

ART. V.—DARWINISM AND THE ORIGIN OF REASON.

THIRTY years have now passed since the publication of the *Origin of Species*. If it were possible to regard any one work as creating a new order of knowledge, if knowledge, that is to say, were not by its very nature itself a product of evolution, we might assert that the appearance of that celebrated work created a new era in the history of science, the era dominated by the ideas of Mr. Darwin. For the generation which listened with incredulous ears, nay, even with distrust and suspicion, to the theory of evolution in the form in which it was then for the first time propounded, has given place to one which almost refuses a hearing to any other theory, wherever this one will explain some of the facts; a change of opinion so complete as to call to mind, as the only parallel, the passage from the Ptolemaic to the Copernican system. And just as that revolution in the science of astronomy gave birth to new ideas in other departments of thought, so Darwinism has opened up many fresh possibilities beyond the sphere of natural history; and the generation which has grown up under the influence of Mr. Darwin's theory has seen the effects of the famous change in the conception of organic nature spreading, not slowly, but by leaps and bounds, into almost the whole field of science; so that evolution has become as it were the very sap in many a fruitful branch of human knowledge.

As to the truth of that theory and the widespread appreciation of its truth, there is the eloquent fact that even outside the boundaries of natural science, Darwinism has left hardly

a single system of organised knowledge uninfluenced or unaffected by the power and range of its teaching: even the violent opposition offered on the score of religion to the main doctrine of the origin of species in natural selection has so entirely melted away, that theology now professes to find a powerful ally where she had formerly seen nothing but a dangerous foe, recognising in this idea of a gradual evolution through untold ages a conception still more appropriately worthy of a divine power than the separate activity of a multitude of special creations. Sociology and ethics have long been brought into familiar relations with the last results of natural science; and here too the evolutionary principle has come to be looked upon as the breath of life. A theory with such extensive ramifications, weighed and tested in so many varied spheres, might indeed be thought to possess no limits, to afford a sure and certain basis of explanation for any and every system of knowledge, to the nature of which it could possibly be applied. It might also with some show of reason be presumed that in an hypothesis so successful, so generally adopted and of so wide a range, no questions of serious importance could still remain unsolved, and that no disagreement as to the method of its working could be any longer entertained.

It would be going too far to assert this, or to say that the truth of the evolution-theory is universally accepted; still, most if not all of the leaders of scientific opinion embrace the theory in its general outlines as a demonstrated law of nature. But even at the present time, that is, even a whole generation after the theory has been promulgated, and in spite of the wide-reaching acceptance with which it has met, a very slight knowledge of the latest scientific writing reveals the existence of serious differences of view as to the precise means by which the progress of evolution is brought about. One or two of these find their exponent in Mr. A. R. Wallace, who may justly claim the honour of being a fellow-founder with Darwin of the general theory: he has consistently maintained, and was indeed for a long time quite alone in maintaining, that in the whole order of nature in the organic world, (with one most

important exception, to be afterwards noticed at length), natural selection, or the survival of the fittest, is almost the exclusive means in the process of evolution; and that certain other agencies, such as heredity, sexual selection, use and disuse, which Mr. Darwin regarded as playing a definite part in the process, exist indeed, but are strictly subordinate to the general law. A recital of Mr. Wallace's arguments, set forth with great lucidity and abundance of example, appears in his recently published work, to which, in magnanimous disregard of his own intimate connection with the theory, he gives the sole title of *Darwinism*, because he is convinced that to whatever degree his own views may differ from some of his colleague's, his whole work is nothing if not illustrative of the overwhelming importance of the theory of natural selection, a theory permanently associated with Mr. Darwin's name.* Again, Mr. G. J. Romanes has put forward a suggestion of his own in relation to the infertility or sterility characteristic of hybrids; and on this subject Mr. Darwin and Mr. Wallace are also committed to different opinions. The bare enumeration of these points will serve to indicate the nature and extent of those divergent views which, even within the limits to which the *Origin of Species* applied, still remain unreconciled among professed advocates of the theory of evolution; although within those limits it is a matter of general consent that the existence of various opinions does nothing to discredit the main hypothesis.

But in insisting on the agreement which prevails within those limits, it should be remembered what the limits are. In the *Origin of Species* Mr. Darwin did not attempt to apply his hypothesis to an explanation of any deeper problem than that which is presented by the structural differences in the world of plants and animals. To unravel the mysteries of man's mental and moral endowment formed no part of that problem.† Although at the time at which the *Origin of Species* was pub-

* *Darwinism*, by Alfred Russel Wallace, LL.D., F.L.S. London: Macmillan & Co. 1889.

† Cf. *Origin of Species*, 6th edition, chap. viii.

lished, Mr. Darwin expressly passed by the problem of the human faculty, he afterwards gave full expression to his well known views in the *Descent of Man*, a work not indeed so epoch-making as the *Origin of Species*, but perhaps in general estimation more important from the very human interest of the question at issue. The origin of the human mind, the source of all mankind's possessions in civilisation, in culture, in art and science, the seat of all appreciation of religious and moral truth—what problem could be more earnest, more engrossing, than this? And in view of the conditions of the inquiry—mind considering its own origin, and that origin, too, under circumstances of which no trace or record is left—what problem could appear, it might be asked, more insoluble? If, then, at the very outset the question seemed to admit of no answer, why, it might be further asked, should we hesitate to confess our ignorance, or to take refuge in one of those poetical myths which ascribe what is by human reason inexplicable to the agency of some unseen and unknown power?

Objections and considerations of this kind have little influence with the scientific temperament, and the triumphant progress of the principle of evolution has long ago reached and attacked this the last stronghold of its opponents. Even those who fully admit the truth and efficacy of evolution as applied to the genesis of the physical organism of man—the highest and most perfectly developed of all animals—and who, when mind is once given, find the explanation of its growth to rest once more upon a similar law of development, pause at the question of the origin of man's distinguishing faculty, and deny the adequacy of any process of evolution to explain the genesis of mind.

The problem has given rise to radical and uncompromising difference of opinion. Mr. Wallace, for example, in the eloquent conclusion to his recent work, remarks that the Darwinian theory 'shows us how man's body may have been developed from that of a lower animal form under the law of natural selection; but it also teaches us that we possess intellectual and moral faculties which could not have been so developed, but must have had another origin; and for this origin we can

only find an adequate cause in the unseen universe of Spirit.* This is the final conviction of an honest and independent investigator of scientific truth, and it is worth while to examine in brief the reasons which he gives for arriving at this opinion ; more particularly because the considerations brought to bear on the problem by Mr. Wallace are of a different nature from those which generally figure in the philosophic and scientific writing of the day.

The argument which underlies most of the reasoning of those who essay to prove that man's intellectual and moral faculties have been developed by modification from the lower animals, is at bottom an argument from analogy. If the physical organism of man has been admittedly developed from that of a lower animal by a process of natural selection alone, the argument from analogy boldly seeks to show that if the highest brutes and the lowest savages exhibit a continuity of intellectual development, this development must have proceeded *pari passu* with the physical evolution, and be occasioned by the same cause, that is to say, be also brought about exclusively by natural selection. This, as Mr. Wallace points out, is a very dangerous method of reasoning ; it assumes ' without proof or against independent evidence, that the later stages of an apparently continuous development are necessarily due to the same causes only as the earlier stages : ' and, as there is ample evidence to prove in the case of man's intellectual faculty, certain manifestations of it are of such a nature that they could not possibly have owed their origin to the method of natural selection. To take the mathematical, musical and artistic faculties as examples ; Mr. Wallace argues that none of them can have been produced by natural selection, for the simple reason that natural selection acts by life and death, and by the survival of the fittest out of a multitude of variations engaged in the struggle for existence ; a process of development which cannot be made to account for the sudden appearance of those faculties in individuals, an appearance sporadic in its character, subject to no law that is known to us,

* Wallace, loc. cit., p. 498.

and exhibiting peculiarities the very reverse of those which govern any process of evolution. At all events, of any of these faculties, so distinctly human in their nature, it is impossible, as Mr. Wallace asserts, 'to trace any connection between its possession and survival in the struggle for existence.'

And further, in those powers which mankind shares with other animals the amount of variation presented keeps within limits common to both; or, what is the same thing differently expressed, there is a similar level of development alike in brutes and men, in so far as their common endowments are concerned. But in the case of the distinctive faculties of man, it is only here and there that eminence is attained, and the difference of level between the few who attain it and the average man is such as far exceeds any conceivable limits of variation. The language of ordinary life testifies to this absence of all common measurement by calling the eminent person 'an inspired or heavenly genius;' and still no one seriously doubts that the faculty which is so wonderful in its productions differs in anything but degree from that which prevails amongst men in general. Faculties, therefore, which are apparently lawless in their appearance, and at the same time so far surpass the average as to be out of all proportion to it, must owe their origin to some source other than natural selection, and cannot be explained by its method. The greater eminence these faculties attain, the more distinctly human they are, the more they show their essential difference from those animal faculties, for the development of which natural selection offers a complete explanation.

Man's mental faculties, then, says Mr. Wallace, cannot have been derived exclusively from his animal progenitors. Some new influence must have supervened at the birth of *intellect*, just as a new force must have come into play at two other stages in the course of evolution, at the appearance of *vitality*, the change from inorganic to organic nature, and at the dawn of *consciousness*, when the organism became charged with sensation. 'Those who admit,' concludes Mr. Wallace, 'my interpretation of the evidence now adduced—strictly scientific

evidence in its appeal to facts which are clearly what ought *not* to be on the materialistic theory—will be able to accept the spiritual nature of man as not in any way inconsistent with the theory of evolution, but as dependent on those fundamental laws and causes which furnish the very materials for evolution to work with.’*

The hypothesis of a spiritual agency supervening at the dawn of mind—which Mr. Wallace calls *scientific* because no other so adequately explains the facts—is a resolution of the difficulty in its very nature unsatisfactory to the ardent student of nature. Such an hypothesis, it will be said at once, savours too much of the old theology, the theology which set itself up against Galileo, for instance; it is too dangerously of a piece with those dogmatic assurances of religion which have at all times been inimical to the spread of scientific truth. In other words, this sort of theory provides us with a mystical and not a real explanation; it is a statement of events more akin to legend than to sober history. Well, be it so. As an explanation, say its adherents, it is not on that account the less rational, so long as the alleged real explanation, which is after all also an hypothesis, can be shown to be insufficient to throw light upon the facts. Call it, if you will, a confession of ignorance, a provisional suspense of judgment; it is nevertheless the creed that must be held to, the hypothesis that must be accepted, until we are fortunate enough to be presented with a better. If the theory of a perfectly continuous evolution were more adequate than this, that is, if it explained more of the facts, we, who at present hesitate, would gladly embrace it as another step on the road from ignorance to knowledge.

This difference of opinion, this reluctance to acquiesce in evolution as applicable to the genesis of mind, is at present very far from disappearing. Let us consider in what the alternative consists, and how far, even in its latest phase, it is a valid hypothesis.

The theory which places the origin of the human faculty in an uninterrupted and homogenous development

* Wallace, loc. cit., p. 476.

from the lower animals ordinarily rests on arguments which have very little to do with the considerations adduced by Mr. Wallace. The advocates of this hypothesis even go farther, and object *in toto* to any such statement of the case. No fair comparison can be drawn, they would probably argue, between certain sporadic and exceptional manifestations of the human mind in a very high state of its development, and the faculties, whatever they may be, which are exhibited by our animal ancestors. The by-products of this extremely advanced state of mental evolution are not the data from which the argument should start; for the argument from continuity, they say, will have no meaning unless its illustrations are taken, not from the highest, but from the lowest state of the human faculty, where the continuity, if any, will have a chance of being observed.

Of course no one can object to the consideration of any argument at the point at which it has most force, or of the argument from continuity where it is most applicable, that is to say, as high up in the scale of animal intelligence and as low down in the scale of human intelligence as possible; but any success that argument may have at this point must be afterwards tested by applying the same argument to the later development; and we must not leave out of sight that the argument from continuity, even if found to be apparently sufficient to account for the transition from animal to human intelligence, will break down if it does not also account for the highest manifestations of the human faculty. If any hypothesis is framed which disregards or throws no light on these phenomena of a later stage, it is surely the outcome of a failure to understand the very conditions of the problem.

The latest phase of the question, and in some respects the most important and painstaking contribution to the theory of evolution of mind by a continuous process of development, is that presented in Mr. Romanes' recent work on *Mental Evolution in Man*,* a sequel to a previous work on *Mental Evolution*

* *Mental Evolution in Man: Origin of Human Faculty*, by George John Romanes, M.A., LL.D., F.R.S. Kegan Paul, Trench & Co. 1888.

in Animals. It is interesting to observe that this volume, though published hardly a year ago, has already become a bone of contention; for it is an indication of the fact that the controversy still prevailing on the theory of evolution is limited, at any rate in its more important aspects, to the question of the origin of mind. Mr. Romanes claims to present 'an exposition of the principles which have probably been concerned in the Origin of Human Faculty'; in other words, he attempts to trace every step in that continuous process by which the human intellect has been evolved. The considerations which, as we have seen, are regarded with so much importance by Mr. Wallace, are conspicuous by their absence from Mr. Romanes' book, where the conclusions drawn are affirmed to rest entirely upon psychology and philology; that is, on the knowledge we have, firstly of the nature of the mind itself, and secondly of the nature and history of language.

Now in this attempt a strong presumption is from the first made out, and perhaps rightly made out, in favour of the position to be proved; and though the question is afterwards to be tested carefully by the last results of the sciences of psychology and philology, the whole weight of an argument from analogy is thrown into the scale, as it were, before the inquiry commences. What more natural, asks Mr. Romanes, than to start with this presumption, when it is admitted that the process of organic and mental evolution has been continuous throughout the whole region of life and of mind, except, as his opponents say, in the mind of man? 'It is improbable,' says he, 'that an interruption should have taken place at the terminal phase.' In this way the burden of proof is from the first thrown upon his opponents. But let us dwell no longer on the dangerous ground of analogy than is necessary to remind Mr. Romanes that the terminal phase in the brute is the initial phase in man, and that the subsequent progress of mind is, as has been previously shown by Mr. Wallace's argument, obviously not governed by the law which applies to the physical organism of animals. Let us proceed at once to an examination of the question on its own merits;

let us examine the constitution of our minds and compare the results we obtain with what we can observe in brutes.

For it is with a difference of mental endowment that we have to do, a difference which Mr. Romanes recognises in common with every one who has given his attention to the matter. It is a difference which we need not go to philosophers to learn. The rough language of every day expresses a similar distinction by saying that the man thinks and reasons, and that the brute does not.

Now what do we mean when we use these words *thinking* and *reasoning*? and how far are we right, or indeed are we right at all, in asserting that no animal but man thinks or reasons? By thinking and reasoning we obviously do not mean every mental process whatever. Perceiving, dreaming, painful and pleasurable feelings, and the like, are all states of consciousness with their seat in the brain; and these are mental processes common alike to brutes and men. They involve a faculty of attending to the impressions of sense, of receiving individual experiences of external objects, in simple language, of being affected by the things about us. It is also a matter of common observation that many animals are possessed of a faculty which cannot be distinguished from memory, and that both in their case and in ours, when the object which affected the sense is no longer present, an impression or memory of it can still remain and be afterwards revived; though how this takes place, either in their case or in ours, is perhaps only one degree less inexplicable than the process by which external objects affect us at all. No one can object to the statement that these affections of sense are not so much thinking or reasoning as the materials on which thought and reason are exercised.

Inference is another mental process which many people assert to be within the power of the lower animals, and certainly no one can refuse the title of thinking or reasoning in some sense to certain mental acts, which naturalists tell us they have observed in animals, acts such as hesitation and the ultimate adoption of a conclusion which a man himself might have taken under the circumstances; in some respects, even,

it cannot be denied that in what is called 'practical inference,' many animals far surpass man.

Shall we say, then, that ordinary language is incorrect in making the difference between men and other animals to consist in the presence or absence of thinking or reasoning? Let us see if there is not a mental process which more appropriately than any we have been considering deserves to be called thought or reason, and which is to be found in man alone.

That it is the power of *abstraction* which marks man off from other animals is, as Mr. Romanes himself admits, a matter of common agreement amongst psychologists of every school; and he quotes an important passage from Locke as containing the clearest enunciation of this truth. 'The having of general ideas,' says Locke, 'is that which puts a perfect distinction betwixt man and brutes,' and speaking further on of brutes, he adds, 'it seems evident to me that they do some of them in certain instances reason, as that they have sense; but it is only in particular ideas, just as they received them from their senses. They are the best of them tied up within those narrow bounds, and have not (as I think) the faculty to enlarge them by any kind of abstraction.'

Now what does the power of abstraction do for us? and if it is that which distinguishes us from brutes, in what manner does it manifest itself? In other words, how are those general ideas of which Locke speaks formed, and what is their use?

We know, of course, that the affections of sense, our individual particular experiences are able to leave an impression on our minds, and that, when a number of individual experiences occur, causing our senses to be affected in the same or a similar way, this power of abstraction enables us to combine in one general idea all that is common to these individual experiences. The method of this power of abstraction is one of the mysteries of our existence; we do not know in what way it works; whether, for instance, we form our general idea by our strength in separating off that which occurs repeatedly in the course of our experience, or by

our weakness in being able to take little or no account of that which is only occasionally present. It is this power of abstraction which gives us our mental superiority. By its agency we are raised out of the sphere of our sensuous experiences into the realm of thought; or, in Platonic language, we become free from the bonds of sense and attain to the contemplation of ideas.

Let us see exactly what it is we do in this process of arriving at general ideas, and how this wonderful power manifests itself. Let me have presented to me several particular experiences, each able to affect my sense of sight in a similar manner, let us say, by appearing *red*. I see, for instance, the red cloth on the table at which I write, the red geranium at the window, and the red sunset in the sky beyond. I take whatever is common to these sensuous experiences or impressions, the glow from the sky, the colour from the flower, the particular shade in which the cloth has been dyed, and I consider this common feature by itself. By this means I have given *red* an ideal existence, that is to say, I have separated it from the objects of which it seemed to be a part. This I can do in one way only,—by giving it a *name*. This quality of appearing red, I can separate off by and in language alone. Red apart from a red object has no existence except for my mind; and there it can exist only when fixed and determined by a name. In plain words, this faculty of abstraction exists only, and can exist only, in and by its manifestation, that is, in language.

Abstraction, then, consists in this process, this activity of our minds, by which we pass from a particular experience, a percept, to a general idea or concept. Starting from an experience common to us and to the brutes, we pass into a mental sphere whither no other animal can follow us; and until a brute can use language, what is not only necessary for the formation of general ideas, but which, used in its true sense, always implies their presence, we shall deny that brutes can think or reason. These general ideas once attained, the progress of thought acts by bringing them into relation one with another; and by this simple process of combining and

separating the whole of our intellectual wealth has been accumulated.

Between particular ideas or percepts and general ideas or concepts there is thus a wide gap, a gap which can be bridged over only by that inexplicable power the mind has of binding together the impressions of sense, a power which we express, even if we do not know it, every time we use the word *intellect*. For intellect is nothing more than *inter-lect*, that is interlacing or combining.

The whole gist of Mr. Romanes' argument rests on the interposition, midway between the percept and the concept, of another process, a kind of stepping-stone by which we can rise from the one to the other; and by throwing light on this intermediate stage, he claims to make it easy for us to see how, in the evolution of mind, we pass from the domain of sense to the realm of general ideas.

Now it is obvious that, if, as Mr. Romanes wishes to make out, there is a continuous evolution from a percept to a concept, an evolution which explains the descent of human intelligence by modification from the psychical phenomena of lower animals, it does not help us much to make the argument start by asserting the existence of the very link which has to be proved. And Mr. Romanes' method is to assert the existence of that link, to call it a *recept*, as distinguished from a percept and a concept,—a *recept* because it is what is *imparted* to us by *the logic of events*. This link once posited, we see it applied with a thorough-going belief in its efficacy to explain the appearance of all those psychical phenomena for which we have hitherto in vain sought to account by any process of development. That is to say, it is made to bridge over the gap not only between percept and concept, but also between indication and predication, and between consciousness and self-consciousness. The germ of a conceptual name, according to this argument, is to be found in a 'receptual' name; the beginnings of predication in 'receptual' predication; the origin of self-consciousness in 'receptual' self-consciousness.

Mr. Romanes introduces us, in fact, to the *recept* as an

intermediary between our old but often divided friends, the percept and the concept. But on seeing a little more of this intermediary, we discover that, though bearing a new and strange name, it is in reality also an old acquaintance. It is that confused mental image, of which Mr. Galton gave an ingenious illustration or metaphor in his 'blended photograph' where by subjecting a sensitive plate to several faces more or less resembling one another he obtained a composite picture intensifying the similar features of all, while the points of difference presented a blurred or undefined appearance.

It is by a similar process, argues Mr. Romanes, that abstraction works before it reaches the stage at which a concept is formed, that is, so long as it is only a receipt. This receipt, in other words, comes into being very much after the manner of the composite picture; the receiptual image is *imparted* to the mind just as the common impression resulting from several faces is imparted to the sensitive plate. It is, of course, only by a very rough and incorrect use of language that this intermediate idea can be described as an image of a *passive* kind, which can be imparted, in opposition to the concept, or the image in the case of which the mind is *active*; for in no class of ideas can the mind be said to be passive, and least of all can it be said to be passive when it attempts to rise above the domain of direct sensuous experience, a process which by the hypothesis must take place in the formation of receipts. A receipt does not rise above sensuous experience, unless it is in the nature of an abstraction; and unless in this process the mind be active, it is an 'abstraction' in which nothing is abstracted.*

* It is by a somewhat parallel argument that M. Binet, in a most ingenious little essay, *La Psychologie du Raisonnement* (Felix Alcan, Paris, 1886), attempts to bridge over the gap between perception and judgment. All acts of judgment are by M. Binet's explanation reduced to the level of perceptions, and exhibit an analogous method, *i.e.*, they are both fusions of images, in the case of perceptions, of sensations; in the case of judgments, of percepts. Mr. Romanes claims that this fusion of sensations expresses what he means by a receiptual image, and that the fusion of perceptions gives rise to what are ordinarily understood as concepts. M. Binet, however, admits that this explanation, which refers both receiptual

Among the distinctions which Mr. Romanes traces between receipts and concepts, the one which is the most important and also the most fatal to his argument arises when he attempts to distinguish between the faculty of abstraction where it is not dependent on language (as he asserts to be the case with receipts), and where it is so dependent (as in concepts); or, as he puts it, between the act of compounding the idea, and the further and distinct act of giving it a name. Mr. Romanes is surprised that this large and important territory of ideation lying between the other two (the memory of a particular percept and the formation of a concept), is, so to speak, 'unnamed ground': so he coins the word receipt to express this intermediate mental process, which he says differs from a concept only by not being joined with a name. This receiptual image, which is afterwards significantly styled pre-conceptual, is then made to perform its duty whenever any gap has to be bridged over between man and brute.

But it seems that this intermediate process, this 'unnamed ground' has, in reality, no independent existence. For the receipt is either an image attached to particular sensuous experiences, that is to say, is itself one of those particular sensuous experiences and never rises above them, being at most a memory; or else it is an abstraction from sensuous experience, an abstraction which can take place only by and in the giving of a name. As Mr. Romanes himself quotes from M. Taine, 'the formation of our abstract ideas is nothing but a formation of names.' If, then, the receipt has a name, it is a concept; if it has no name, it is no more than a percept, a sensation. *Tertium non datur.*

If anyone wishes to test the truth of this remark, let him try to think of any quality at all, or of any idea, apart from the object which presents it, without at the same time naming it. It will be seen that such a quality, such an idea, can have no independent existence for our thought, except in so far as we

and conceptual images to an excitation of the same sensory centre is only 'a transposition into physiological terms' of a psychological process which is itself inexplicable (p. 117).

name it. The Greek language embodies this truth when it uses the one word *logos* to express both the power by which we combine and separate the presentations of sense, and the sign which we use for the result of that process; that is, when it makes words the outward signs of the binding force of the mind.

Mr. Romanes sometimes writes as if a receipt and a concept answered to two different degrees of abstraction. There is no such thing as a degree of abstraction, for there is no such thing as a degree of naming; there are only the degrees of connotation and denotation of the name which stands for the abstract idea, degrees which, as the text books tell us, vary inversely. And when Mr. Romanes goes so far as to give the name of *generic idea* to his receipt, reserving for the concept the ordinary word *general*, it may well be doubted whether in this 'verbal as well as substantial analogy' he is not introducing the elements of psychological confusion. For he describes a receipt as 'generated as it were spontaneously or automatically by the principles of mere perceptual association.' Generated out of what? Out of percepts. But the only way in which we can rise above percepts, or generate anything out of them, is to give names; and to give names, in this sense, is, as we have seen, to form concepts. So that, when he talks of a 'receptual name,' he is only trying to evade the difficulty by putting it further back; for a receptual name (in the sense in which he uses the word) is nothing but a concept; a concept it may be, of very inadequate connotation, that takes note only of salient external resemblances, but still a concept.

There is, however, a sense in which the use of the word 'recept' may be justified, but it is a sense foreign to the purpose for which Mr. Romanes in general employs it, though in one passage (pp. 65-6) he appears to come within measurable distance of this sense of the word. He has ventured, as we have seen, to describe the mind as being in a passive state in the case of a receipt, and if he had made this passive state an antecedent instead of a consequent of the perceptual stage, he would have been nearer the true psychology of the matter. For it is only in regard to *sensations* that the mind can, with

any approximation to truth, be described as in a passive state; and even then it cannot be entirely passive. The true order of mental process is *recept*, *percept*, *concept*, as may be seen clearly by taking as an illustration the condition of the mind in which it most nearly approaches a passive state. When the eyes of a new-born baby first open upon the world, it is extremely probable that the earliest impression it receives, its first *recept*, is a confused blur, which differentiates gradually into light and shade. Light and shade are thus its two first *percepts*, though to subsequent experience they in their turn become *recepts*, which again differentiate into further *percepts*, into distinction of the various objects about it. And when an object is presented which the child has never seen before, but externally resembling some former experience, it receives a similar sensation, and extends to it the name given to its former experience. In other words, it takes note of external resemblances only, just as an adult does in the presence of an unfamiliar object. How often one hears it said: 'I don't know what that can be; it looks like such and such a thing.' The sovereign and the bright farthing have, for the mind that takes note of external resemblances only, the same value; if that value is named, it is something that *glitters*, a very low order of concept, but still a concept. As Dr. Ward* puts it, 'thinking starts with such mere potential generality as is secured by the association of a generic image with a name; so far the material of thought is always general.'

One's whole life is thus a long process of differentiation, of separating, of analysing, *recepts* into *percepts*. By sifting the impressions of sense and recombining their results ideally, that is, by means of language, we pass to concepts; so that the progress of knowledge, from a psychological standpoint, is but one more illustration of that well-worn phrase, *thesis*, *analysis*, *synthesis*. Only to those animals who are possessed of language is a synthesis possible.

Of course it is clear that if we are to understand by this word *language* the sign-making faculty in general, we shall

**Encyclopædia Britannica*. Ninth Edition, s. v. Psychology.

have to allow that other animals besides man are possessed of language. But if by language we mean *logos*, speech, the power of making signs as the marks of abstract ideas—and this is the true use of language—we mean a faculty to which no animal but man has ever yet attained.

Now it is an attribute of a conceptual name that it can constantly increase its connotation, and Mr. Romanes considers that what he calls 'receptual names' can also undergo a similar extension of meaning. As has been pointed out, a 'receptual name' is nothing and can be nothing but a concept; but let us nevertheless consider Mr. Romanes' example. 'A talking bird,' he says, 'will extend its denotative name,' (*i.e.*, a name of the receptual kind), 'from one dog in particular to any other dog which it may happen to see;' and he argues that if a parrot's intelligence were greater than it is, it would extend the same receptual name to images and pictures of dogs. It is well known that a parrot can be taught to say 'bow-bow' when it sees a particular dog, or can perhaps imitate the dog's bark without any teaching; and if a parrot says 'bow-bow' to a different dog, that is sufficiently explained by the memory of the former dog being revived, and with it the sound with which it was associated. No one can pretend that in this extension of name the parrot approaches a conceptual use of it, or rises at all beyond the limits of revived sensuous experience.

It should never be forgotten, and there is no harm in repeating the fact in any discussion of this nature, that in talking of the mind of animals we are led purely by analogy; that our illustrations are taken chiefly from domesticated pets, probably of a kind which has long lived in the company of man, and that in looking into their faces we are very apt to read our own thoughts.

When Mr. Romanes passes to the case of a very young child, and when he finds that it presents mental phenomena similar to those which he observes in dogs and parrots at an age at which it can exhibit no power of conceptual thought, he proceeds to argue that because the child afterwards attains this power, therefore this power differs only in degree from faculties possessed by the lower animals;—a method of argument of

which it need only be said, in the words already quoted from Mr. Wallace, that it takes for granted that 'the later stages of an apparently continuous development are necessarily due to the same causes only as the earlier stages.'

In dealing with the evidence which the science of language constitutes in support of the evolutionist position, Mr. Romanes again uses an argument from analogy, and strongly and rightly insists upon the probability that as the *growth* of language is everywhere subject to a gradual development, so also it must owe its *origin* to some process of evolution; or, in Geiger's words, 'language diminishes the further we go back in such a way that we cannot forbear concluding it must once have had no existence at all.' And Mr. Romanes is careful to illustrate this law of development, as far as concerns the growth of language, by a useful summary of the various views held on the subject by several well-known philologists. But he goes on to assert that, as the result of his arguments, 'we have a proved continuity of development between all stages of the sign-making faculty;' and that therefore there is no distinction of kind between the sign made by an animal and the fully developed language of man. Here again what distinction there may appear to be is bridged over by the untenable hypothesis of a 'receptual sign,' as something distinct from a conceptual name.

For in asserting that the kind of classification with which receipts are concerned is that which lies nearest to 'the automatic groupings of sensuous perception,' and that those roots of language which have been discovered by the researches of philologists, present the names for actions and processes immediately apparent to the senses, Mr. Romanes is only expressing in a roundabout way a fact which nobody doubts, the fact, namely, that the first concepts, or, as he likes to call them, the first named receipts, are of a very low order of connotation. If the science of language has proved anything, it has proved *ad nauseam* the *growth* of concepts, the gradual extension of their meaning, and that accordingly there must have been a time at which concepts conceived or connoted only those features which could be easily seen and recognised.

Mr. Romanes admits that in discussing the origin of language, in the true sense of the term, it is important to observe that the protoplasm, so to speak, is not the *word* but the *sentence*; that is to say, that language begins in predication, in a sign conveying a conceptual meaning. This sentence-word, once formed, can be and is afterwards modified by tone, gesture, demonstrative and pronominal affixes, which again differentiate into what we call 'parts of speech.' Now, it is a remarkable fact that this sentence-word, which is the simplest element of thought, the last residuum in the philological crucible, turns out to be a concept. Mr. Romanes attempts to explain away the significance of this fact by asserting that these radical concepts are ultimate only in the sense of being primeval: for, as he says, only those words which had some degree of connotative extension would have had any chance of surviving at all. To this it may be answered that no onomatopoetic theory is sufficient to explain the origin of other than perceptual signs. It is as futile to assert that these can develop of themselves into concepts as it is to plant nails and expect them to grow.

The question, then, of the origin of the human faculty is thus brought back to the origin of concepts. It is indeed no explanation of their origin to assert, in opposition to the evolutionist theory, that they arise in that binding power of the mind, the outward manifestation of which is language; or that concepts are the fruit of the logos, and that the logos is a conceptual faculty; for this is either mere tautology or an argument in a circle.

There is, however, a theory as to the nature and origin of concepts which has claimed some general attention in the last two or three years, chiefly perhaps from the fact that Professor Max Müller has made himself the champion of it. It is the theory put forward by Professor Ludwig Noiré—whose recent death is a great loss to all genuine philosophical study—and systematically propounded in his *Logos: Origin and Nature of Concepts*, published in 1885.* In Professor Max Müller's *Science*

*The general argument of this work soon afterwards formed a subject of

of Thought, Noiré's theory is eloquently defended as the only explanation of the origin of language at all adequate to explain the facts; and since this distinguished writer stands out for the identity, or, at any rate, the inseparableness of language and thought, it certainly looks as if he would regard this theory as throwing as much light as can be thrown upon the true origin of thought, and as so far solving the question of the origin of the human faculty. And in his most recent work, the Gifford Lectures on *Natural Religion*,* he brings the same subject up again in the evident assurance that this theory alone comes near the truth of the matter. Still, an expectant reader, a reader, let us say, who is on the look out for any traces of the true evolution of mind, cannot help detecting here and there, if not a little uncertainty, at least some reluctance to pronounce clearly that here we have the missing link in the development of distinctively human intelligence. It is true that Professor Max Müller speaks of the theory of Noiré's as accounting for 'the first germ of conceptual thought,' as explaining 'the natural genesis of concepts': but he adds that the theory is 'the only one which approaches or touches the hem of the problem that has to be solved, namely, how concepts arose, and how concepts were expressed.' (p. 374). And in another passage he makes use of language which can hardly be called positive. 'No doubt,' says he, 'it is a suggestion and no more, for who would dare to speak with positive certainty on matters so distant from us in time, and still more distant from us in thought? All we can say is that such a suggestion would fulfil three essential conditions; it would explain the simultaneous origin of concepts and roots; it would account for their intelligibility among fellow workers; and it would explain what has to be explained, viz., conceptual, not perceptual language; language such as it is, not language such as it might have been. If any one has anything better to suggest, let him do so; if not, *his utere mecum.*' (p. 211).

a detailed notice in this Review. Vide *Prof. Noiré on the Origin of Reason*, by T. B. Saunders, *Scottish Review*, April, 1887.

* *Natural Religion*. The Gifford Lectures delivered before the University of Glasgow in 1888. Longmans, 1839.

Let us bear in mind how this theory approached the question which it set before itself to solve. Noiré started by recognising the broad result of philological analysis, namely, that the simplest elements of language are conceptual signs. Now these conceptual signs cannot have come into existence at all except in direct connection with some particular acts or objects, for the simple reason that all our knowledge, though not entirely derivable from sensuous experience, is ultimately concerned with it. What particular acts or objects, then, would be most likely, by their very nature, to supply the conditions for the rise of concepts, and at one and the same time to call forth the sign which is not only their manifestation but their very essence? Those, said Noiré, which involve common creative labour, acts in which several would join at once for the purpose of doing something together, acts such as digging, striking, weaving, in which the product of common labour would be seen growing under the very labour itself, and would be intuitively recognised as the result of common action. No acts would be so likely as these, concluded Noiré, to render inevitable what is the essence of conceptual thought, a consciousness of the manifold as one; and since it is characteristic of men engaged in a common work to relieve their feelings and stimulate their efforts by the utterance of cries, these cries would tend to become associated with the labour and with the product of it. Cries like these would have a predicative meaning, that is to say, they would bind together the activity itself and the result of the activity; and as at the beginning no distinction would have been made between the subject and the object of the work, the cry would be the simplest element of thought, a sentence-word, a conceptual sign.

And Noiré went even further than this, asserting that a sentence-word thus formed would arise under ideal and universal conditions. By this he meant that the whole process and every part of it would be an act of *will*, issuing in particular sensuous experiences, some temporal, some spatial, some causal. The cry, for instance, is a particular sensuous experience, audible and temporal in its nature; the object

produced is another particular sensuous experience, existing in space and visible; the activity is intuitively recognised as something causal; and all three are acts of will, and acts of will undertaken in common with others and followed by a common result. The manifold of all these sensuous experiences or presentations is brought together, by an ideal intuition, under one unifying sign, the cry which accompanies the work; a cry uttered by all, understood by all, the repetition of which would mean that the whole process is reproducible at will. Here then, said Noiré, is the origin of a true linguistic sign, a manifestation of the logos.

Now, as was briefly pointed out in the detailed explanation of this theory,* there are two assumptions on which it rests. It is quite true that no theory can afford to dispense with assumptions; but it is also true that no theory is worth anything which presupposes the existence of that of which it seeks to show the origin. Noire's two assumptions are these: the existence of the social instinct, and the presence of what he calls 'ideal intuition.' What is the bearing of these assumptions on the theory itself? a theory, let us remember, which professes to explain the origin of concepts, or, at any rate, the conditions under which they can arise.

To examine one of these assumptions only, it will be obvious at once that *an ideal intuition* is the very process which has to be explained, and that to assume it as part of the agency which gives rise to concepts is to argue in a circle. What is an ideal intuition, coming into play in the origin of concepts, if it is not that binding and separating force of the mind which penetrates through sensuous experience to underlying unity? This binding and separating force is a mental process, let us admit, which only manifests itself in the concept, and then only in and through a sign; but it is logically prior to the concept. In Noiré's explanation its existence is confessedly assumed; and so we are forced to the conclusion that the theory offers no real explanation of the rise of conceptual thought.

* *Scottish Review*, loc. cit., p. 374.

Now Professor Max Müller, the advocate of this theory, is very frank in his avowal of sympathy with the historical as opposed to the theoretical treatment of these questions,* and consequently when he applies the Historical Method to an inquiry into the origin of concepts, he is evidently justified in asserting that in such and such conditions may probably be found their origin. By 'origin,' however, he must here mean 'first manifestation,' origin in the historical sense; he cannot mean origin in the theoretical sense, that which was not a concept, but out of which concepts developed. We may, it is true, speak of a spring as the *fons et origo* of a river; but we must go behind the spring to find out the real source from which the river flows.

It is, doubtful, indeed, whether any real explanation of conceptual thought, any explanation, that is, which does not involve an argument in a circle, can ever be possible; and of this doubt Noiré's attempt is a striking confirmation. Into the terms of any theoretical definition some such word as *intuition* is sure to be introduced; or, in other words, an explanation of the processes of the mind will ultimately rest on something without which thought is impossible, some condition precedent to all experience,—which is just the very characteristic of the mind which is all-important, and which cannot be explained.

The first dawn of conceptual thought, the first germ of the logos, these and similar expressions can be taken, as far as Noiré's theory is concerned, only in the sense that this is the furthest we can get back in the inquiry. What has to be explained, what Mr. Romanes and others maintain that they do explain, is not so much the dawn of conceptual thought, as the light which makes the dawn, conceptual thought, the act of ideal intuition, itself; how this could have been developed, and was developed, out of something below it in the hierarchy of psychological phenomena. If Noiré's theory is put forward as a solution of that problem, as an explanation of that difficulty, it is a solution which itself requires to be solved. Perhaps no solution is possible. But in acknowledging that the difficulty

* *Natural Religion*, p. 212.

still remains, in spite of all that has been written on the matter, it would be untrue to go further and maintain that nothing has been done towards removing it; for even a clear statement of the difficulty is a step in advance. So much, at any rate, has been already achieved. Zoology has taught us how small is the structural difference between man and his alleged simian ancestors, and psychologists have made clear in what his mental superiority consists. We know where we are, and what it is exactly which has not yet been explained.

T. B. SAUNDERS.
