

The Philosopher among the Apes.

IT is not often that a work attains in a short time so great a notoriety as the one which we have undertaken to notice in this paper, and it is probable that few books that have lately appeared have given rise to such varied feelings as have been stirred up by this crowning labour of a long scientific career. In the evening of a long life, when the fervid imagination has had time to be subdued, and correct vision is less exposed to be interfered with by the dazzling illusions of youth, Mr. Darwin has presented us with a book of a character so strange, that it would have been very startling if only its theme were new. Its calibre and its name, to say nothing of the source from which it sprung, would indicate a serious work on a subject of the greatest imaginable interest to the scientific inquirer, if only the subject were treated in a serious manner; yet we must acknowledge that the whole work would present itself to us as a pleasantry, if the subject were not quite so grave and the promise held out so high.

The descent of man from the ape is not a new theory. It was advocated in the last century by Lamarck, and was not thought too extravagant to have a few followers, who saw nothing in man but a superior species of ape; but it died a natural death, and for half a century no more was heard of it, until, as M. Quatrefage remarks, having been resuscitated by Mr. Darwin and supported upon the principle of Natural Selection, it gained great favour among those who were strangers to science, although, as he tells us in his own name, and as being the judgment of the great body of the anthropologists of France, whoever will only lay aside unscientific prejudice will come to the conclusion that, even accepting the principles of Mr. Darwin, the descent of man from any monkey whatever cannot possibly be sustained in presence of the results of ancient and modern research. And he concludes with these remarkable words—
“With respect to the simian origin of man, it is nothing but

a pure hypothesis, or rather a mere pleasantry, in favour of which no one has yet been able to adduce a single serious fact, and with respect to which, on the contrary, everything shows how slight is the foundation on which it is built."

Scarcely three months have elapsed since the appearance of this long promised work, which was to tear the veil that had hitherto shrouded the origin of our race, and to exhibit to the world for the enlightenment of future generations the accumulated learning of this age of discovery, thrown with all the light of modern science on this most interesting of questions. No wonder, then, if edition after edition quickly followed each other—no wonder if many were eager to possess this legacy of a life of scientific research such as that of Mr. Darwin.

Has the public, it may be asked, been disappointed? If we were to judge by the hostile reviews which have appeared on various sides, we should answer in the affirmative; but, on the whole, we think that Mr. Darwin knew too well for whom he was writing to have reason to be dissatisfied with the result of his labours. We believe that he had too well chosen the time and circumstances to have much cause to regret the venture. He had long prepared the way, and was well assured of sympathy before he cast the final die which was to mark him for ever as the great pioneer of true anthropology, or to brand him as one who had sacrificed a whole life of science, and an experience granted to few men, to the development of a theory which has this remarkable about it—that it gratifies the vanity of its author, while it degrades his race. We propose to spend a short time in examining what this extraordinary book pretends to be, and what it is.

Mr. Darwin tells us, in page 2 of the Introduction, that "the sole object of the work is to consider, firstly, whether man, like every other species, is descended from some pre-existing form; secondly, the manner of his development; and, thirdly, the value of the differences between the several races of man." In the first place, then, we must notice that, though he has already told us that "of the older and honoured chiefs in natural science, many are unfortunately still opposed to evolution in every form," and although M. Quatrefage* says that every attempt to arrive at the origin of organized creatures by a purely scientific process, is at least premature, and that in his judgment the question is insoluble; notwithstanding this

* *Rapport*, p. 243.

acknowledged obscurity, Mr. Darwin assumes the whole question of the origin of the various species of the vegetable and animal kingdom as definitively settled, and treats it as though nothing now remained but to put the crown on the edifice by applying to man principles already fully established in the case of lower organic beings. The sentence in page 2, to which we have referred, can have no other meaning. If the book is of any value at all, it must be a logical deduction by sound reasoning from principles either already scientifically accepted, or established beyond doubt in the course of the work. Certainly no reasoning mind will be satisfied if, instead of this, the arguments have no force except to show what might possibly have taken place; and still less, if the whole point at issue is virtually assumed throughout; and worse still, if the author shows from the very beginning that he is merely endeavouring to establish a theory which fixed itself in his mind in early years, and to sustain which the experience of a life has been made to tend.

We think we can show that the appreciation of the book here suggested is a correct one. In the very first page the author tells us that during many years he collected notes on the descent of man, with, however, no intent to publish, "as I thought," he says, "that I should thus only add to the prejudices against my views." It is quite clear from this avowal that Mr. Darwin has had his views for many years: views which preceded much of the experience of his long life, views which he had no notion of laying aside—which, however, he dared not publish; and yet he gives the name of prejudice to that attitude of the public which rendered it improbable that his views, unsupported as they must then have been, and indeed as they still are, by sound argument, would have found favour.

No one can have read Mr. Darwin's first work without being struck with remarks which from time to time fall from him, which show that even while engaged upon it he believed that man's origin was savage; and the repeated recurrence to the poor desolate Fuegians which is found in his subsequent works and in those of authors who have followed him, is an argument to us how deep an impression was made upon his active mind by the situation of those unfortunate islanders; so deep, indeed, that we believe he has never since lost the notion that the inhabitants of that wild and stormy coast are the truest representatives of the early stage of human nature, when our race first stood erect upon feet,

instead of climbing with its four hands as formerly, and when, of the caudal appendage by means of which they used to swing from branch to branch among the thickets of South America, there remained nothing but the *os coccyx*, which still survives to tell us of our origin. We shall not enter here into the circumstances that led to this change. Probably some unwary long-tailed monkey had trusted himself too boldly to uneasy heights and slender branches, and more than one rude fall had taught his posterity to discontinue so dangerous a system of gymnastics. In writing these lines, we can hardly help thinking of the fox in the fable, and speculating on the long sight into the future pictured by the early fabulist, and the mighty steps of human progress that were typified by that tail-less beast. It is true Mr. Darwin tells us that man belongs to the Old World monkeys, that the Fuegians were a weak, conquered race, and therefore outstript by the offspring of some more advanced anthropoid; and, moreover, we know of no one who holds that the cradle of the human race is to be sought in the New World, whether it be in the teeming forests and luxuriant richness of the tropics or amid the storms and glaciers and eternal mists of Tierra del Fuego. Be this as it may, it is quite evident that the barbarous countrymen of York Minster and Jemmy Buttons have left an impression upon his mind which no reason has enabled him subsequently to shake off.

We shall show from a few passages how far Mr. Darwin is from entering upon the discussion proposed in these volumes in the spirit of unbiassed reasoning. The words we have already quoted would suffice, but there is much more. We must beg our readers to remember that the avowed object of the work is to examine by careful logical process whether man is descended from an inferior animal. They will hardly believe it when they have read the following passages. In page 21, speaking of certain anthropoids, he says, "Why these animals as well as the progenitors of man should have *lost* the power of erecting their ears, we cannot say. It may be," he adds, though he acknowledges himself not quite satisfied with this view, "that, owing to their arboreal habits and great strength, they were but little exposed to danger, and so during a lengthened period moved their ears but little, and thus gradually lost the power of moving them." We should like to know whether it is a fact that squirrels are gradually losing the power of moving their ears on account of their arboreal habits;

but we notice this passage simply on account of the assumption made as early as this page 21, of the whole subject in dispute. What he adds with respect to heavy birds losing their power of flight, owing to their insular homes, is curiously inapplicable to the ostrich and birds of the same family that inhabit great continents. We should have thought that the continent of Australia, and even the *little* islands of New Zealand, would have afforded space enough for the moa itself to stretch its wings. In page 23 we read that a particular feature in the ear of certain animals is a "vestige of formerly pointed ears, . . . which occasionally *reappears* in man." Why *reappears*, we may ask, except that Mr. Darwin imagines that he has already carried his readers with him, and that discussion on the real point at issue is at an end.

In page 24 we are told that man *no doubt* "inherits the power of smell in an enfeebled and so far rudimentary condition from some early progenitor to whom it was highly serviceable;" in page 29, accounting for the fact, which he asserts without anything like a sufficient proof, that ancient races more frequently present structures resembling the lower animals than modern races, he says, "One cause seems to be that ancient races stand somewhat nearer in the long line of descent to their remote *animal-like* progenitors;" and in page 125 exactly the same sentence occurs, with the substitution of the word "semi-human" for the one we have italicized. It will not seem surprising to our readers, after giving attention to these expressions, that, at page 32, he already considers that he has fully established his thesis, and tells us that "we ought frankly to admit the community of descent," and that to take any other view is to admit that our own structure, and that of all animals around us, is a mere snare laid to entrap our judgment; adding that "it is only 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"—and yet the arguments as yet adduced are, as is evident they must be, of the most insufficient and merely conjectural character.

To speak of certain features in the human skeleton as examples of reversion, as in page 122, would be very well if the fact of a descent from a lower type were established; but as Mr. Darwin treats the subject, it is simply begging the question: of which fallacy no better illustration can be given than is found in that remarkable, and not very intelligible, sarcasm which we

read in page 127—"He who rejects with scorn the belief that the shape of his own canines and their occasional great development in other men are due to our early progenitors having been provided with these formidable weapons, will probably reveal, by sneering, his line of descent. For though he *no longer* intends, or has the power to use these teeth as weapons, he will unconsciously retract his snarling muscles"—no doubt from habit acquired by inheritance, which thus clearly shows that the cur lies in the line of genealogy through which Mr. Darwin would have us claim descent.

After what we have said, we need only allude to such expressions as—"With some savages the foot has not altogether *lost* its prehensile powers," an assertion which is proved, for those who are willing to accept the proof, by their facility in climbing trees. "Man alone has *become* a biped, and we can, I think, partly see how he has *come* to assume his erect attitude." For this, he tells us, the foot must have been flattened and the great toe modified; but how this was to be effected, or what was the combination of lucky experiments which produced the actual "most dominant animal that ever appeared on the earth,"* we are not told. He does, however, assert with a positiveness which shows that he has quite forgotten any semblance of discussion, that "as the progenitors of men became more and more erect, . . . with their hands and arms more and more modified for prehension and other purposes, with their feet at the same time modified for firm support and progression, *endless other changes of structure would have been necessary.*" We think this is quite true—though we hardly think he intended to say it: the fact being, that the changes required would be so numerous, and the absence of any recognizable process by which they could have been brought about on Mr. Darwin's hypotheses so glaring, that we are surprised that he did not perceive that he was confuting himself in his own argument; but he tells us with perfect composure—"All these changes have been attained by man."†

We cannot help referring to the passage in page 136, where we read that, "if we look back to an extremely remote epoch, before *man had acquired the dignity of manhood*, he would have been guided more by instinct," and that "our early *semi-human progenitors* would not have practised infanticide, for the instincts of the *lower animals* are never so perverted as to lead them

* P. 136.

† P. 143.

regularly to destroy their own offspring." It is quite clear from this passage that our ancestors were not only semi-human, but at the same time to be classed among lower animals. But we shall now leave this part of our subject.

In some portions of these volumes, however, it becomes apparent that Mr. Darwin is really arguing a case; and it is, therefore, necessary for us now to examine fairly the arguments he brings forward, and in doing this we shall endeavour to remove from our mind the impressions which his unfair assumption of the issue has left in us. Fortunately for us, he is soon content with the establishment of his case. In the opening of the sixth chapter,* we read—"The facts given in the previous chapters, declare, as it appears to me, in the plainest manner that man is descended from some lower form, notwithstanding that connecting links have not hitherto been discovered." Here, then, is a simple declaration of an accomplished fact. Mr. Darwin looks back with satisfaction upon these five chapters, forming about one-half of his first volume, and considers that in these few pages he has established in the *plainest manner* this most momentous and in itself startling of propositions regarding the human race, which simply amounts to this—that there is really no difference of nature between ourselves and the sponges of the ocean bed. But in this, as we have said already, Mr. Darwin has worthy progenitors. Bayle, in his *Dict. Crit.*, speaking of Aristotle and Cicero, says—"It is, then, only by accident that they have become superior to beasts; it is because the organs on which their thoughts depended have acquired such and such modifications, to which the organs of beasts do not attain. The soul of a dog in the organs of Aristotle and Cicero would not have failed to acquire all the lights of these two great men." It is good that our author should realize in whose company he is. But let us now look at the arguments by which it is endeavoured once more to introduce this monstrous theory into the world, under the ever-honoured and now pre-eminent name of science. These arguments may be reduced chiefly to four. They are the arguments from bodily structure, from rudiments, from development and reversions, and—would it be believed?—from mental and moral similarity. We shall dwell briefly upon each.

It is obvious, that in treating such a question as that before

us, two classes of arguments may be brought, one from which we may conclude that certain points of similarity between men and beasts may possibly indicate a common origin, and that upon such a theory, a possible explanation of known facts may be given; and another class from which we are intended to conclude that known facts inevitably prove a community of origin, inasmuch as it can be demonstrated that no other cause could produce the effects before us. It will be acknowledged by all real seekers of truth, that arguments of this last class are what we have a right to expect in the treatment of such a subject as that before us; but what are we to conclude, if not only arguments of this character are wanting, but if even the explanations given on the hypothesis of the supposed evolution from a lower form are themselves unsatisfactory and conducive to absurd conclusions? We have no hesitation in saying that this is the case. Let us, in the first place, consider the argument from bodily structure. It will be plain to the most careless reader, that it amounts to nothing more than this, that every part of the human structure bears an *analogy* to a corresponding part which is found in some form in many of the lower animals, or, as the author tells us in the words of Bischoff, "every fissure and fold in the brain of man has its analogy in that of the orang." What the same author adds, that at no period of their development do they perfectly agree, does not seem to Mr. Darwin of any consequence, for he says, "if they did, their mental powers would have been the same," showing how exactly he agrees with the sentiments of Bayle, whom we have already cited. We have seen that in another part of the same volume he tells us that the changes in the skeleton requisite for the passage from a monkey to a man are infinite; but this is clearly of no consequence, the analogy is evident, and this is all he needs for his argument. But we are compelled to ask any candid mind, if analogy between the corresponding organs of man and beast is a proof of descent.

As to the support given to the argument from the facts "not directly or obviously connected with structure," as Mr. Darwin styles them, such as the fact of some monkeys having been known to be fond of tea and coffee, of others relishing tobacco, and of others again, not only becoming intoxicated with strong beer, but, what is still more interesting, after having evidently been made ill with it, not only refusing again to indulge in it on the morrow, but even showing an inclination for lemon juice, and, no doubt, soda water to boot—we can only say that, looked upon

in their bearing on this question, they are too trifling to be discussed. Mr. Darwin tells us that parasites which attend man belong to the same families, though not to the same species, as some which are found in beasts, and that certain diseases, such as hydrophobia, are transmitted from beasts to man; and he thinks that this shows an identity of structure, such as no microscope could show. He, nevertheless, tells us,* that the fact of the *pediculi* found on different races of men being of distinct species may fairly be taken as arguments that the races themselves are of distinct species; that is, as he himself explains his meaning in page 219, that they are not directly descended from one another; how, then, identity of family and genus is a sign of descent, we must leave Mr. Darwin to explain to us. Hydrophobia is, indeed, a mysterious disease, but we fail to see that the fact of man incurring it through the bite of a mad dog is any clearer proof of descent than is the death of a human being by swallowing nicotine a proof of his being descended from a tobacco plant. In both cases, in fact, we have the introduction of a poison into the system, and it has still to be proved that poison, to be destructive, must have the same origin as its victim. There is, however, one thing in this reasoning which is curious. Though Mr. Darwin is so impressed by the argument for unity of descent drawn from the communication of hydrophobia to man, yet when a little later on in the volume, he, with an unwilling hand (as appears to us), is engaged in drawing out the arguments for the unity of the human species, he entirely passes over the important fact, that diseases of every kind are freely communicated from one race of men to another, and that whole races of Indians have been swept away by disease caught from Europeans, while, nevertheless, he thinks that these may fairly be judged to be of distinct species.

All this, however, has nothing to do with structure. We have been drawn into it because we felt ourselves bound to give a sample of Mr. Darwin's reasoning. Mr. Darwin finds great strength in the fact that there is a correspondence with various organs of man and many, we might almost say all, inferior animals. Truly the unity in nature is marvellous. It need not here be shown that the arm of the man, the foreleg of the elephant, the wing of the bird, the flapper of a seal, the fin of the fish, have all a wonderful correspondence, and exhibit in the animal creation a most admirable harmony of unity of design

* P. 220.

with variety of adaptation. We might extend this in a greater or less degree to every part—the nerves, the muscles, the organs of motion, of respiration, all corresponding and all differing, disappearing successively as we descend the scale till there is nothing left but a sack, into which the nourishment is admitted, and from which it is absorbed directly into the system, and which is the true representative of the stomach and complicated digestive organs of man. We are very far from differing from Mr. Darwin as to the existence of this unity. We believe it to exist to a far greater degree than has yet been pointed out, and that it probably passes the power of the microscope to determine the point where it ceases; indeed, the more we use the microscope the greater is the similarity. This unity is one of the chief beauties of the universe; it is an inexhaustible book, in which to study the wisdom and bounty of the Creator, but we challenge Mr. Darwin to show the slightest proof from this similarity of any unity of descent. He tells us that unless it is so, all creation is an enigma, a snare to deceive us. After all, this is but an assertion, and signifies only that the book of nature is as yet sealed even to him. We are far from pretending to read it to him, but there are certain considerations which strike us as containing the key to the solution of this most interesting question.

Nothing is more obvious than that whoever wisely accomplishes a work will, above all other things, adapt a common means to a common end, and will vary that means with every variety of the end in view. What, then, is the visible end of living things? It need not be said, it is to live and to give life. Every organized being has these two primary functions; to some is added the power of locomotion. Is it then surprising that there should be some unity of design in the means adopted to meet these universal tendencies of nature? It surprises no one that ships should bear some resemblance to one another as to keel and rudder, mast and sail; and were the constructor but one it is probable the unity of design would be still more remarkable, however much he might vary the details with every change of circumstances, according to his wisdom and the needs of the case. Whoever studies the construction of a clock will find a unity of principle, whether it be exhibited in a journeyman ticking seconds in an observatory or in the complicated machinery of Strasburg. It is not, therefore, surprising if the organs of locomotion, of nourishment, of reparation, and of

reproduction exhibit a uniformity of plan which is practically universal, as well as an infinite variety suited to fill the air and the waters, and to cover the whole surface of the globe with teeming life, whose every part is admirably suited to the needs, the characters, the habits of the various creatures. And who will dare to say that all this is the produce of the powers of nature working blindly towards a perfection of which it knows nothing, towards which it has no guide, of which in its origin it possessed not an element, and yet, by a series of marvellous ventures, resulting in the perfect harmony of life which we see around us?

Another class of arguments of which Mr. Darwin makes great store is that founded on *rudiments*. "Rudiments," he tells us, "are organs either absolutely useless, or so nearly so that we cannot suppose them to have been developed in their present state."* They are organs which exist in their full development in some animals, and in others are found in an imperfect, and as far as we know, wholly useless condition. From these Mr. Darwin argues that man must partake of a common line of descent with inferior animals. In the first place we must remark, that even if we are unable to account for a portion of an organism otherwise than by community of descent, there would still be no sufficient proof that it was due to this, as there are still many things in the structure and formation of organic bodies of which we are totally ignorant; but it seems to us that Mr. Darwin's hypothesis contains difficulties quite as great as those which he endeavours to remove. In the first place, it would be expected that a gradual diminution of development of such organs would be observed, as they became less and less useful. It is quite true we have in birds wings of every degree of expansion till we meet the curious little apteryx, or the great ostrich of the desert, whose wings in both cases are merely rudimentary; but there is no evidence—on the contrary, great improbability—that these different degrees mark different stages of one and the same direct line of descent. A true developist must maintain that the wings of birds were gradually developed by Natural Selection owing to the advantage gained to the individual by taking long leaps from the surface of the earth. Did the apteryx stand in less need of these flights? does it represent an early form of winged creature not yet developed, or is it a late stage of a class whose wings are gradually disap-

* P. 17.

pearing? This we are not told. At any rate we might expect to find different degrees bearing marks in other respects of a common descent. That there are such signs in certain very few cases we do not deny, but to be told again and again that the links are lost is more than we can receive, especially when we remember that the whole earth is teeming with prodigious manifestations of life, that the records of geology, though necessarily incomplete, extend to the very simplest manifestations of life, and embrace representatives of the fauna of perhaps every successive period, and yet that those creatures that seem to show gradation are in many instances found in regions so distant as to render it very improbable that they represent a common stock. The *os coccyx* in men may undoubtedly be called a rudiment of a tail, and in this there seem to be signs of gradation from the monkey through the anthropomorphic apes. But in these apes does the same rudiment appear in a more developed form? Mr. Darwin does not tell us that it does, but surely this was to be expected. At any rate, do the earlier races of men, or those whom he is pleased to consider as most representing primitive savage men, exhibit anything of the kind? We know there is nothing of the sort.

That some savage races are said to develop their wisdom teeth more perfectly than the more cultivated, is of no value whatever as an argument, for this may probably be accounted for (if true) by circumstances of national habit and locality; and moreover, we have yet to be taught that these races are any nearer to the primitive stock than we are. Some of the most learned anthropologists, in their researches as to which race most nearly represents the primitive human stock, have shown good arguments to prove that neither the black nor the red man could have been the original stock, but that the yellow has a better claim to this than any other existing race.

There is, however, one class of rudiments which appears to us not only totally inexplicable on Mr. Darwin's theory, but even leading to incredible and absurd results. We mean the *mammæ* in the male mammals. To suppose that these are the rudiments of organs once active would be to suppose a state of things which not only does not, but never did exist, as far as we know, except in the lowest animals, and the supposition of which is opposed to every notion which is natural to us of the habits and the functions of the two sexes in the rearing of their offspring, and which would consequently be not only gratuitous, but

absurd. To refer to certain cases where the action of the sexes in rearing their young seems to be reversed, and certain rare alleged instances in which the lacteal glands have been active in the male, is no argument whatever in the case, and is as well explained as other rudiments on the principle we shall state. It is often remarked that in the embryo the various species and even genera and families of animals approach one another. There can be no doubt of this, but in our opinion it means a very different thing from what is assumed. We shall return to this again. It is enough to remark here that it accords perfectly with our belief that rudiments are the result of a vital energy common to all life, which tends to produce life according to a plan which, as to the degree in which each one is developed, and the form and character of the development of each, is determined by causes which no man can fathom; which determine why the foliage of one tree should be sparse and stunted, of another thick and luxuriant, the wings of one bird wide-stretched, of another scarcely more than rudimentary; which in some individuals develop the female organs, and in others, those of the male sex, showing of the former only rudimentary elements: all this according to the infinite variety of producing forms, modified, no doubt, by innumerable circumstances of race, of individual energy, of climate, and the like, all being produced by a vital energy, tending, according to a law planted in it by the Creator, towards the perfection of all the parts of an organism, and, according to its condition, showing every degree of development. We shall illustrate this further when speaking of development. If Mr. Darwin could lift his thoughts still higher, he might realize the idea that in everything human there is something which lower animals are made to imitate at a great distance. Just as every perfection of the Divinity has some representative in the imparted qualities of the creature, so in the scale of organic life there was a plan, a type, which all life should shadow forth, and which is the real cause of the unity of design in the whole world of life around us. But these thoughts are not contained in his philosophy. We think our readers will agree with us how far Mr. Darwin is from having shown that rudiments as found in man are a proof of community of descent from lower animals.

Much account is made of the similarity of the embryo of man, in its early stage, to that of the ape, and even of lower

animals. Mr. Darwin tells us* that "the embryo itself, at a very early period, can hardly be distinguished from that of other members of the vertebrate kingdom." He tells us that "the feet of lizards and mammals, the wings and feet of birds, no less than the hands and feet of men, all arise from the same fundamental form." We have not the slightest doubt that this is true so far as it is in our power to discern a difference; but we are very far from, on this account, concluding to a community of origin. It is unnecessary to record the instances which he adduces. The most curious is, that the great toe in the human embryo is said to approach the condition of the same organ in the quadrumana, not only as being less developed, but in being placed at an angle from the rest. Why this similarity in the embryo should still remain, notwithstanding the greater perfection of the parent, and this not as an occasional reversion, but as a general law, Mr. Darwin does not attempt to explain, nor would it be easy to do so; but if we consider what is the common law of development, and remember that all life is formed from an elementary cell, or from an atom, so to speak, of protoplasm, which is developed step by step, till first of all the family, then the genus, species, and finally the sex is apparent, it is not surprising that in the earlier stages it is difficult to distinguish the foetus of man from an ape, a dog from a fish, a bird from a lizard. The likeness consists in the absence of the distinguishing parts, which are formed by degrees—some remaining only rudimentary, others perfected according to their kind, according to a law which we may read, for it is written in the book of nature, and every eye can see it, but which no one has ever understood, or, we may say, has made any steps towards understanding. We all know how like to one another is the young blade of grass and of wheat; we know too that the first germ of an oak tree or of a primrose are scarcely, even if absolutely, distinguishable from each other. Is this a sign of descent? Certainly not. It is a sign that there is in the germ of each a life of its own, which unfolds its energy according to its own kind by degrees, and the precise nature of which it is impossible for us to understand. All we know is, that it is developed according to the pattern of its parent; but how that pattern is impressed upon it, what teaches its fibres to knit themselves closely so as to form the hardy stem of the monarch of our forests, instead of the slender stalk of the

* P. 14.

herbaceous plant; what determines the rugged knotted arm of the one, or the delicate sheath of the other, is hidden to us. To make us believe that the one is the progeny of the other, because at a certain stage of formation they are indistinguishable, is to force upon us a theory which our own reason must convince us to be but a figment. With the view here presented, the cartilaginous projection in the human ear, which was first noticed in executing a figure of "Puck," the rudimentary nictitating membrane, the *os coccyx*, the mammæ of males, and a thousand other such formations, all have their place in the system as efforts of vital force stayed in its development according to conditions upon which generic and specific variations depend; not altogether unlike the potter who out of the same clay forms the meanest and the most honoured vessel, and works up the same rudimentary forms into various designs according to a pattern in his own mind, which in living forms is a law impressed on them by their Author, which, though so near to us, and so constant in its workings, is still as unfathomable to us as are the regions of endless space.

There are, however, other considerations connected with this subject which we must not pass over. It has been remarked by profound students of anthropology that, even accepting Mr. Darwin's theory of Natural Selection, no monkey could ever have developed into a man, and that even on his hypothesis we should have to look for some yet undiscovered class of animals through which man could claim his descent. Monkeys are essentially climbers, and, according to the first principles of Natural Selection, those which were most perfect in their kind, the most adapted to prevail in the struggle for life, would pair together, and so develop still more and transmit their advantages. Now it is evident that in this way a change of direction of development could not take place; climbers would become more perfect climbers, the foot would go on increasing in prehensile power. A change in the development, which must take place according to an imperative law, is impossible. Mr. Darwin tells us that our semi-human progenitors began to find their hands useful for other purposes besides climbing—for throwing stones, for example; they would begin to find the advantage of standing on their feet, and so by degrees, through many generations of use, the foot would be transformed, and man would stand erect, a walking animal. But he forgets that he could not stand erect till he had a foot to stand on; that during

these long generations of transition he would be in a worse position than ever, neither a climber nor a walker. The ape would not have foresight enough to know that by continual efforts he would at length, or rather his posterity would, stand erect on *terra firma*; and we shall not believe that an awkward beast capable only of climbing and running on all fours would ever so exercise himself in a style of gymnastics to which his actual nature was utterly unsuited as to transmit to his posterity an improved habit of life and a nature modified accordingly.

We can understand a beast forced by circumstances to an unusual exercise of a particular organ, transmitting to his posterity an extraordinary development of the same member, but here we are to believe that a beast is to spend its life in efforts to adopt a nature different to its own, which would be just as successful as would be our own efforts at flying by the simple, but to us unnatural, process of flapping our arms in the air. If Mr. Darwin thinks that the pectoral muscles of the next generation would increase in development, and air cells be formed in their bones, and feathers grow upon our children, posterity may indeed thank him for having initiated the experiment; but if the loss of the use of the hand were incurred before the feathers grew, as is most likely, by the ordinary law of the survival of the fittest, these poor mongrels, half man, half fowl, would be swept out of the battle of life as being unfit to work their way either on the earth or in the air. Our readers must excuse us for writing such nonsense; we really think the case requires it, and if they think we are making Mr. Darwin's theory too ridiculous, we only beg them to suspend their judgment a little longer. The truth is, every limb, every bone of the monkey, shows a destination totally different from that to which our own organism points; and, as M. Gratiolet and others show, the monkey in perfecting itself loses nothing of its fundamental type, and is always perfectly distinct from man, who could never be derived from it. So that, as M. Quatrefage explains, on Mr. Darwin's theory, the orang, chimpanzee, and gorilla might be corresponding superior terms of three different families, and remain still fundamentally monkeys, but man could only be the superior term of some other series, not one single inferior member of which has ever been discovered. But really this is heaping up assumptions beyond tolerance, to say nothing of the other improbabilities of the case. But there is still stronger argument. If man is only a development of an ape, it is

impossible that the order of development of the different parts can differ from that of an ape, since by hypothesis the development of man is only the development of the ape carried a little or a great deal further. It is found, however, and M. Quatrefage challenges contradiction in this, that the development of the brain in man and in monkeys is in an inverse order. In monkeys, the tempero-sphenoid convolutions forming the middle lobe appear and perfect themselves before the anterior ones forming the frontal lobe; in man, the frontal convolutions are formed first, and the middle last. In consequence of this, M. Gratiolet says it is impossible for the brain of a monkey to be regarded as a human brain stopped in its development. M. Alix says, "Monkeys do not approach men as they improve, nor does man approach the monkey as he recedes." Indeed, the less, says M. Gratiolet, the human brain is developed, the more it differs from that of a monkey, and the stoppage of development would only exaggerate the natural difference. If this be as alleged—and the names of such men as Alix and Gratiolet and M. Quatrefage who cites them, seem to us to place the fact beyond question—the descent of man from any known species of monkey, even if we regard merely his bodily structure, must be placed quite out of the question. We shall see later whether the difficulty is at all removed by any imagined resemblance in mental faculties.

We have already pointed out Mr. Darwin's assumptions with respect to reversions. We must here add a few words on this matter before going on to another part of our subject.

We can perfectly understand reversions in mere points of difference between varieties. And as it is evident that such varieties are descended from a common stock, it is no assumption to assert that certain characteristics which occasionally appear are reversions to a former type. But when this descent is not otherwise apparent, it is impossible to argue from what has no right to be called a reversion at all unless the whole question at issue is conceded. Indeed, we hold that to speak of reversions from one species to another has no warrant in fact, nor could they be accounted for on the supposition of their being returns of a former type of the same stock, as there would still be an absence of any sufficient apparent cause why this former type should return, when the actual improved type is by hypothesis better for the struggle of life. If, however, these so-called reversions are looked on as less perfect or abnormal developments of the

vital energy depending on peculiar individual conditions, which vary in every case, we see a simple explanation which renders it unnecessary to go further for an answer.

It can hardly have failed to occur to every reader of Mr. Darwin's work, that it is at least surprising that, supposing this universal tendency of all organic creatures to hasten forward in the race of anatomic as well as intellectual perfection, there should nowhere on the earth be found any creatures that can be called transition species between ourselves and the apes; anything, we mean, unmistakably not man, and unmistakably not monkey. Mr. Darwin treats us a good deal to such phrases as our *semi-human* progenitors, our *ape-like* forefathers; but these are in the dim vision of his fancy, conceived amidst the mists, perhaps, of Tierra del Fuego, but when pressed to point out any such creature, he is obliged to confess not only that none such exists, but that there is not the slightest evidence that any such ever did exist. Nay more, considering what we know of geology, and considering the Darwinian theory, it would be an utterly inexplicable fact that not one of these man-like apes had survived either on the face of the earth, or in the records of its strata, whereas the tropics of both the Old and the New World are peopled by hideous creatures left far behind in the struggle by their advanced brethren; creatures which it is impossible to look upon without disgust, and, we must add, without pity for those who would fain liken themselves to them. Neither is it necessary here to ask for any reason why the erect biped alone has had the fortune to develop articulate speech, or what reason there was why the advance of intellect should have been confined to this one particular line of progress; there being many reasons for supposing that ants and other creatures which display such marvellous instinct, and others whose gregarious habits would have made speech so useful to them, would have found their well-being much advanced both by the one and the other, while it seems difficult to assume that opportunities were wanting to them. At least it is quite inexplicable, whatever Mr. Darwin may pretend to say, that the line of demarcation between speech and mere inarticulate sounds, between reason and instinct, between man and brute, should be so defined, so absolute.

Speaking of the fecundity of the human race, we should have wished, for his own sake, that Mr. Darwin had not alleged, amongst the greatest of the evils to be attributed to it, that it has necessi-

tated the introduction of celibacy, which in another place he goes so far as to call a senseless practice. Now, to say nothing of the offensiveness of applying such an epithet to a practice which from the beginning of Christianity has been honoured by the greatest and most enlightened men, never was a more absurd reason given in sober earnestness. If this is not really making a cart draw a horse, it is at least reversing the one main popular objection which the world brings against that holy discipline of the Church.

There are many other things in Mr. Darwin's book which we should like to notice, but we must pass on. We cannot, however, refrain from inviting attention to what we shall call his "lunar theory." The effect on lunatics attributed to the moon is thus scientifically accounted for, and the reasoning is so ingenious, and goes back so far, that we must for the future think a man simple who fails in finding a reason for anything.

It seems that, in early days, the ancestors of a certain class of lower molluscs, inhabiting the foreshore of certain seas, produced a larva showing some signs of a spinal column, and that *probably* it was here that the great sub-division of the animal kingdom—the vertebrates—branched off. These creatures, accustomed to depend on high tides for the renewal of the more ample means of life, in process of many generations grew so accustomed to the lunar influence, that their descendants, the vertebrate animals, though no longer needing the spring-tides for their supply of food, have nevertheless inherited a sympathetic affection connected with the phases of our satellite which bears witness to our early origin. We feel that it is better to make no comment upon this. Our readers will judge it as it deserves. We pass to more serious questions.

We have already observed that Mr. Darwin is not afraid to face the subject of mental action and moral sentiments, in the vindication of his theory that there is no fundamental difference between man and beast. He tells us, indeed, that he would rather have let this part of the subject alone, and we quite believe him. We must give him credit for some degree of hesitation in approaching a subject so entirely new to him. We are sorry, however, to see that this diffidence, which was the least that was to be expected, has not prevented him from falling into the usual mistakes, and, what is worse, from drawing conclusions so unhesitating that the unwary reader is tempted to imagine that the writer is dealing with a subject with

which he has been familiar all his life, instead of one which is manifestly out of his line.

Mr. Darwin has gathered from various sources numerous anecdotes illustrating what he calls the intelligence of beasts; and by these he endeavours to drive the upholders of any essential distinction between man and lower animals from one stronghold to another by showing that there is nothing in man, even speech, the love of art, the making of tools, the moral sense, and, last of all, even religious sentiment, which is not partaken of in some degree by our less advanced brethren, whom we are pleased contemptuously to call brutes. We shall not call in question any of his facts, or suggest that some of them, after all, may be only travellers' stories, for in reality he has alleged no fact which we are not quite willing to allow; indeed, if we had chosen to ransack the books of stories about dogs which are in the hands of children, we could have found facts quite as suggestive of intelligence as any that he records. That many of the manifestations of instinct attributed to animals are truly very wonderful, we shall be the last to deny, and we can easily conceive the idea being entertained that instinct and reason do really border on each other; but when Mr. Darwin, as in page 49, adduces the wariness of animals after having been long hunted as a set-off against the progress so notorious in the human race; when, again, he adduces the various tones in the barking of a dog—its exhibition of joy and pain, or the jargon of a parrot, to prove that man does not stand alone in the possession of language; and when he brings forward the anecdote of a dog that licked a sick kitten as a proof of the existence of a moral sense, we can hardly believe him to be serious. It has been said by a great writer that the one great mark of distinction between man and brute was the knowledge of God, and that this one word places all animals at an infinite depth below us. "Who," says the great Bossuet, "could be so senseless as to say that they have even the least suspicion of this excellent nature?"* But Mr. Darwin gets over this difficulty—our readers shall see how. He tells us that our idea of spirits, and therefore of God, probably arose from dreams; indeed, he is so little at a loss that he tells us that it "is not difficult to comprehend how belief in spiritual agencies rose."† And a little later he says—"But until the above-named faculties of imagination, curiosity, reason, &c., had been fairly well developed in the mind of man, his dreams

* *Connaissance de Dieu et soi même*, ch. v., n. 5. † P. 65.

would not have led him to believe in spirits any more than in the case of a dog." This, then, is the way in which our author levels the ground before his path, telling us that our knowledge of spirits and even of God Himself has not always belonged to man, but has probably been acquired by degrees through the instrumentality of dreams, and is therefore, by evident consequence, as shadowy and as unreal as they are. He consequently sees no ground for doubting that his dog, when his imagination, curiosity, and reason have become more developed, may at length arrive at as sublime a notion of God as himself. Indeed, he appears to think that this sagacious animal has already shown signs of the commencement of a belief in hidden agencies which, according to him, is the foundation of all religious belief, for he tells us it was noticed that when a parasol which was lying open on the grass without any one near it became agitated by the wind, "the dog growled fiercely and barked." The reflection which he draws may be thought to be profound. "He must (the dog), 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."*

We cannot pen these lines without a feeling of deep sadness that one so gifted, and whose mind is so stored with valuable knowledge, should have been driven to write such a sentence in support of what his own great sense can hardly fail to tell him is indescribable nonsense. "Strange indeed," says the great author already cited; "man, the proud animal, who wishes to attribute to himself every excellence of which he is cognizant, and who is willing to yield nothing to his equal, endeavours to discover that beasts are of as much worth, and that there is but little difference between them. But it has long ago been said—'Man when he was in honour did not understand, but compared himself to senseless beasts and became like unto them.'"

It is interesting to notice how far philosophers were a century ago from being ignorant of the points of resemblance between men and beasts, and how little there is new in the statements relative to their instincts which are now made. In the fifth chapter† of the work we have just cited we read—"The ignorance of man is so great that he is scarcely able to know how far he is above animals. He sees they have a body like

* P. 67.

† N. 1.

his own—the same organs and the same movements; he sees them in life and in death, in sickness and in health, very much as with men. They eat and drink, come and go, according to a plan and according to the needs of their body; avoid dangers, seek conveniences, attack and defend themselves as industriously as it is possible to imagine. They practise deceits, and even guard against the artifices of others, as daily does the sportsman to foil the exquisite subtleness of his game. . . . We instruct them, and they instruct one another. Birds learn to fly from seeing their mothers; parrots are taught to talk. . . . Animals seem to speak to one another. Fowls call their scattered little ones, and give notice to their companions, by a certain cry, of the grain they have found. A dog will press us when we give it nothing, and would be thought to reproach us for our forgetfulness. Animals scratch at a gate which is closed; they groan and cry so as to make known to us their wants. . . . These resemblances in the actions of beasts to the actions of men deceive men; they will have at any cost that animals reason, and all they will grant to human nature is to have, perhaps, a little more reasoning power." Cuvier thought that the orang could generalize. An anonymous writer, in a work published at Amsterdam in 1737, argues that a dog which has been beaten for devouring a partridge, and in future carries the game untouched to the sportsman, reasons from experience, and reasons very justly; and he adds—"This animal only wants a course in some University to enable him to put his argument into form and reduce it to a syllogism."*

It is now time for us to state in few words what we believe to be the explanation of the wonderful sagacity of many beasts, and we shall then show how completely all arguments of Mr. Darwin on this subject fall to the ground.

Those who have most deeply studied the phenomena of organic life, tell us that there are three great classes of operations which it is most important to distinguish from each other. These are the vegetative, the animal, and the rational, and they belong to three distinct characters of organized life, which may be styled by the same names—the vegetative, the animal, and the rational life. Though these three classes of operations are so distinct, they are intimately woven up together, and it is only by a careful analysis, and by studying the phenomena in those particular cases where we are able to

* *Essai Philosophique sur l'âme des Bêtes*, t. ii., p. 16.

eliminate the operations of one or more of the sources of action, that we can discover the true source to which each belongs. In plants, the vegetative alone appears ; in the brute creation, the animal is bound up with the vegetative life ; and in man we see reason in addition combined with and ennobling the other two. It must, however, here be noted that the vegetative processes in animals are not precisely similar to those in plants, but are such as are fitted to the nature of animals—more complex in their character, more perfect in their degree. The animal and the vegetative operations in man are not exactly those of animals, but are, again, more perfect, for if there is a vegetative and an animal life in man, it is life adapted to his higher destination, fitted to be the servant and the temple of his will. The distinction we have just given has been beautifully expressed as long ago as the sixth century by Boethius—“*Triples omnino animæ vis in viventis corporibus deprehenditur. Quarum una quidem vitam corporis subministrat ut nascendo crescat, alen- doque subsistat. Alia vero sentiendi judicium præbet. Tertia vi mentis et ratione subnixa est.*”*

The function of the first is to increase and support the bodily structure, and to give life to its like. A stone is increased by external aggregation of particles ; an organism is increased by interior assimilation, which takes place by a wonderful adaptation of parts, by which the juices and salts most suited to it are infallibly extracted from the soil, and the air is made to give that portion of its constituent which is most useful to it, to the exclusion of the rest—a constituent, it should be remembered, which, though in many ways otherwise useful to men, it is nevertheless both difficult and expensive for him to extract, whereas there is not a vile weed in the forest, not an alga by the sea-shore, but can and does unceasingly extract from the inexhaustible store ever open to it all that its nature desires ; if it has suffered injury its forces are at work to repair the evil, and the air, the water, and the earth are ready to afford their aid. When the season is fittest the fruit is developed as a protection to the seeds ; till the seeds are ready the fruit remains attached to the plant ; it then detaches itself ; the seeds are spread upon the ground, leaves protect them from the rigours of winter, the rain causes them to penetrate the soil, or the seeds themselves are furnished with a wing which bears them on the wind to a new soil, each in its own turn to be the parent of a

* *In Porphyry. Isagog.*, l. i.

numerous progeny. Here is a sample of vegetative life in its most obvious and ordinary form. There is an utter absence of anything that could be called reason or even sensation, but all things are done according to a plan, a design, exquisitely conceived and marvellously sustained, and infinitely subtle in its workings ; it is the design of the Creator.

In animals we have a vegetative life of a higher order. It is no longer a merely growing, reproducing organ which it sustains, but it is a sentient, moving being, receiving impulses from without, and acting proportionately to its higher nature in its own turn ; but the activity which supports this organism is still vegetation. The lungs of air-breathing animals, and the gills of fish, unerringly separate the oxygen from the surrounding medium ; the lacteals of the mesentery, with an accuracy which no chemist can imitate, sift out the nutritious elements from the mass which is presented to them ; the blood goes its ceaseless round, imparting strength and carrying away the waste material of the system, a true river of life, carrying in its bosom all that the life of the tissues can desire, and bearing away from its presence all that could be injurious to it : and so of countless other operations which never cease in us, the only difference in man being, that in him the operations are of a yet higher character, as the tissues which they nourish are informed by a rational soul ; the brains to which they administer are the organ through which the rational spiritual soul acts upon all things created. If, then, such activity belongs to the vegetative life, if such perfect design and adaptation and selection of what is best belongs to the mere vegetative order, which is irrational, senseless, and blind even to the light of day, or perception of existence—is it to be wondered at that animals which possess the higher life, which is as much above that which is merely vegetative as the organic is above the inorganic, should act upon a plan (not their own, indeed), but, nevertheless, a plan, admirably ordered, showing yet more wonderful phenomena of adjustment, of adaptation, of selection ? Is there to be no step between the life of a plant, perfect though it be in its kind, and the life of human reason ? We shall see how easily explicable are the phenomena presented by animals when their actions are analyzed by the light of philosophy.

The operations which belong properly to animal life are sensation and motion. By sensation (we speak now of external sensation) we mean the reception of an impression from an external object made on an organ especially adapted to receive

it, by which the soul is rendered cognizant of the presence and, in a greater or less degree, of the character of the object.

It is necessary, in the first place, to point out that there is nothing in this that requires reason. Nature has so ordained that what is good for animal life should produce a sensation of pleasure, and what is injurious, a sensation of pain. We feel this in ourselves without the slightest exercise of reason. The fact that a prick or a cut upon our flesh gives pain is so far independent of reason, that it precedes all exercise of that faculty. It is not by any exercise of reason that we desire food when we are hungry, and rest when we are weary, that what is adapted for food attracts us, and what is unfit excites no desire in us. An idiot and an infant feel the impulse of nature indicating to them, that something is injurious by the pain it inflicts, or conformable to their nature by the sensation of pleasure which they feel. Some persons have gone so far as to deny that animals are capable of pain. We do not believe that this theory can be adopted with probability. Every observation which we can make of them, and the analogy which we can draw from ourselves, leads to the belief that a feeling of proportion or disproportion with the necessities of their nature is conveyed by external objects. Their eyes and ears convey the presence of danger, or the contrary; their skin conveys the impression of heat or cold; and so of the rest. It is an impression sufficient to draw them to act in such a manner as is necessary to remove the evil, and to seize the good that is offered to them; and this appears to be connected with some feeling of pain or pleasure, the intensity of which, however, we are unable to judge.

The difference between these animal sensations in man and the lower animals is chiefly that the reason of man renders him capable of reflecting on them, of discerning their import, comparing the past with the present, and adverting with an act of self-consciousness to the sensation of which he is the subject. In man, therefore, though in themselves independent of reason, they nevertheless accompany it and themselves form an object on which his reason acts; whereas in beasts they are the necessary and blind consequence of certain external impressions which produce their results as if reason were there, and differ mainly in this, that there is no reason to make them the object of its own reflection and judgment. The cause of this is, that the organs are adapted in the most perfect manner by the Creator to convey to each creature a sensation of what is good or evil for it,

not good or evil in general, but what is now good or evil for its particular self. And this is no more wonderful than is that instinct, so to speak, by which the fibres of a plant will seek out what is good for it, and its leaves, if inclosed in a dark chamber, will follow any course to attain the light.

It is, however, the movements of animals that have caused so many who merely look at the surface, to attribute reason to them. We find them adapting themselves with a wonderful exactness to what is suitable to themselves ; but, after all, this is no more than what plants do, proportion being had to the higher nature and more complicated wants of animals. We know how many movements take place in us over which the reason has no control ; to say nothing of the respiration and digestion, which are so perfectly and constantly ordained to their end. We know to what degree fear and the actions which follow it precede reason. The positions of our body in walking, the stretching out of our hands in falling, and many other such movements, are the results, simply, of animal life acting from its own spontaneous energy, independently of all reflection. These are the result of an adaptation of an organism to the end for which it was intended. There is a marvellous design and wisdom in this adaptation, and it would show great arrogance in ourselves as well as great ignorance, if we refuse to allow that nature, or, rather He Who is the Author of it, could extend this adaptation of spontaneous unreflecting movement to the ends of animal life far beyond those actions of which we are conscious in ourselves ; but what we have already indicated is quite sufficient to account for the phenomena which at first so astonish us. These phenomena are the result of an interior and spontaneous, but unreflecting, tendency towards what is best suited to the two-fold vegetative and animal life with which beasts are endowed ; and if they sometimes appear to us too complex to be produced by this means, it is only because we have never reflected that animals have this alone to depend upon in all the infinite variety of circumstances in which they are placed ; and that, like this visible universe with all its elements and forces, like the plants that cover the earth, and clothe even the bottom of shallow seas, they all have within themselves the elements of their own conservation. They may be compared to one of those wonderful pieces of machinery which seem to move backwards and forwards at will, to hasten or slacken their speed, and, in fine, to follow all the varying conditions of the moment,

reflecting in every movement the mind of him who made them ; and we forget that there is One Artificer, Who can not only give movement, but life, to conduct His creatures through the various conditions in which they are placed, whilst every act, though itself devoid of reason, reflects the wisdom of Him Who placed all animals, plants, and inorganic things in such wonderful harmony to work out an end common to all.

Let us look at some of the phenomena which have given rise to the assertion so often made, that our reason differs only in degree from what answers to it in beasts. .

We are told of the industry with which some animals, such as beavers and bees and ants, pursue their labours. We see nothing here but instances of that adaptation of a nature to the end proposed to it of which we are speaking. It is no more than the industry of the infant at the breast ; it is the same law which has created the avidity for food, and may be compared, though of a higher order, to the constancy with which the magnet, so like a living thing, will find its true direction. We have seen that fear exists independently of reason. Joy and grief are produced by impressions from without us in the same manner, and are part of the economy ordained for the good of the individual. Animals are noticed having recourse to tricks, and even providing against snares laid to entrap them ; but this is not necessarily an effect of reason, but only a more complicated effect of that law by which their nature is drawn after what is suitable to it. It is a refinement of that discernment which we have already noticed in plants, for in all these cases there is always some external object which acts either upon the eyes, the ears, the smell, or the touch, which indicates that there is something not suitable to its nature, and irresistibly repels it. This is not more difficult to understand than the shrinking of the leaves of the sensitive plant, and the turning of the flowers to the sun which we see in so many plants.

We are told that animals show a memory, and that memory belongs to reason. But for the production of certain effects which resemble those of memory, nothing more is required than the permanence of certain impressions on the brain, or a disposition in the brain to have the impression renewed with facility. This is of the same character as the acquisition of a habit, and this, it is plain, is again independent of reason. A stick is bent more easily after repeated trials, because the fibres retain the impression, or a portion of it, which has been com-

municated to them. A spring will soon accommodate itself to the pressure put upon it. The stomach which at first rejected certain food, will at length accept it with contentment. It seems, therefore, very simple that an object which has once created deep and frequent impressions upon the brain of an animal, may after a considerable interval easily renew them; and this, on the principle we have stated, is quite sufficient to account for the joy shown by Mr. Darwin's dog and Sir Harry Smith's ape on seeing their masters after a long absence.

With us memory sometimes acts independently of reason. We often recite pieces by heart, without any reflection on what we are saying; and in sleep the part which memory plays is obvious to all. It is thus, too, we can understand how an animal may be said to learn. And in speaking of this, we must explain that it is one thing to learn—that is, to acquire real knowledge, which suppose the attainment of universals—and another thing to be bent or turned in a direction contrary to our first dispositions. The first requires reason, and we do not hesitate to say that it is beyond the power of brutes; the other is an effect of the repetition of the impressions, which at length are produced so easily that the animal seems to have acquired a second nature. A bear is taught to dance by blows and starvation, or by the equally cogent argument of sugar and coaxing, till the impression is so deep that the slightest indication of the will of the master, the raising of the hand, the notes of a barrel-organ, are enough to produce the impression which results in the act. It is the stick with difficulty bent at first, but which afterwards easily takes any form. These phenomena are familiar to us all in our own nature under the name of habits; and so far are we from identifying habits with acts of reason, that we are accustomed to entirely distinguish them as being independent of it. It is in the same way that we may explain the apparent recognition of the voice of man, and the obeying of his commands. A voice that has been long familiar has produced deep impressions which are quickly revived, and a sign with which a certain action has been compulsorily associated will at once reproduce the act; and thus we have all the phenomena of recognizing old friends, carrying and fetching, and obeying every beck of a master, which we so often see in dogs and other domesticated animals. It is not that the animal understands the word that is said; but the brain is prepared by repetition to receive the impression

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We are told that animals show a memory, and that memory belongs to reason. But for the production of certain effects which resemble those of memory, nothing more is required than the permanence of certain impressions on the brain, or a disposition in the brain to have the impression renewed with facility. This is of the same character as the acquisition of a habit, and this, it is plain, is again independent of reason. A stick is bent more easily after repeated trials, because the fibres retain the impression, or a portion of it, which has been com-

to say in the conclusion of the second volume, that he would rather be descended from this noble beast than from a savage, such as he has just described the poor Fuegians, though he does tell us of Jemmy Buttons, one of this most despised race, that he "was a universal favourite, but likewise passionate; the expression of his face at once showed his nice disposition. He was merry, and often laughed, and was remarkably sympathetic with any one in pain; when the water was rough, I was often a little sea-sick, and he used to come to me and say in a plaintive voice, 'Poor, poor fellow!'"*

After this account of Jemmy Buttons, we can only say we feel bound to question either Mr. Darwin's consistency or his taste. We leave our readers to judge which. We should say both. He seems to have forgotten that the young ape may have been the old one's cub, and there is nothing new in the instinct with which beasts will risk their lives to save their young.

We feel that our space is running short, and must not pursue these remarks. We have entered at some length into this question, because the authority with which Mr. Darwin speaks might lead the unwary to believe that he had presented new and unassailable facts, and that much light had been thrown on the difficult question of the souls of beasts. The exact contrary is the truth. He has added nothing of any consequence to our knowledge of the phenomena presented by the actions of beasts, though his volumes are full of interesting anecdotes concerning them. It is a question of principle, not of multiplication of facts, and we have no hesitation in saying that any reader who will follow him, and accept his explanations, will be much further from the truth than he was before he took up this pernicious book. Mr. Darwin totally ignores the distinction between merely animal and rational acts, and confounds the results of reflection and deliberation, which belong to reason, with that adaptation to an end which belongs to animal life; which, though the result of a divine wisdom and worthy of every admiration for its marvellous fitness to the infinite variations of life, is nevertheless in the subject nothing more than a blind and necessary, though sentient, impulse.

With regard to the other great characteristic of the human soul which is to be sought in vain in beasts, we mean that of freewill, it is not surprising that we find nothing but confusion in

* *Voyage round the World*, p. 207.

Mr. Darwin's pages, for he clearly denies it to man, and consequently gives up one of the essential points of difference between man and a brute. His doctrine that we always follow the strongest instinct that is in us at the time is an old error long since condemned, and amounts to nothing less than a denial of freewill, and of course, in consequence, of imputability and merit. Here we leave our readers, and ask them to judge whether Mr. Darwin has established, as he thinks he has, that even on intellectual grounds, there is "no fundamental difference between an ape and a man."

A. W.

Leaf Shadows.

WRITTEN IN ASSONANCE.*

THE meadow-grass was gold with buttercups,
And rich with feathered sheaths and clover buds,
Wind tost, great daffodils all dewy swung
Their golden frills; and in the wood, green tufts
Of folded fern stood packed like fairy lutes,
While wind-flowers shimmered in the shimmering sun.

All down the wood-walk then I wandered soft,
The mossy wood-walk that I knew of old;
Above my head the beech boughs trembling moved,
The beech bough shadows, trembling, moved below;
And as I watched them, years long vanished rose:
I roamed, a gladsome child at home once more.

'Twas here we met, full field, in laurel glade,
When diamond icelets hung from every spray;
'Twas here the oxlip and the primrose pale
First stole our senses with their perfume faint;
Here nightingales at midnight wooed their mates,
Here first I learnt June shadow leaves to watch,

Here with my father walked, while his brown eye
Grew bright, as I unravelled all his mind,
Putting out strength to meet him, as a squire
First bends his lance against a war-tried knight;
And when I touched his shield, his rare-won smile
Was guerdon richer than green crowns of pine.

* *Assonance*, as most of our readers will know, is the kind of rhyme adopted by Calderon and other Spanish poets. The rhyme is in the *vowel* only, not in the last syllable of the respective lines.