral action does not take place. Did it take place we should have sensations, but by no means necessarily intellectual action.

'Sensation' is not 'thought,' and no amount of the former would constitute the most rudimentary condition of the latter, though sensations supply the conditions for the existence of 'thought' or 'knowledge.'

Altogether, we may clearly distinguish at least six kinds of action to which the nervous system ministers :—

I. That in which impressions received result in appropriate movements without the intervention of sensation or thought, as in the cases of injury above given. (This is the reflex action of the nervous system.)

II. That in which stimuli from without result in sensations through the agency of which their due effects are wrought out. (Sensation.)

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* See 'Journal für Anatomie und Physiologie,' edited by Reichert and Dubois. Berlin.

† 'There is no fundamental difference between man and the higher mammals in their mental faculties.'—*Descent of Man*, vol. i. p. 35.

III. That in which impressions received result in sensations which give rise to the observation of sensible objects.—Sensible perception.

IV. That in which sensations and perceptions continue to coalesce, agglutinate, and combine in more or less complex aggregations, according to the laws of the association of sensible perceptions.—Association.

The above four groups contain only indeliberate operations, consisting, as they do at the best, but of mere *presentative* sensible ideas in no way implying any reflective or *representative* faculty. Such actions minister to and form *Instinct.* Besides these, we may distinguish two other kinds of mental action, namely :—

V. That in which sensations and sensible perceptions are reflected on by thought and recognised as our own and we ourselves recognised by ourselves as affected and perceiving.—Self-consciousness.

VI. That in which we reflect upon our sensations or perceptions, and ask what they are and why they are.—Reason.

These two latter kinds of action are deliberate operations, performed, as they are, by means of representative ideas implying the use of a *reflective representative* faculty. Such actions distinguish the *intellect* or rational faculty. Now, we assert that possession in perfection of all the first four (*presentative*) kinds of action by no means implies the possession of the last two (*representative*) kinds. All persons, we think, must admit the truth of the following proposition :—

Two faculties are distinct, not in degree but *in kind,* if we may possess the one in perfection without that fact implying that we possess the other also. Still more will this be the case if the two faculties tend to increase in an inverse ratio. Yet this is the distinction between the *instinctive* and the *intellectual* parts of man's nature.

As to animals, we fully admit that they may possess all the first four groups of actions—that they may have, so to speak, mental images of sensible objects combined in all degrees of complexity, as governed by the laws of association. We deny to them, on the other hand, the possession of the last two kinds of mental action. We deny them, that is, the power of reflecting on their own existence or of enquiring into the nature of objects and their causes. We deny that they know that they know or know themselves in knowing. In other words, we deny them *reason.* The possession of the presentative faculty, as above explained, in no way implies that of the reflective faculty; nor does any amount of direct operation imply the power of asking the reflective question before mentioned, as to 'what' and 'why.'

According

According to our definition, then, given above, the faculties of men and those of other animals differ in kind; and brutes low in the scale supply us with a good example in support of this distinctness; for it is in animals generally admitted to be wanting in reason—such as insects (*e. g.* the ant and the bee)—that we have the very summit and perfection of instinct made known to us.

We will shortly examine Mr. Darwin's arguments, and see if he can bring forward a single instance of brute action implying the existence in it of the representative reflective power. Before doing so, however, one or two points as to the conditions of the controversy must be noticed.

In the first place, the position which we maintain is the one in possession—that which is commended to us by our intuitions, by ethical considerations, and by religious teaching universally. The *onus probandi* should surely therefore rest with him who, attacking the accepted position, maintains the essential similarity and fundamental identity of powers the effects of which are so glaringly diverse. Yet Mr. Darwin quietly assumes the whole point in dispute, by asserting identity of *intuition* where there is identity of *sensation* (vol. i. p. 36), which, of course, implies that there is no mental power whatever except sensation. For if the existence of another faculty were allowed by him, it is plain that the action of that other faculty might modify the effects of mere sensation in any being possessed of such additional faculty.

Secondly, it must be remembered that it is a law in all reasoning that where known causes are sufficient to account for any phenomena we shall not gratuitously call in additional causes. If, as we believe to be the case, there is no need whatever to call in the *representative* faculty as an explanation of brute mental action;—if the phenomena brutes exhibit can be accounted for by the *presentative* faculty—that is, by the presence of sensible perceptions and emotions together with the reflex and co-ordinating powers of the nervous system;—then to ascribe to them the possession of reason is thoroughly gratuitous.

Thirdly, in addition to the argument that brutes have not intellect because their actions can be accounted for without the exercise of that faculty, we have other and positive arguments in opposition to Mr. Darwin's view of their mental powers. These arguments are based upon the absence in brutes of articulate and rational speech, of true concerted action and of educability, in the human sense of the word. We have besides, what may be called an experimental proof in the same direction. For if the germs of a rational nature existed in brutes, such germs would certainly ere this have so developed as to have

have produced unmistakeably rational phenomena, considering the prodigious lapse of time passed since the entombment of the earliest known fossils. To this question we will return later.

We shall perhaps be met by the assertion that many men may also be taken to be irrational animals, so little do the phenomena they exhibit exceed in dignity and importance the phenomena presented by certain brutes. But, in reply, it is to be remarked that we can only consider men who are truly men—not idiots, and that all *men*, however degraded their social condition, have self-consciousness properly so called, possess the gift of articulate and rational speech, are capable of true concerted action, and have a perception of the existence of right and wrong. On the other hand, no brute has the faculty of articulate, rational speech: most persons will also admit that brutes are not capable of truly concerted action, and we contend most confidently that they have no self-consciousness, properly so called, and no perception of the difference between truth and falsehood and right and wrong.

Let us now consider Mr. Darwin's facts in favour of an opposite conclusion.

1st. His testimony drawn from his own experience and information regarding the lowest races of men.

2nd. The anecdotes he narrates in favour of the intelligence of brutes.

In the first place, we have to thank our author for very distinct and unqualified statements as to the substantial unity of men's mental powers. Thus he tells us:—

'The Fuegians rank amongst the lowest barbarians; but I was continually struck with surprise how closely the three natives on board H. M. S. "Beagle," who had lived some years in England, and could talk a little English, resembled us in disposition, and in most of our mental qualities.'—vol. i. p. 34.

Again he adds:—

'The American aborigines, Negroes and Europeans differ as much from each other in mind as any three races that can be named; yet I was incessantly struck, whilst living with the Fuegians on board the "Beagle," with the many little traits of character, showing how similar their minds were to ours; and so it was with a full-blooded negro with whom I happened once to be intimate.'—vol. i. p. 232.

Again:—'Differences of this kind (mental) between the highest men of the highest races and the lowest savages, are connected by the finest gradations' (vol. i. p. 35).

Mr. Darwin, then, plainly tells us that all the essential mental characters of civilised man are found in the very lowest races of

of men, though in a less completely developed state; while, in comparing their mental powers with those of brutes, he says 'No doubt the difference in this respect is enormous' (vol. i. p. 34). As if, however, to diminish the force of this admission, he remarks, what no one would dream of disputing, that there are psychical phenomena common to men and to other animals. He says of man that

'He uses in common with the lower animals inarticulate cries to express his meaning, aided by gestures and the movements of the muscles of the face. This especially holds good with the more simple and vivid feelings, which are *but little connected with the higher intelligence.* Our cries of pain, fear, surprise, anger, together with their appropriate actions, and the murmur of a mother to her beloved child, are more expressive than any words.'—vol. i. p. 54.

But, inasmuch as it is admitted on all hands that man *is* an animal, and therefore has all the four lower faculties enumerated in our list, as well as the two higher ones, the fact that he makes use of common instinctive actions in no way diminishes the force of the distinction between him and brutes as regards the representative, reflective faculties. It rather follows as a matter of course from his animality that he should manifest phenomena common to him and to brutes. That man has a common nature with them is perfectly compatible with his having, besides, a superior nature and faculties of which no brute has any rudiment or vestige. Indeed, all the arguments and objections in Mr. Darwin's second chapter may be met by the fact that man being an animal, has corresponding faculties, whence arises a certain external conformity with other animals as to the modes of expressing some mental modifications. In the overlooking of this possibility of coexistence of two natures lies that error of negation to which we before alluded. Here, as in other parts of the book, we may say there are two quantities a and $a + x$, and Mr. Darwin, seeing the two as but neglecting the x, represents the quantities as equal.

We will now notice the anecdotes narrated by Mr. Darwin in support of the rationality of brutes. Before doing so, however, we must remark that our author's statements, given on the authority (sometimes second-hand authority) of others, afford little evidence of careful criticism. This is the more noteworthy when we consider the conscientious care and pains which he bestows on all the phenomena which he examines himself.

Thus, for example, we are told on the authority of Brehm that—

'An eagle seized a young cercopithecus, which, by clinging to a branch, was not at once carried off; it cried loudly for assistance, upon

upon which other members of the troop, with much uproar rushed to the rescue, surrounded the eagle, and pulled out so many feathers that he no longer thought of his prey, but only how to escape.'—vol. i. p. 76.

We confess we wish that Mr. Darwin had himself witnessed this episode. Perhaps, however, he has seen other facts sufficiently similar to render this one credible. In the absence of really trustworthy evidence we should, however, be inclined to doubt the fact of a young cercopithecus, unexpectedly seized, being able, by clinging, to resist the action of an eagle's wings.

We are surprised that Mr. Darwin should have accepted the following tale without suspicion:—

'One female baboon had so capacious a heart that she not only adopted young monkeys of other species, but stole young dogs and cats which she continually carried about. Her kindness, however, did not go so far as to share her food with her adopted offspring, at which Brehm was surprised, as his monkeys always divided everything quite fairly with their own young ones. An adopted kitten scratched the above-mentioned affectionate baboon, *who certainly had a fine intellect*, for she was much astonished at being scratched, and immediately examined the kitten's feet, and without more ado bit off the claws.' (!!) —vol. i. p. 41.

Has Mr. Darwin ever tested this alleged fact? Would it be possible for a baboon to bite off the claws of a kitten without keeping the feet perfectly straight?

Again we have an anecdote on only second-hand authority (namely a quotation by Brehm of Schimper) to the following effect:—

'In Abyssinia, when the baboons belonging to one species (*C. gelada*) descend in troops from the mountains to plunder the fields, they sometimes encounter troops of another species (*C. hamadryas*), and then a fight ensues. The Geladas roll down great stones, which the Hamadryas try to avoid, and then both species, making a great uproar, rush furiously against each other. Brehm, when accompanying the Duke of Coburg-Gotha, aided in an attack with fire-arms on a troop of baboons in the pass of Mensa in Abyssinia. The baboons in return rolled so many stones down the mountain, some as large as a man's head, that the attackers had to beat a hasty retreat; and the pass was actually for a time closed against the caravan. It deserves notice that these baboons thus acted in concert.'—vol. i. p. 51.

Now, if every statement of fact here given be absolutely correct, it in no way even tends to invalidate the distinction we have drawn between 'instinct' and 'reason'; but the positive assertion that the brutes 'acted in concert,' when the evidence proves nothing more than that their actions were simultaneous, shows

shows a strong bias on the part of the narrator. A flock of sheep will simultaneously turn round and stare and stamp at an intruder; but this is not 'concerted action,' which means that actions are not only simultaneous, but are so in consequence of a reciprocal understanding and convention between the various agents. It may be added that if any brutes were capable of such really *concerted* action, the effects would soon make themselves known to us so forcibly as to prevent the possibility of mistake.

We come now to Mr. Darwin's instances of brute rationality. In the first place he tells us:—

'I had a dog who was savage and averse to all strangers, and I purposely tried his memory after an absence of five years and two days. I went near the stable where he lived, and shouted to him in my old manner; he showed no joy, but instantly followed me out walking and obeyed me, exactly as if I had parted with him only half an hour before. A train of old associations, dormant during five years, had thus been instantaneously awakened in his mind.'—vol. i. p. 45.

No doubt! but this is not 'reason.' Indeed, we could hardly have a better instance of the mere action of associated sensible impressions. What is there here which implies more than memory, impressions of sensible objects and their association? Had there been reason there would have been signs of joy and wonder, though such signs would not alone prove reason to exist. It is evident that Mr. Darwin's own mode of explanation is the sufficient one—namely, by a train of associated sensible impressions. Mr. Darwin surely cannot think that there is in this case any evidence of the dog's having put to himself those questions which, under the circumstances, a rational being would put. Mr. Darwin also tells us how a monkey-trainer gave up in despair the education of monkeys, of which the attention was easily distracted from his teaching, while 'a monkey which carefully attended to him could always be trained.' But 'attention' does not imply 'reason.' The anecdote only shows that some monkeys are more easily impressed and more retentive of impressions than others.

Again, we are told, as an instance of *reason*, that 'Rengger sometimes put a live wasp in paper so that the monkeys in hastily unfolding it got stung; after this had once happened, they always first held the packet to their ears to detect any movement within.' But here again we have no need to call in the aid of 'reason.' The monkeys had had the group of sensations 'folded paper' associated with the other groups—'noise and movement' and 'stung fingers.' The second time they experience

ence the group of sensations 'folded paper' the succeeding sensations (in this instance only too keenly associated) are forcibly recalled, and with the recollection of the sensation of hearing, the hand goes to the ear. Yet Mr. Darwin considers this unimportant instance of such significance that he goes on to say :—

'Any one who is not convinced by such facts as these, and by what he may observe with his own dogs, that animals can reason, would not be convinced by anything I could add. Nevertheless, I will give one case with respect to dogs, as it rests on two distinct observers, and can *hardly depend on the modification of any instinct.* Mr. Colquhoun winged two wild ducks, which fell on the opposite side of a stream ; his retriever tried to bring over both at once, but could not succeed ; she then, though never before known to ruffle a feather, deliberately killed one, brought over the other, and returned for the dead bird. Colonel Hutchinson relates that two partridges were shot at once, one being killed and the other wounded ; the latter ran away, and was caught by the retriever, who on her return came across the dead bird ; she stopped, evidently greatly puzzled, and after one or two trials, finding she could not take it up without permitting the escape of the winged bird, she considered a moment, then deliberately murdered it by giving it a severe crunch, and afterwards brought away both together. This was the only known instance of her having wilfully injured any game.'

Mr. Darwin adds :

'Here we have reason, though not quite perfect, for the retriever might have brought the wounded bird first and then returned for the dead one, as in the case of the two wild ducks.'—vol. i. pp. 47, 48.

Here we reply we have nothing of the kind, and to bring 'reason' into play is gratuitous. The circumstances can be perfectly explained (and on Mr. Darwin's own principles) as evidences of the revival of an old instinct. The ancestors of sporting dogs of course killed their prey, and that trained dogs do not kill it is simply due to man's action, which has suppressed the instinct by education, and which continually thus keeps it under control. It is indubitable that the old tendency *must* be latent, and that a small interruption in the normal retrieving process, such as occurred in the cases cited, would probably be sufficient to revive that old tendency and call the obsolete habit into exercise.

But perhaps the most surprising instance of groundless inference is presented in the following passage :—

'My dog, a full grown and very sensible animal, was lying on the lawn during a hot and still day; but at a little distance a slight breeze occasionally moved an open parasol, which would have been wholly disregarded by the dog, had any one stood near it. As it was, every

every time that the parasol slightly moved, the dog growled fiercely and barked. He must, I think, have reasoned to himself in a rapid and unconscious manner, that movement without any apparent cause indicated the presence of some strange living agent, and no stranger had a right to be on his territory.'—vol. i. p. 67.

The consequences deduced from this trivial incident are amazing. Probably, however, Mr. Darwin does not mean what he says; but, on the face of it, we have a brute credited with the abstract ideas 'movement,' 'causation,' and the notions logically arranged and classified in subordinate genera—'agent,' 'living agent,' 'strange living agent.' He also attributes to it the notion of 'a right' of 'territorial limitation,' and the relation of such 'limited territory' and 'personal ownership.' It may safely be affirmed that if a dog could so reason in one instance he would in others, and would give much more unequivocal proofs for Mr. Darwin to bring forward.

Mr. Darwin, however, speaks of reasoning in an 'unconscious manner,' so that he cannot really mean any process of reasoning at all; but, if so, his case is in no way apposite. Even an insect can be startled, and will exhibit as much evidence of rationality as is afforded by the growl of a dog; and all that is really necessary to explain such a phenomenon exists in an oyster, or even in the much talked-of Ascidian.

Thus, then, it appears that, even in Mr. Darwin's specially-selected instances, there is not a tittle of evidence tending, however slightly, to show that any brute possesses the representative reflective faculties. But if, as we assert, brute animals are destitute of such higher faculties, it may well be that those lower faculties which they have (and which we more or less share with them) are highly developed, and their senses possess a degree of keenness and quickness inconceivable to us. Their minds* being entirely occupied with such lower faculties, and having, so to speak, nothing else to occupy them, their sensible impressions may become interwoven and connected to a far greater extent than in us. Indeed, in the absence of free will, the laws of this association of ideas obtain supreme command over the minds of brutes: the brute being entirely immersed, as it were, in his presentative faculties.

There yet remain two matters for consideration, which tend to prove the fundamental difference which exists between the mental powers of man and brutes:—1. The mental equality

* The words 'mind,' 'mental,' 'intelligence,' &c., are here made use of in reference to the psychical faculties of brutes, in conformity to popular usage, and not as strictly appropriate.

between

between animals of very different grades of structure, and their non-progressiveness; 2. The question of articulate speech.

Considering the vast antiquity of the great animal groups,* it is, indeed, remarkable how little advance in mental capacity has been achieved even by the highest brutes. This is made especially evident by Mr. Darwin's own assertions as to the capacities of lowly animals. Thus he tells us that—

'Mr. Gardner, whilst watching a shore-crab (Gelasimus) making its burrow, threw some shells towards the hole. One rolled in, and three other shells remained within a few inches of the mouth. In about five minutes the crab brought out the shell which had fallen in, and carried it away to the distance of a foot; it then saw the three other shells lying near, and *evidently thinking* that they might likewise roll in, carried them to the spot where it had laid the first.'—vol. i. p. 334.

Mr. Darwin adds or quotes the astonishing remark, 'It would, I think, be difficult to distinguish this act from one performed by man by the aid of reason.' Again, he tells us:—

'Mr. Lonsdale informs me that he placed a pair of land-shells (*Helix pomatia*), one of which was weakly, into a small and ill-provided garden. After a short time the strong and healthy individual disappeared, and was traced by its track of slime over a wall into an adjoining well-stocked garden. Mr. Lonsdale concluded that it had deserted its sickly mate; but after an absence of twenty-four hours it returned, and apparently communicated the result of its successful exploration, for both then started along the same track and disappeared over the wall.'—vol. i. p. 325.

Whatever may be the real value of the statements quoted, they harmonize with a matter which is incontestable. We refer to the fact that the intelligence of brutes, be they high or be they low, is essentially one in kind, there being a singular parity between animals belonging to groups widely different in type of structure and in degree of development.

Apart from the small modifications which experience occasionally introduces into the habits of animals—as sometimes occurs after man has begun to frequent a newly-discovered island—it cannot be denied that, looking broadly over the whole animal kingdom, there is no evidence of advance in mental power on the part of brutes. This absence of progression in animal intelligence is a very important consideration, and it is one which does not seem to be adverted to by Mr. Darwin,

* Mr. Darwin (vol. i. p. 360) refers to Dr. Scudder's discovery of 'a fossil insect in the Devonian formation of New Brunswick, furnished with the well-known tympanum or stridulating apparatus of the male Locustidæ.'

though

though the facts detailed by him are exceedingly suggestive of it.

When we speak of this absence of progression we do not, of course, mean to deny that the dog is superior in mental activity to the fish, or the jackdaw to the toad. But we mean that, considering the vast period of time that must (on Mr. Darwin's theory) have elapsed for the evolution of an Orang from an Ascidian, and considering how beneficial increased intelligence must be to all in the struggle for life, it is inconceivable (on Mr. Darwin's principles only) that a mental advance should not have taken place greater in degree, more generally diffused, and more in proportion to the grade of the various animals than we find to be actually the case. For in what respect is the intelligence of the ape superior to that of the dog or of the elephant? It cannot be said that there is one point in which its psychical nature approximates to man more than that of those four-footed beasts. But, again, where is the great superiority of a dog or an ape over a bird? The falcon trained to hawking is at least as remarkable an instance of the power of education as the trained dog. The tricks which birds can be taught to perform are as complex and wonderful as those acted by the mammal. The phenomena of nidification, and some of those now brought forward by Mr. Darwin as to courtship, are fully comparable with analogous phenomena of quasi-intelligence in any beast.

This, however, is but a small part of the argument. For let us descend to the invertebrata, and what do we find?—a restriction of their quasi-mental faculties proportioned to their constantly inferior type of structure? By no means. We find, *e. g.*, in ants, phenomena which simulate those of an intelligence such as ours far more than do any phenomena exhibited by the highest beasts. Ants display a complete and complex political organization, classes of beings socially distinct, war resulting in the capture of slaves, and the appropriation and maintenance of domestic animals (*Aphides*) analogous to our milk-giving cattle.

Mr. Darwin truthfully remarks on the great difference in these respects between such creatures as ants and bees, and singularly inert members of the same class—such as the scale insect or coccus. But can it be pretended that the action of natural and sexual selection has alone produced these phenomena in certain insects, and failed to produce them in any other mere animals even of the very highest class? If these phenomena are due to a power and faculty similar in kind to human intelligence, and which power is latent and capable of evolution in all animals, then it is certain that this power must have been evolved in other instances also, and that we should see varying degrees of it in many

many, and notably in the highest brutes as well as in man. If, on the other hand, the faculties of brutes are different in kind from human intelligence, there can be no reason whatever why animals most closely approaching man in physical structure should resemble him in psychical nature also.

This reflection leads us to the difference which exists between men and brutes as regards the faculty of articulate speech. Mr. Darwin remarks that of the distinctively human characters this has 'justly been considered as one of the chief' (vol. i. p. 53). We cannot agree in this. Some brutes can articulate, and it is quite conceivable that brutes might (though as a fact they do not) so associate certain sensations and gratifications with certain articulate sounds as, in a certain sense, to speak. This, however, would in no way even tend to bridge over the gulf which exists between the representative reflective faculties and the merely presentative ones. Articulate signs of sensible impressions would be fundamentally as distinct as mere gestures are from truly rational speech.

Mr. Darwin evades the question about language by in one place (vol. i. p. 54) attributing that faculty in man to his having acquired a higher intellectual nature; and in another (vol. ii. p. 391), by ascribing his higher intellectual nature to his having acquired that faculty.

Our author's attempts to bridge over the chasm which separates instinctive cries from rational speech are remarkable examples of groundless speculation. Thus he ventures to say—

'That primeval man, or rather some early progenitor of man, *probably* used his voice largely, as does one of the gibbon-apes at the present day, in producing true musical cadences, that is in singing; we may conclude from a widely-spread analogy that this power would have been especially exerted during the courtship of the sexes, serving to express various emotions, as love, jealousy, triumph, and serving as a challenge to their rivals. The imitation by articulate sounds of musical cries *might* have given rise to words expressive of various complex emotions.'

And again:

'It does not appear *altogether incredible*, that some unusually wise ape-like animal should have thought of imitating the growl of a beast of prey, so as to indicate to his fellow monkeys the nature of the expected danger. And this would have been a first step in the formation of a language.'—vol. i. p. 56.

But the question, not whether it is incredible, but whether there are any data whatever to warrant such a supposition. Mr. Darwin brings forward none: we suspect none could be brought forward.

It

It is not, however, emotional expressions or manifestations of sensible impressions, in whatever way exhibited, which have to be accounted for, but the enunciation of distinct deliberate judgments as to 'the what,' 'the how,' and 'the why,' by definite articulate sounds; and for these Mr. Darwin not only does not account, but he does not adduce anything even tending to account for them. Altogether we may fairly conclude, from the complete failure of Mr. Darwin to establish identity of kind between the mental faculties of man and of brutes, that identity cannot be established; as we are not likely for many years to meet with a naturalist so competent to collect and marshal facts in support of such identity, if any such facts there are. The old barrier, then, between 'presentative instinct' and 'representative reason' remains still unimpaired, and, as we believe, insurmountable.

We now pass to another question, which is of even greater consequence than that of man's intellectual powers. Mr. Darwin does not hesitate to declare that even the 'moral sense' is a mere result of the development of brutal instincts. He maintains, 'the first foundation or origin of the moral sense lies in the social instincts, including sympathy; and these instincts no doubt were primarily gained, as in the case of the lower animals, through natural selection' (vol. ii. p. 394).

Everything, however, depends upon what we mean by the 'moral sense.' It is a patent fact that there does exist a perception of the qualities 'right' and 'wrong' attaching to certain actions. However arising, men have a consciousness of an absolute and immutable rule *legitimately* claiming obedience with an authority necessarily supreme and absolute—in other words, intellectual judgments are formed which imply the existence of an ethical ideal in the judging mind.

It is the existence of this power which has to be accounted for; neither its application nor even its validity have to be considered. Yet instances of difference of opinion respecting the moral value of particular concrete actions are often brought forward as if they could disprove the *existence* of moral intuition. Such instances are utterly beside the question. It is amply sufficient for our purpose if it be conceded that developed reason dictates to us that certain modes of action, abstractedly considered, are intrinsically wrong; and this we believe to be indisputable.

It is equally beside the question to show that the existence of mutually beneficial acts and of altruistic habits can be explained by 'natural selection.' No amount of benevolent habits tend even in the remotest degree to account for the intellectual perception

ception of 'right' and 'duty.' Such habits may make the doing of beneficial acts pleasant, and their omission painful; but such feelings have essentially nothing whatever to do with the perception of 'right' and 'wrong,' nor will the faintest incipient stage of the perception be accounted for by the strongest development of such sympathetic feelings. Liking to do acts which happen to be good, is one thing; seeing that actions are good, whether we or others like them or not, is quite another.

Mr. Darwin's account of the moral sense is very different from the above. It may be expressed most briefly by saying that it is the prevalence of more enduring instincts over less persistent ones —the former being social instincts, the latter personal ones. He tells us:—

'As man cannot prevent old impressions continually repassing through his mind, he will be compelled to compare the weaker impressions of, for instance, past hunger, or of vengeance satisfied or danger avoided at the cost of other men, with the instinct of sympathy and goodwill to his fellows, which is still present and ever in some degree active in his mind. He will then feel in his imagination that a stronger instinct has yielded to one which now seems comparatively weak; and then that sense of dissatisfaction will inevitably be felt with which man is endowed, like every other animal, in order that his instincts may be obeyed.'—vol. i. p. 90.

Mr. Darwin means by 'the moral sense' an instinct, and adds, truly enough, that 'the very essence of an instinct is, that it is followed independently of reason' (vol. i. p. 100). But the very essence of moral action is that it is *not* followed independently of reason.

Having stated our wide divergence from Mr. Darwin with respect to what the term 'moral sense' denotes, we might be dispensed from criticising instances which must from our point of view be irrelevant, as Mr. Darwin would probably admit. Nevertheless, let us examine a few of these instances, and see if we can discover in them any justification of the views he propounds.

As illustrations of the development of self-reproach for the neglect of some good action, he observes:—

'A young pointer, when it first scents game, apparently cannot help pointing. A squirrel in a cage who pats the nuts which it cannot eat, as if to bury them in the ground, can hardly be thought to act thus either from pleasure or pain. Hence the common assumption that men must be impelled to every action by experiencing some pleasure or pain may be erroneous. Although a habit may be blindly and implicitly followed, independently of any pleasure or pain felt at the moment, yet if it be forcibly and abruptly checked, a vague sense of

of dissatisfaction is generally experienced; and this is especially true in regard to persons of feeble intellect.'—vol. i. p. 80.

Now, passing over the question whether in the 'pointing' and 'patting' referred to there may not be some agreeable sensations, we contend that such instincts have nothing to do with 'morality,' from their blind nature, such blindness simply *ipso facto* eliminating every vestige of morality from an action.

Mr. Darwin certainly exaggerates the force and extent of social sympathetic feelings. Mr. Mill admits that they are 'often wanting;' but Mr. Darwin claims the conscious possession of such feelings for all, and quotes Hume as saying that the view of the happiness of others 'communicates a secret joy,' while the appearance of their misery 'throws a melancholy damp over the imagination.'* One might wish that this remark were universally true, but unfortunately some men take pleasure in the pain of others; and Larochefoucauld even ventured on the now well-known saying, 'that there is something in the misfortunes of our best friends not unpleasant to us.' But our feeling that the sufferings of others are pleasant or unpleasant has nothing to do with the question, which refers to the *judgment* whether the indulging of such feelings is 'right' or 'wrong.'

If the 'social instinct' were the real basis of the moral sense, the fact that society approved of anything would be recognised as the supreme sanction of it. Not only, however, is this not so, not only do we judge as to whether society in certain cases is right or wrong, but we demand a reason why we should obey society at all; we demand a rational basis and justification for social claims, if we happen to have a somewhat inquiring turn of mind. We shall be sure avowedly or secretly to despise and neglect the performance of acts which we do not happen to desire, and which have not an intellectual sanction.

The only passage in which our author seems as if about to meet the real question at issue is very disappointing, as the difficulty is merely evaded. He remarks, 'I am aware that some persons maintain that actions performed impulsively do not come under the dominion of the moral sense, and cannot be called moral' (vol. i. p. 87). This is not a correct statement of the intuitive view, and the difficulty is evaded thus: 'But it appears scarcely possible to draw any clear line of distinction of this kind, though the distinction may be real!' It seems to us, however, that there is no difficulty at all in drawing a line

* 'Enquiry concerning the Principles of Morals,' Edit. 1751, p. 132.

between a judgment as to an action being right or wrong and every other kind of mental act. Mr. Darwin goes on to say:—

'Moreover, an action repeatedly performed by us, will at last be done without deliberation or hesitation, and can then hardly be distinguished from an instinct; yet surely no one will pretend that an action thus done ceases to be moral. On the contrary, we all feel that an act cannot be considered as perfect, or as performed in the most noble manner, unless it is done impulsively, without deliberation or effort, in the same manner as by a man in whom the requisite qualities are innate.'—vol. i. p. 88.

To this must be replied, in one sense, 'Yes;' in another, 'No.' An action which has ceased to be directly or indirectly deliberate has ceased to be moral as a distinct act, but it is moral as the continuation of those preceding deliberate acts through which the good habit was originally formed, and the rapidity with which the will is directed in the case supposed may indicate the number and constancy of antecedent meritorious volitions. Mr. Darwin seems to see this more or less, as he adds: 'He who is forced to overcome his fear or want of sympathy before he acts, deserves, however, in one way higher credit than the man whose innate disposition leads him to a good act without effort.'

As an illustration of the genesis of remorse, we have the case

'of a temporary though for the time strongly persistent instinct conquering another instinct which is usually dominant over all others.' Swallows 'at the proper season seem all day long to be impressed with the desire to migrate; their habits change; they become restless, are noisy, and congregate in flocks. Whilst the mother-bird is feeding or brooding over her nestlings, the maternal instinct is probably stronger than the migratory; but the instinct which is more persistent gains the victory, and at last, at a moment when her young ones are not in sight, she takes flight and deserts them. When arrived at the end of her long journey, and the migratory instinct ceases to act, what an agony of remorse each bird would feel, if, from being endowed with great mental activity, she could not prevent the image continually passing before her mind of her young ones perishing in the bleak north from cold and hunger.'—vol. i. p. 90.

Let us suppose she does suffer 'agony,' that feeling would be nothing to the purpose. What is requisite is that she shall judge that she *ought not* to have left them. To make clear our point, let us imagine a man formerly entangled in ties of affection which in justice to another his conscience has induced him to sever. The image of the distress his act of severance has caused may occasion him keen emotional suffering for years, accompanied by a clear perception that his act has been right. Again, let us suppose

suppose another case: The struggling father of a family becomes aware that the property on which he lives really belongs to another, and he relinquishes it. He may continue to judge that he has done a proper action, whilst tortured by the trials in which his act of justice has involved him. To assert that these acts are merely instinctive would be absurdly false. In the cases supposed, obedience is paid to a clear intellectual perception and against the very strongest instincts.

That we have not misrepresented Mr. Darwin's exposition of 'conscience' is manifest. He says that if a man has gratified a passing instinct, to the neglect of an enduring instinct, he 'will then feel dissatisfied with himself, and will resolve with more or less force to act differently for the future. This is conscience; for conscience looks backwards and judges past actions, inducing that kind of dissatisfaction, which if weak we call regret, and if severe remorse' (vol. i. p. 91.) 'Conscience' certainly 'looks back and judges,' but not all that 'looks back and judges' is 'conscience.' A judgment of conscience is one of a particular kind, namely a judgment according to the standard of moral worth. But for this, a *gourmand*, looking back and judging that a particular sauce had occasioned him dyspepsia, would, in the dissatisfaction arising from his having eaten the wrong dish at dinner, exercise his conscience!

Indeed, elsewhere (vol. i. p. 103) Mr. Darwin speaks of 'the standard of morality rising higher and higher,' though he nowhere explains what he means either by the 'standard' or by the 'higher;' and, indeed, it is very difficult to understand what can possibly be meant by this 'rising of the standard,' if the 'standard' is from first to last pleasure and profit.

We find, again, the singular remark:—'If any desire or instinct leading to an action opposed to the good of others, still appears to a man, when recalled to mind, as strong as or stronger than his social instinct, he will feel no keen regret at having followed it' (vol. i. p. 92).

Mr. Darwin is continually mistaking a merely beneficial action for a moral one; but, as before said, it is one thing to *act well* and quite another to be a moral agent. A dog or even a fruit-tree may act well, but neither is a moral agent. Of course, all the instances he brings forward with regard to animals are not in point, on account of this misconception of the problem to be solved. He gives, however, some examples which tell strongly against his own view. Thus, he remarks of the *Law of Honour*—'The breach of this law, even when the breach is known to be strictly accordant with true morality, has caused many a man more agony than a real crime. We recognise the same influence in

in the sense of burning shame which most of us have felt, even after the interval of years, when calling to mind some accidental breach of a trifling, though fixed, rule of etiquette' (vol. i. p. 92). This is most true; some trifling breach of good manners may indeed occasion us pain; but this may be unaccompanied by a judgment that we are morally blameworthy. It is judgment, and not feeling, which has to do with right and wrong. But a yet better example might be given. What quality can have been more universally useful to social communities than courage? It has always been, and is still, greatly admired and highly appreciated, and is especially adapted, both directly and indirectly, to enable its possessors to become the fathers of succeeding generations. If the social instinct were the basis of the moral sense, it is infallibly certain that courage must have come to be regarded as supremely 'good,' and cowardice to be deserving of the deepest moral condemnation. And yet what is the fact? A coward feels probably self-contempt and that he has incurred the contempt of his associates, but he does not feel 'wicked.' He is painfully conscious of his defective organization, but he knows that an organization, however defective, cannot, in itself, constitute moral demerit. Similarly, we, the observers, despise, avoid, or hate a coward; but we can clearly understand that a coward may be a more virtuous man than another who abounds in animal courage.

The better still to show how completely distinct are the conceptions 'enduring or strong instincts' and 'virtuous desires' on the one hand, and 'transient or weak impulses' and 'vicious inclinations' on the other, let us substitute in the following passage for the words which Mr. Darwin, on his own principles, illegitimately introduces, others which accord with those principles, and we shall see how such substitution eliminates every element of morality from the passage:—

'Looking to future generations, there is no cause to fear that the social instincts will grow weaker, and we may expect that enduring [virtuous] habits will grow stronger, becoming perhaps fixed by inheritance. In this case the struggle between our stronger [higher] and weaker [lower] impulses will be less severe, and the strong [virtue] will be triumphant' (vol. i. p. 104).

As to past generations, Mr. Darwin tells us (vol. i. p. 166) that at all times throughout the world tribes have supplanted other tribes; and as social acts are an element in their success, sociality must have been intensified, and this because 'an increase in the number of well-endowed men will certainly give an immense advantage to one tribe over another.' No doubt! but this only

only explains an augmentation of mutually beneficial actions. It does not in the least even tend to explain how the moral judgment was first formed.

Having thus examined Mr. Darwin's theory of Sexual Selection, and his comparison of the mental powers of man (including their moral application) with those of the lower animals, we have a few remarks to make upon his mode of conducting his argument.

In the first place we must repeat what we have already said as to his singular dogmatism, and in the second place we must complain of the way in which he positively affirms again and again the existence of the very things which have to be proved. Thus, to take for instance the theory of the descent of man from some inferior form, he says:—'the grounds upon which this conclusion rests *will never be shaken*' (vol. ii. p. 385), and 'the possession of exalted mental powers is *no* insuperable objection to this conclusion' (vol. i. p. 107). Speaking of sympathy, he boldly remarks,—'this instinct *no doubt* was originally acquired like all the other social instincts through natural selection' (vol. i. p. 164); and 'the fundamental social instincts *were* originally thus gained' (vol. i. p. 173).

Again, as to the stridulating organs of insects, he says:—'No one who admits the agency of natural selection, will dispute that these musical instruments have been acquired through sexual selection.' Speaking of the peculiarities of humming-birds and pigeons, Mr. Darwin observes, 'the *sole* difference between these cases is, that in one the result is due to man's selection, whilst in the other, as with humming-birds, birds of paradise, &c., it is due to sexual selection,—that is, to the selection by the females of the more beautiful males' (vol. ii. p. 78.) Of birds, the males of which are brilliant, but the hens are only slightly so, he remarks: 'these cases *are almost certainly* due to characters primarily acquired by the male, having been transferred, in a greater or less degree, to the female' (vol. ii. p. 128). 'The colours of the males may *safely* be attributed to sexual selection' (vol. ii. p. 194). As to certain species of birds in which the males alone are black, we are told, there can *hardly be a doubt*, that blackness in these cases has been a sexually selected character' (vol. ii. p. 226). The following, again, is far too positive a statement:—'Other characters proper to the males of the lower animals, such as bright colours, and various ornaments *have been* acquired by the more attractive males having been preferred by the females. There are, however, exceptional cases, in which the males, instead of having been selected, *have been* the selectors' (vol. ii. p. 371).

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It is very rarely that Mr. Darwin fails in courtesy to his opponents; and we were therefore surprised at the tone of the following passage (vol. ii. p. 386):—'He who is not content to look, *like a savage*, at the phenomena of nature as disconnected, *cannot* any longer believe that man is the work of a separate act of creation. He will be *forced* to admit' the contrary. What justifies Mr. Darwin in his assumption that to suppose the soul of man to have been specially created, is to regard the phenomena of nature as disconnected?

In connexion with this assumption of superiority on Mr. Darwin's part, we may notice another matter of less importance, but which tends to produce the same effect on the minds of his readers. We allude to the terms of panegyric with which he introduces the names or opinions of every disciple of evolutionism, while writers of equal eminence, who have not adopted Mr. Darwin's views, are quoted, for the most part, without any commendation. Thus we read of our 'great anatomist and philosopher, Prof. Huxley,'—of 'our great philosopher, Herbert Spencer,'—of 'the remarkable work of Mr. Galton,'—of 'the admirable treatises of Sir Charles Lyell and Sir John Lubbock,'—and so on. We do not grudge these gentlemen such honorific mention, which some of them well deserve, but the repetition produces an unpleasant effect; and we venture to question the good taste on Mr. Darwin's part, in thus speaking of the adherents to his own views, when we do not remember, for example, a word of praise bestowed upon Prof. Owen in the numerous quotations which our author has made from his works.

Secondly, as an instance of Mr. Darwin's practice of begging the question at issue, we may quote the following assertion:—'Any animal whatever, endowed with well-marked social *instincts*, would inevitably acquire a moral sense or *conscience*, as soon as its intellectual powers had become as well developed, or nearly as well developed, as in man' (vol. i. p. 71). This is either a monstrous assumption or a mere truism; it is a truism, for of course, any creature with the intellect of a man would perceive the qualities men's intellect is capable of perceiving, and, amongst them—moral worth.

Mr. Darwin, in a passage before quoted (vol. i. p. 86) slips in the whole of absolute morality, by employing the phrase 'appreciation of justice.' Again (vol. i. p. 168), when he speaks of aiding the needy, he remarks:—'Nor could we check our sympathy, if so urged by hard reason, without deterioration in the *noblest* part of our nature.' How noblest? According to Mr. Darwin, a virtuous instinct is a strong and permanent one. There can be, according to his views, no other elements of quality than

than intensity and duration. Mr. Darwin, in fact, thus silently and unconsciously introduces the moral element into his 'social instinct,' and then, of course, has no difficulty in finding in the latter what he had previously put there. This, however, is quite illegitimate, as he makes the social instinct synonymous with the gregariousness of brutes. In such gregariousness, however, there is no moral element, because the mental powers of brutes are not equal to forming reflective, deliberate, representative judgments.

The word 'social' is ambiguous, as gregarious animals may metaphorically be called social, and man's social relations may be regarded both beneficentially and morally. Having first used 'social' in the former sense, it is subsequently applied in the latter; and it is thus that the really moral conception is silently and illegitimately introduced.

We may now sum up our judgment of Mr. Darwin's work on the 'Descent of Man'—of its execution and tendency, of what it fails to accomplish and of what it has successfully attained.

Although the style of the work is, as we have said, fascinating, nevertheless we think that the author is somewhat encumbered with the multitude of his facts, which at times he seems hardly able to group and handle so effectively as might be expected from his special talent. Nor does he appear to have maturely reflected over the data he has so industriously collected. Moreover, we are surprised to find so accurate an observer receiving as facts many statements of a very questionable nature, as we have already pointed out, and frequently on second-hand authority. The reasoning also is inconclusive, the author having allowed himself constantly to be carried away by the warmth and fertility of his imagination. In fact, Mr. Darwin's power of reasoning seems to be in an inverse ratio to his power of observation. He now strangely exaggerates the action of 'sexual selection,' as previously he exaggerated the effects of the 'survival of the fittest.' On the whole, we are convinced that by the present work the cause of 'natural selection' has been rather injured than promoted; and we confess to a feeling of surprise that the case put before us is not stronger, since we had anticipated the production of far more telling and significant details from Mr. Darwin's biological treasure-house.

A great part of the work may be dismissed as beside the point—as a mere elaborate and profuse statement of the obvious fact, which no one denies, that man is an animal, and has all the essential properties of a highly organised one. Along with this truth, however, we find the assumption that

that he is *no more* than an animal—an assumption which is necessarily implied in Mr. Darwin's distinct assertion that there is no difference of *kind*, but merely one of *degree*, between man's mental faculties and those of brutes.

We have endeavoured to show that this is distinctly untrue. We maintain that while there is no need to abandon the received position that man is truly an animal, he is yet the only rational one known to us, and that his rationality constitutes a fundamental distinction—one of *kind* and not of *degree*. The estimate we have formed of man's position differs therefore most widely from that of Mr. Darwin.

Mr. Darwin's remarks, before referred to (*ante*, p. 77), concerning the difference between the instincts of the coccus (or scale insect) and those of the ant—and the bearing of that difference on their zoological position (as both are members of the class insecta) and on that of man—exhibit clearly his misapprehension as to the true significance of man's mental powers.

For in the first place zoological classification is morphological. That is to say it is a classification based upon form and structure —upon the number and shape of the several parts of animals, and not at all upon what those parts *do*, the consideration of which belongs to physiology. This being the case we not only may, but *should*, in the field of zoology, neglect all questions of diversities of instinct or mental power, equally with every other power, as is evidenced by the location of the bat and the porpoise in the same class, mammalia, and the parrot and the tortoise in the same larger group, Sauropsida.

Looking, therefore, at man with regard to his bodily structure, we not only may, but *should*, reckon him as a member of the class mammalia, and even (we believe) consider him as the representative of a mere family of the first order of that class. But all men are not zoologists; and even zoologists must, outside their science, consider man in his totality and not merely from the point of view of anatomy.

If then we are right in our confident assertion that man's mental faculties are different *in kind* from those of brutes, and if he is, as we maintain, the only rational animal; then is man, as a whole, to be spoken of by preference from the point of view of his animality, or from the point of view of his rationality? Surely from the latter, and, if so, we must consider not structure, but action.

Now Mr. Darwin seems to concede* that a difference in kind *would* justify the placing of man in a distinct kingdom, inasmuch

* 'Descent of Man,' vol. i. p. 186.

as

as he says a difference in degree does not so justify; and we have no hesitation in affirming (with Mr. Darwin) that between the instinctive powers of the coccus and the ant there *is* but a difference of degree, and that, therefore, they do belong to the same kingdom; but we contend it is quite otherwise with man. Mr. Darwin doubtless admits that all the wonderful actions of ants are mere modifications of instinct. But if it were not so —if the piercing of tunnels beneath rivers, &c., were evidence of their possession of reason, then, far from agreeing with Mr. Darwin, we should say that ants also are rational animals, and that, while considered from the anatomical stand-point they would be insects, from that of their rationality they would rank together with man in a kingdom apart of 'rational animals.' Really, however, there is no tittle of evidence that ants possess the reflective, self-conscious, deliberate faculty; while the perfection of their instincts is a most powerful argument against the need of attributing a rudiment of rationality to any brute whatever.

We seem then to have Mr. Darwin on our side when we affirm that animals possessed of mental faculties distinct in kind should be placed in a kingdom apart. And man possesses such a distinction.

Is this, however, all that can be said for the dignity of his position? Is he merely one division of the visible universe co-ordinate with the animal, vegetable, and mineral kingdoms?

It would be so if he were intelligent and no more. If he could observe the facts of his own existence, investigate the co-existences and successions of phenomena, but all the time remain like the other parts of the visible universe a mere floating unit in the stream of time, incapable of one act of free self-determination or one voluntary moral aspiration after an ideal of absolute goodness. This, however, is far from being the case. Man is not merely an intellectual animal, but he is also a free moral agent, and, as such—and with the infinite future such freedom opens out before him—differs from all the rest of the visible universe by a distinction so profound that none of those which separate other visible beings is comparable with it. The gulf which lies between his being as a whole, and that of the highest brute, marks off vastly more than a mere kingdom of material beings; and man, so considered, differs far more from an elephant or a gorilla than do these from the dust of the earth on which they tread.

Thus, then, in our judgment the author of the 'Descent of Man' has utterly failed in the only part of his work which is really important. Mr. Darwin's errors are mainly due to a radically

radically false metaphysical system in which he seems (like so many other physicists) to have become entangled. Without a sound philosophical basis, however, no satisfactory scientific superstructure can ever be reared; and if Mr. Darwin's failure should lead to an increase of philosophic culture on the part of physicists, we may therein find some consolation for the injurious effects which his work is likely to produce on too many of our half-educated classes. We sincerely trust Mr. Darwin may yet live to furnish us with another work, which, while enriching physical science, shall not, with needless opposition, set at naught the first principles of both philosophy and religion.