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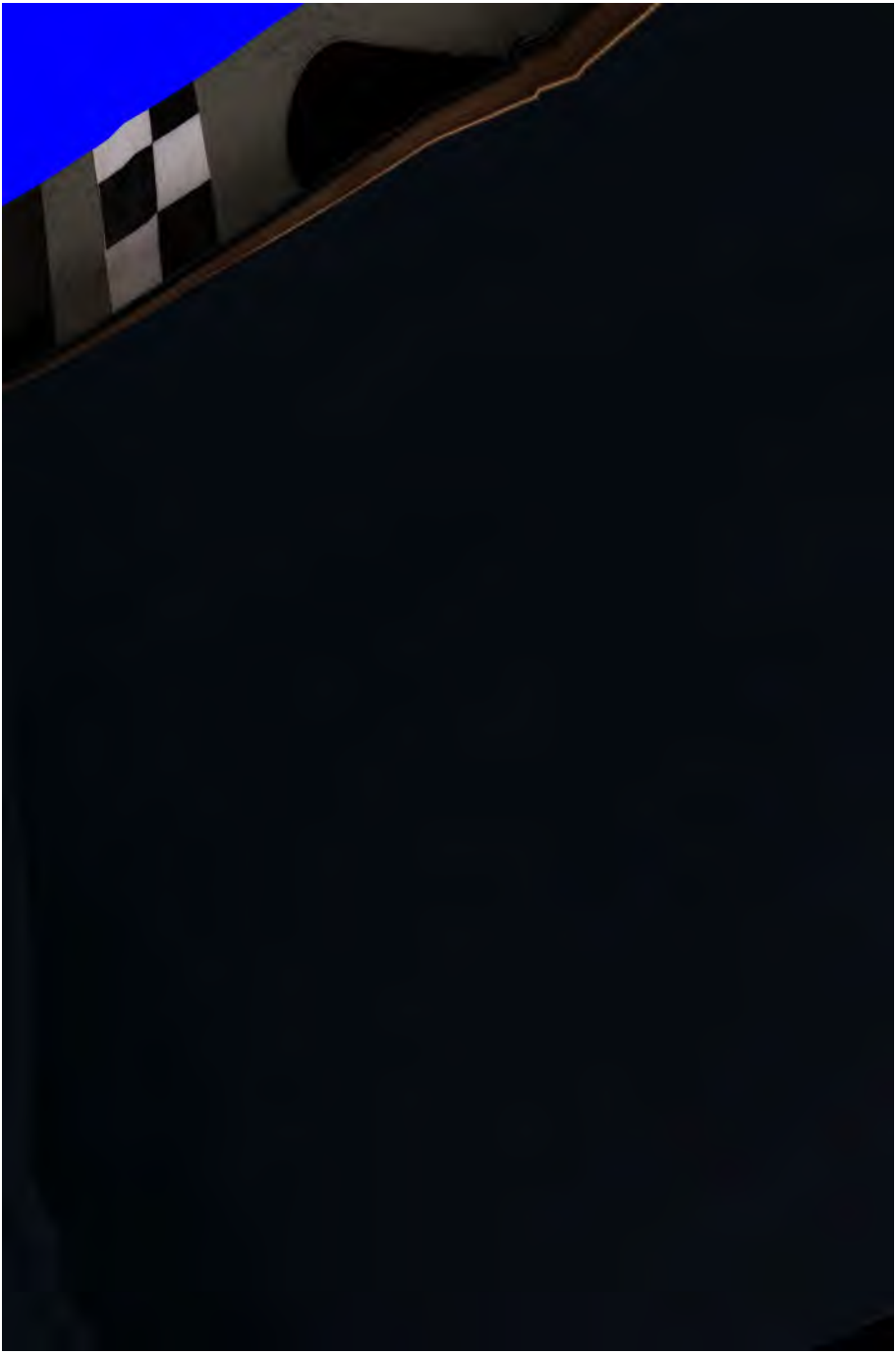
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SPIRITUAL
EVOLUTION


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AN ESSAY

ON

SPIRITUAL EVOLUTION.

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AN ESSAY

ON

SPIRITUAL EVOLUTION

CONSIDERED IN ITS BEARING UPON

MODERN SPIRITUALISM, SCIENCE, AND RELIGION.

By J. P. B.

NOV 1879
BODLEIAN

Life is the elaboration of Soul through the varied transformations of Matter.

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1879.

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265. k. 194.

ON SPIRITUAL EVOLUTION.

"If our speculative philosophers, instead of occupying themselves with castles in the air, were to give their thoughts for some years to the facts represented on Plates XII. and XIII. as well as to those on Plates II. and III., they would gain a foundation for true philosophy—for the knowledge of the universe firmly based on experience—which would be sure to influence all regions of thought. These facts of ontogenesis are the indestructible foundations upon which the monistic philosophy of future times will erect its imperishable system."

—*Hœckel's History of Creation*, vol. ii. p. 396. Compare with Miss Blackwell's Prize Essay.

"The problem of our age is, how to change this conflict (of Science, Philosophy, and Religion) into a concourse, to unite the independent and dissident efforts in dependent and harmonious efforts. This problem may be solved by the transformation of Science into Philosophy, and by the extension of Philosophy into Religion. But whether we reject or accept that solution, the systematisation of our religious conceptions and all its practical applications will be a distinct office from the systematisation of our conceptions of the order of phenomena; and the harmony of the two can only be effected by a Doctrine which combines the generalities of both. The future of Philosophy is in this task of reconciliation."

—*G. H. Lewes' History of Philosophy*, vol. i. p. xxi.

"It is I repeat, a duty, not to keep back an important truth at any period; for though there may be little hope of its being immediately acknowledged, it may tend to prepare the minds of others, and in due time, doubtless, produce a better and more impartial judgment, and a consequent triumph of truth."

—*Silvio Pellico, My Imprisonments*, translation by Th. Roscoe, p. 48.

"We may well suppose that there are in the universe Beings of a superior intelligence, and possessed of a greater range of observation, who, if I may be allowed to use such an expression, are sufficiently behind the scenes to be able to contemplate all the immense variety of material phenomena as the result of one great general law impressed on all matter, and to which the whole universe is subjected."

—*Sir B. Brodie's Psychological Inquiries*, vol. ii. p. 6.

"Wonderful as has been the spread of Modern Spiritualism during the thirty years of its existence, why is it that it has never exerted, among the cultivated and scientific classes, the influence to which it is entitled?"

—*Editorial in Religio-Philosophical Journal*, of October 5th, 1878.

IT is noticeable on the one hand, that English Spiritualism furnishes more of facts than of philosophy; and on the other, that French Spiritualism furnishes more of philosophy than of facts. It is likewise noticeable, that the philosophy would fall into neglect were there no facts whatever on which to ground it, and that the facts would fall into neglect were there no philosophy whatever to explain them.

The Baconian method.

Herbert Spencer says, [1] "In the growth of each science, not only is correct observation needful for the formation of true theory; but true theory is needful as a preliminary to correct observation. Of

[1] Essays, vol. i. p. 303.

course we do not intend this assertion to be taken literally; but as a strong expression of the fact that the two must advance hand in hand." He says further,[1] "If we waited till all the facts were accumulated before trying to formulate them, the vast unorganised mass would be unmanageable."

Buckle was so far of this opinion that he says in his remarkable work,[2] . . . "no really fruitful experiment ever can be made unless it is preceded by a judicious hypothesis. In the absence of such an hypothesis, men may grope in the dark for centuries, accumulating facts without obtaining knowledge." And further,[3] "The inductive tendencies of the English mind, and the almost superstitious reverence with which we cling to them, have been noticed with regret by a few, and a very few, of our ablest men; particularly Coleridge and Mr. John Mill."

And Lecky,[4] referring to the same subject, adds, "That this feature of the Baconian philosophy is at present exercising a decidedly prejudicial influence on the English intellect, by producing an excessive distaste for the higher generalisations, and for all speculations that do not lead directly to practical results, has been maintained by many Continental

[1] Essays, vol. i. p. 325.
[2] History of Civilisation in England, vol. i. p. 249, note 18.
[3] Ibid., p. 245.
[4] History of Rationalism in Europe, vol. i. p. 405.

writers, and by at least three of the most eminent English ones."[1]

Lord Lytton was of a like opinion. With reference to Mr. Mill's work, the "Analysis of the Phenomena of the Human Mind," he says,[2] "Nothing more clearly proves what I have before asserted, viz., our indifference to the higher kind of philosophical investigation, than the fact, that no full account—no *criticism* of this work has appeared in either of our principal Reviews."[3]

Attention may be appositely called here to the fact which has been pointed out by Mr. Herbert Spencer,[4] that "Reasoning without adequate data having led to nothing, inquirers went into the opposite extreme, and confining themselves wholly to collecting data, relinquished reasoning. The Geological Society of London was formed with the express object of accumulating evidence; for many years hypotheses were forbidden at its meetings; and only of late have attempts to organise the mass of observations into consistent theory been tolerated." And if the reader will turn to the Journal of the Statistical Society for September 1875,[5] he will there find the appeals

[1] Coleridge, Buckle, and Mill.

[2] England and the English, Appendix C, p. 376.

[3] Other quotations could be given to strengthen this view from Hæckel, Maudsley, &c., and more especially from Theodore Parker's Lecture on "Transcendentalism—Human Nature," January 1877; but those given will probably be found sufficient for the general argument of the present essay.

[4] Essays, vol. i. p. 300.

[5] Proceedings of the Forty-first Anniversary Meeting, p. 320 *et seq.*

of three members of the Society in favour of a co-ordination and interpretation of the vast mass of facts collected by that Society.

Establishing as these quotations do, the strong tendency existing in the Anglo-Saxon mind, to the accumulation of facts irrespective of the direct meaning of them, it was not to be expected that the aspect of phenomenal Spiritualism should be other than what it is. Both in England and America the aspect of Spiritualism is little more than inchoate: notwithstanding the abundance of the facts which during thirty years have been convincing thousands of the existence of other-world intelligences, and other modes of force than those we have daily experience of; for no compact and synthetical body of knowledge has resulted therefrom, or has been even attempted. The only philosophical explanation of the facts, which, it may be remarked, truncated and incomplete as it is, has been indispensable to foster an interest in the phenomena of Modern Spiritualism—for without it Spiritualism could scarcely have been pursued—resolves itself, intrinsically, into the conviction that we retain our existence and identity after death. This conviction has resulted from the testimony of the spirits themselves, who have furnished proofs of the most unequivocal kind to their dearest relations. This it is which has saved the phenomena of Modern Spiritualism from the destruction threatening them, by imposture on the one hand, and the vacuity

Aspect of Modern Spiritualism.

and mischievous falsehoods of undeveloped spirits on the other. But for this, the phenomena of Modern Spiritualism would have fallen into the category of witchcraft and necromancy; and the rational spirit of our nineteenth century would long ago have consigned them to the limbo of obsolete superstitions.

This conviction, however, is far from presenting that degree of completeness which is necessarily sought for by every reflecting and philosophic mind. Spiritualists neither know what has preceded our present life, nor, in point of fact, do they know what follows it, during the œons which must necessarily elapse in the acquisition of the gradual progress which confessedly takes place. And more especially when we reflect that this gradual progress—which appears to be as much a spiritual as it is a material law—cannot take its rise, and begin to operate, and to date, *only* from the period of our physical dissolution; but must have been in operation in the incipient stages of consciousness, however remote.

If we find that the spirit is the same after death as he was known to be in life: being as they all concur in testifying, ever occupied in progressing to a higher sphere of existence; and that consequently no degree of elevation is attained by spirits save by a slow process of development, are we not justified in the expectation, that the individual consciousness we

have actually attained has been compassed by the same means ?[1]

The spiritual world and spiritual body.

Spiritualists have found and insist upon the fact that there is a spiritual world which forms a counterpart to our physical world ; as well as a spiritual body which answers in that world to our physical body here : the spiritual body remaining after the disintegration or death of the physical. This spiritual body is not, as might be supposed, an immaterial essence ; but is apparently another form of matter, more tenuous, and less subject to our physical law of gravity. Similarly with the spiritual world, which appears to be as material to spirits, as our world is to us. Spiritualists are assured on the testimony of intelligent spirits of different grades, that there are different spheres in the spirit-world, which appear to be simply different parts of that world to which spirits gravitate naturally according to their different degrees of advancement. Such spheres there are, to some extent, in our world ; for the sphere of the upper classes is not that of the middle or of the lower classes : though they are in continual contact. There is a view which appears to obtain among Spiritualists, that the present life is a preparation for an indefinite progress in the spirit-world. The grounds for this view seem to be—1st, that in very many cases a gradual progress has been observed to take place in spirits, more especially of course of a low order, who have at different times communicated through mediums—2d, that many spirits believe this to be the case and testify to it—3d, that the present life is

Cosmology of Spiritualists.

[1] It is a noteworthy fact that in Mr. T. P. Barkas' investigations into Spiritualism, the spirit controlling a lady medium unacquainted with science, and who gave his name as Humnur Stafford, answered all questions having reference to his scientific studies on earth ; but showed a complete want of acquaintance with the development of the same sciences which ensued after the date of his death. This would seem to imply that, in order to master these sciences in their developed condition, Humnur Stafford would have to return to earth, sooner or later ; and would then most probably evince the aptitude for knowledge which has so often been remarked as manifestations of mental power.

a fact that cannot be overlooked, and some account must be taken of it, the most ready interpretation of the fact being that a single existence is sufficient as a preparation for future happiness, because—4th, the old views of heavenly beatitude and reward still prevail in a residual form in the minds of very many Spiritualists, and—5th, because very few Spiritualists have probably given much serious thought to the probability or otherwise of this view.

With regard to the first ground; that very many spirits, more especially those of a low order, have manifested a gradual progress in the course of time: it is difficult to see why more value should be attached to the fact, when happening on the other side of life, than on this where a gradual progress likewise takes place in very many cases. The progress being gradual on both sides, is it likely that it should after a while be all on the one side of life and not on the other? It may be safely admitted that by human is meant moral and intellectual progress. As Spiritualists have happily outgrown the old ideas as to the sudden transfiguration of the human soul after death, and its 'hey presto' transformation into an angel of light; since there is no longer any doubt in their minds as to the uniform and automatic action of natural laws, with regard to the after-life, as with regard to every other department of Nature; it may be asked, is there any analogy in what we know to warrant the belief that a preparation of so short a duration as the present life can be sufficient or useful to enable us to continue our onward course through eternity in a very different plane of existence? Can progress mean a quite different thing in the spirit-world from what it means in this? If it does, how can the latter be a good preparation for the former? But progress must mean the same in both worlds, or those sciences and pursuits we are engaged in in this world would be wholly useless in that; and there would not be that connection between the two which evidently exists. It is scarcely probable that spirits of all orders should be interested in what is transpiring on earth, as there is evidence of their doing. It need scarcely be recalled that spirits appear to gain much from their contact with earth when they take

temporary possession of a material organism, continual evidence of which is obtainable from the perusal of the messages from spirits, published every week by the "Banner of Light" newspaper. Moreover, spirits whose utterances through mediums testify to a certain degree of advancement, often assure us that they take a deep interest in what is going on on earth; and manifest a desire to foster from their plane of existence a continuous earthly progress in different directions. If earthly experiences are necessary to the human Soul, it is not easy to conceive how these experiences can be other than continuously necessary. Modern Science, in promulgating the principles of the gradual evolution of all the mental qualities along with their physical correlative, has in her materialistic way done much to point out and render conceivable the kind of progress which the Soul in Man requires to work out for itself. The difference in moral and intellectual development between the lowest savage and the most cultivated European, should, one would suppose, render it difficult to understand how the present life can be a preparation for an indefinite future progress in a different sphere. The preparation in both cases is of quite a different nature. As a preparation, that of the lowest savage must leave much to be desired. Unless the view criticised here applies only to the cultivated European, the preceding objection is one which seems fatal to it. And should it only apply to the latter, the savage has fared very badly from this plan.

In regard to the second ground,—that many spirits believe this to be the case and testify to it,—it is important to observe that there is as much divergence of views among spirits as there is among men. It is a well-known fact among Spiritualists, that any view however peculiar is sure to find support from congenial spirits; and it is a commendable characteristic of those spirits who show the greatest amount of mental power that they constantly recommend investigators to use their own judgment. In view of the numbers of communications of an insignificant and incompetent nature this is not an objectless advice. It can no more be expected of a spirit to pronounce on any given subject towards which his attention and study have not been

directed than the same can be expected of a human being; and there is evidence likewise of the force of preconception in spirits' minds: so true it is that a spirit is neither more nor less than a human being under modified conditions; conditions which are much less modified in a mental than they seem to be in a material sense. It is likewise to be expected that from the length of the periods during which many spirits have remained in the spiritual world, but little attention can be paid by them to their ultimate reincarnation on earth; especially as it is asserted that their return to earth is not forced upon them, but, as seems more rational to suppose, the need of their return becomes apparent to them in course of time by dint of their spiritual experiences, and after, presumably, considerable reflection.

Doubtless, the reader has observed that there appears to be among spirits a peculiar tendency or bias to explain everything on spiritual grounds, just as there is a tendency in those who for long have observed material phenomena to regard everything from the material point of view. After reading the utterances of spirits, the impression assails the mind that Matter can mean nothing and must have a very subordinate place in Nature. If, on the other hand, the investigator is scientifically inclined, he is astounded at the paramount place in Nature which Matter seems to occupy according to the researches of the best scientific authorities. Is it not intrinsically probable that spirits and scientific men are looking at different sides of the same shield? How is it possible that either Spirit or Matter should have a subordinate place in Nature? Do they not both exist, and can we close our eyes to either? Is there not in Man a bridge between the two,—a spiritual body? Is there not in Nature an ether which is still matter though less ponderable than the latter? If these exist as intermediates between the extremes of Matter and Spirit, can either of the extremes be unimportant? Presumably spirits exaggerate the paramount importance of Spirit, as scientific men most certainly exaggerate the paramount importance of Matter. A reconciliation between the two would lead us to expect that Spirit and Matter are indissolubly connected as we actually find them, acting and reacting upon,

improving and being improved by, each other. In working his own ends Man improves the earth he inhabits, and helps to develop the reigns below him; while all these in their turn improve him by the experiences which they are constantly furnishing him with. This intimate developmental connection between us and the orb upon which we exist does not appear to have been sufficiently reflected on. This connection has not a casual aspect but a fundamental one. Those readers who are familiar with the modern principles of Evolution will not need to be informed that, organically and mentally, we are the result absolutely—if, as is now scarcely disputed, the principles of Evolution be well founded—of all those conditions of the soil, and of the air, and of the food, and, in brief, of the environment through which our race has become through the ages evolved. At the same time these conditions have likewise been influenced in their turn by living beings; so that, without further comment, it will be seen that the connection has been more than necessary—it has been indispensable and vital. This connection, therefore, which has been indispensable and all-important for our development, is now said by a certain number of spirits to be dissolved utterly at death.[1] We *know* this connection has

[1] "The two realms of existence furnished by the surface and spirit-sphere of our planet being 'part and parcel' of each other, and subjected to the same law of slow and gradual progress, we must expect to find—as is, indeed, already abundantly evident—that ignorance of general principles, retentions of prejudice and error, and contradictory statements based on individual impressions, suppositions, and speculations, are as rife on the other side of the grave as on this side of it. Like attracting like, it is evident that each medium will usually attract only spirits of the same average advancement as his own, and that the difficulties inherent in the art of spirit-manifestation must necessarily impede—for the present, and perhaps for a long time to come—the free and correct transmission of thought from the higher regions of the spirit-world. But it is equally evident that, notwithstanding these drawbacks—which are due to the general backwardness of our planet, and can only be got rid of through the gradual progress of both classes of its population—the communication now being established, at every point of its surface, between our globe and the spirit-world, must nevertheless exert a determining influence upon its future development."—*Miss A. Blackwell, Prize Essay*, p. 16.

existed and exists; we *know not* that other kind of progress which certain spirits affirm but rational evidence of which is not forthcoming. "From the puerilities and errors with which we have thus been occupied, we learn that there is a definite mode of progress for the mind of man; from the history of later times we shall find that it is ever in the same direction."[1]

It is necessary to add here that the bond of union between the world of spirits and the world of men is so much more intimate than is generally supposed, that the nationalities of spirits seem to be continued on the other side of life. Proof of this is to be found in the fact that there are English spirits, French, German, and so on. Strange as it may appear, this is the case. Disembodied spirits are, like their embodied comrades, ruled by the bond of sympathy, habits, character, language, affections, &c. Hence it is but natural that they should continue to be interested almost entirely in the general associations of the countries in which they lived. This, as might be expected, applies likewise to those more cultured and more cosmopolitan spirits whose sympathies are naturally of a wider nature. To borrow an analogy from our own state, those minds which have the least culture are those which, from their position and general circumstances, are least inclined and least able to assume an extended view of human interests. These concentrate their mental view and their whole life in a narrow circle, and rarely quit the comparatively narrow span of territory in which their life is concentrated. If therefore we find that spirits of less than the average of culture and former position, are, with few exceptions, found only in the countries in which they previously existed; and if we find that, speaking generally, only those spirits are attracted to other lands and other men whose culture is of a cosmopolitan nature, we shall have a complete analogy with earthly conditions in this respect. This explains likewise the community of ideas which exists between spirits of the same race and country embodied and disembodied.

[1] History of the Intellectual Development of Europe, by John William Draper, M.D., LL.D., vol. i. p. 142.

In England and North America where the race, language, and institutions, as well as habits are essentially similar, and where there is or has been an intellectual opposition to the philosophy of Reincarnation, the generality of spirits, with some notable exceptions however, have declared against the philosophy. If now we compare numerically the spirits, all over the world, who have declared against it, with those who aver that it is a law of nature, we find a considerable preponderance in favour of the latter.

Why, if it be true, there should exist concerning it a divergence of views among spirits is not quite clear. Yet here, again, we have an analogy with what occurs among ourselves. Even at this moment, were we to collect the opinions of men as to the truth or falsity of the theory of Descent, we would find very divergent answers. The orthodox religionists would give it as their opinion that the doctrine of Descent was a suggestion of Satan; others who still hold to the belief in 'creative fiats' would animadvert upon it as a false, materialistic, and God-denying creed. Others again would not have heard of its existence. Others would feel an intellectual opposition to the idea that they had descended 'from apes.' Those, however, who had examined all the evidence in its favour would give an unhesitating assent to the doctrine, and manifest surprise that any reluctance should be felt to its acceptance;—while the ethical philosopher, admitting the evidence, would explain the intellectual reluctance by qualifying the doctrine as one-sided and incomplete.

The third ground,—that the present life is a fact which must be taken into account; the ready explanation of the fact being that a single life is sufficient as a preparation for future happiness in other progressive spheres—admits of refutation. The human mind being constantly exercised by a desire to sound the depths of its problematic existence and future destiny, it is not difficult to perceive that the religious explanations in response to this desire which have obtained until now, have been the natural outcome of the human aspirations of each period influenced by the stage of mental development of man-

kind at the time. Among savages the explanations have of necessity been more gross and incoherent. Given the fact of our existence here, and the fact of the preponderating troubles of existence, the ready explanation suggested itself, that man was sent down to earth on trial, to be recompensed or punished subsequently according to the manner in which the trial had been borne. This was clearly the most ready explanation, the intuition of immortality ever having existed in the human mind as an innate idea which goes far to prove pre-existence.

Scientific accuracy had not yet arrived to impress upon the human mind the need of a rigorous interpretation of the facts, and the unsafe character of a chain of reasoning, some of whose links were altogether gratuitously assumed. It must at one time have occurred to man, that a trial entailing such consequences necessitated a logical antecedent, and it was probably then that the first assumption of a trial brought about the second assumption of an original sin. These two assumptions in their turn fostered others, and thus it came to pass that a religious system was formed sufficiently coherent for the mental development of those ages; but certain in the nature of things to be found fault with eventually when the human mind had advanced in growth.[1]

The contention now is that the above assumptions and conceptions having served their time, have become too incongruous for the developed mental power of our age; and that nothing short of a congruous body of explanations, supported by the more developed scientific conceptions of our time, can satisfy the growing scepticism of the thinking part of the community. The conception of a trial is now seen to be a pure assumption,

[1] Knowing as we do that the human mind, individual and collective, cannot pass arbitrarily from one idea to another unless there is between them a natural or rational connection, it is easy to perceive that the idea of a trial must have been the first in order of development. This idea could naturally have originated from observation and experience on the one hand, and intuition on the other; and would then naturally have given rise to the rest. As is well known, the traditions with regard to heaven, an original sin, &c., are not the exclusive possession of any single religion.

having no positive basis on which to rest, and necessitating a host of other assumptions to prop it up. On the other hand, the modern scientific conceptions with regard to a progressive evolution of mankind through the ages furnish a positive basis for the view, not of a trial, but of a course of development during which the human mind evolves and expands in correspondence with its physical correlatives. This view furnishes, therefore, a much more coherent system of conceptions based as it is upon, and running parallel with, the independently arrived at data of many converging sciences. According to this view of mechanical or automatic development, we have in our earth and its physical conditions and transformations the varied scene of all our anterior, mental, and physical progress. To this view must be appended the one furnished by the likewise modern conception of the existence of a spiritual world, which forms apparently the indispensable complement to the physical scene of our development. It remains now to be asked whether, seeing that the modern principles of Evolution account for the development of all the faculties of our race in connection with the planet, there can be another sphere of existence in which we shall further progress in entire disruption from that in which we have attained to what we now are. Does it not rather seem that the spiritual and physical worlds form two aspects of the same whole, the one forming a complement to the other?

It need scarcely be added that the view of a single life being sufficient as a preparation for future progress in a different sphere, is wholly unscientific; both because in the whole course of our development no progress has at any time been effected *per saltum*, but very gradually and in constant connection with the same conditions: and because it would be substituting a progress whose conditions are unknown, for one whose conditions are known and quite adequate to obtain for us further progress. At the same time it is not to be wondered at that this ready explanation should have occurred both to embodied and disembodied intelligences, seeing that we have scarcely emerged as yet from the sway of those earlier religious ideas which were found all-sufficient by our forefathers. The idea of a supreme

reward still hovers in the mind. That of an everlasting punishment has been discarded, it being the more unpleasant of the two. But it is not noticed that a supreme reward is as irrational as an eternal punishment. Eternal punishment has been discarded because no fault is considered grave enough to entail such terrible consequences. Yet can a quality, or an act, or series of acts be exceptional enough to deserve the other extreme? If we do not deserve a terrible punishment, we surely do not merit a great reward. Here, again, the theory of Evolution has come to show us that we do not deserve the one or merit the other. The creatures of circumstances we are undergoing a process of progressive development, this process being apparently a condition of the activity of Nature. Nature being governed by laws, or more correctly having organised laws, these are admirably suited to be at once the punishment and the reward of our actions, thus playing the part of educators.

While Spiritualists have given a ready credence to the view of a single existence in this world, they do not appear to have reflected on existing scientific data as affecting the belief. Carrying the conception of a spiritual world to its logical consequences, it does not appear to have occurred to Spiritualists that there must be spiritual worlds without number if there are material worlds without number. Science has made it a familiar fact to all, that some of the other planets of our Solar System are at this moment in possession of such conditions as admit of the existence of life upon their surface. It needs no more to convince us from the uniformity of Nature that these planets are inhabited by beings of no less importance in the natural system than ourselves. Hence, by analogy, we must infer that these planets also have each a spirit-world; and if we extend this probability to infinite space, we shall be led to the inevitable conclusion that there are numberless material worlds complemented by numberless spiritual worlds. From this the inference is legitimate that there must be an intimate connection between the spiritual and the physical worlds, since they must bear a definite correspondence to each other.

No thought seems to have been given either to cosmical evolution as affecting the now existing spirit-world of our earth. According to the well-accredited Nebular Hypothesis, there must have been a period, however remote, when no spirit-world, as regards the Solar System, can have existed, since there were then no souls to people it. According to this hypothesis, the whole system must have existed as a gaseous nebula in space; and from this all the planets must have been thrown off and assumed their respective places in rotatory attendance upon the central mass, the sun. The original molten state of the earth could not admit of life until its surface had assumed a solid condition. Hence before this there could have been no souls to people the earth, and, as a consequence, the spirit-world. It may be presumed, therefore, that there must have been a gradual formation of the spiritual world in correspondence with the physical. In the absence of more positive knowledge with regard to the spiritual conditions of existence, it is impossible to do more than point out the bearing of these questions on the modern conceptions of Spiritualists.[1]

At first sight it might doubtless appear convenient to leave the earth for ever to its fate, but on reflection it ought surely to appear that our pleasures and pains in this world form part of our vital activity, and that without them we would practically be non-existent. Looked at as casually occurring, as brought about by the god of chance, or connected only with the imperfect conditions of the present life, it is naturally thought that, by flying from the scene, the worthless pleasures and heart-rending pains will be left behind. But looked at as the

[1] The spirit manifesting through the organism of Mrs. Jennie S. Rudd, at the "Banner of Light" Free Circle meeting, reported in the number of that Journal of October 26th, 1878, thus replied to a question:—"All that there is of us is earthly. We belong to this planet, and yet we have a spiritual life. We often express ourselves in terms like this, 'a spiritual life beyond.' We speak of being above you, but we are with you. We have not lost the motion of the planet earth; we have not gone so far beyond you that we cannot return," &c. This language seems sufficiently clear, and does not clash with the inferences that may be drawn from the generalisations of Science.

product of our own natures, and as the result of those social conditions which we ourselves have been working out from the first formation of society on the globe, we must perceive that they are our own work, collectively and individually, and that were we to resort to another sphere, we would carry with us the same imperfections, and undergo the same consequences. Modern Science teaches us that our relations to this earth are absolute, that is, that every molecule of our bodies has at some time or other formed part of the earth, and that our mental faculties have been acquired in relation to it. Our mental power has grown with the greater complexity of the nervous system; so that the brain bears an exact proportion to the power of the mind which has developed with it: and this holds as well in the spirit-world, since the spiritual body is a representation of the physical; and since the mental characteristics of spirits continue more or less the same as in life. Hence, in order to leave the pleasures and pains of earth behind us, we would have to undergo a complete transformation, and a transformed world would have to be found for us. It is needless to close our eyes to the fact that we are what we have become and no more. No 'Deus ex machina' is to be found anywhere to give us gratuitous and unacquired promotion. As Spiritualists, we have to face all the consequences of the facts which have become known to us; and we have to co-ordinate them with those which it has been the prerogative of Science to discover.[1]

Aspect of Spiritualism continued.

Phenomenal Spiritualism, therefore, when viewed philosophically, fails to point out the whither and the whence. It offers, moreover, a chaotic aspect which

[1] Let us only compare the aspect which the world had in the Middle Ages with that which it has to-day, and we shall find that happier times are in store for the ages that are to follow. Our intimate connection, moreover, with our world will furnish us with better reasons for promoting its welfare, and for a greater love of our fellows, not excluding those lower reigns through whose stages we have passed.

is not lessened by the exuberant abundance of the facts.

Acknowledged as it is at present by Spiritualists of all shades, that physical manifestations are produced by spirits of a low order, whose proximity to earth and undeveloped state enable them to sympathise with, and minister to, the more animal propensities of our nature, the results to be anticipated from this source can but be as we find them. The free-love doctrines, the money-making business mediums, &c., &c., are some of these results; and the need of a philosophy really worthy of the name is evinced by the division of Spiritualists in their views. Some, forgetting that all Spiritualists are Christians, have formed a narrow sect which goes by the name of Christian Spiritualists. Others pursue Spiritualism exclusively as a Science, and believe that all which Spiritualism promises is to enlarge the domain of Physical Science; instance a gentleman who some time since advertised a lecture in which he proposed to show the direct bearing of Spiritualism on the science of Mineralogy. Others, again, see in Spiritualism the premonitory signs and wonders of the reign of Antichrist, and are helped in this by some of those undeveloped spirits who are ever ready to plunge us deeper into our errors. Some, as stated above, see nought in Spiritualism but the furtherance of noxious social doctrines; while others, unsatisfied with the chaotic elements of Spiritualism, seek the key of this mysteriously complex, though

absorbing, question in the venerable and dusty Occult Sciences, a necropolis in which, it may be presumed, they are beginning to perceive they will not find it.

and need of a philosophy.

Disregarding the admitted circumstance of their low and undeveloped condition, some Spiritualists question the spirits who produce physical manifestations alike on the most abstruse as on the most frivolous subjects,—questions ranging from the mystery of the Trinity to the dress they are to wear at the forthcoming bazaar or flower-show. Answers are solicited, and answers come, as was to be expected, of the most varied and conflicting description; and they are the more to be regretted that a certain importance is attached to them all. Had an intelligent society erst been formed, as was done elsewhere, to collect the utterances of spirits as far removed as was possible from the earthly plane; had this testimony been sifted; had the discordance been eliminated, and only that reserved in which their widespread testimony was found to concur, it might have been possible to promulgate a philosophy which, in lieu of conflicting with subsequent facts, would only have been confirmed by them.

This method is manifestly opposed to the tendencies of the Anglo-Saxon mind; but, as will be seen farther on, the advanced and hence foreseeing intelligences who have judged the time opportune for the consentaneous influx into our world of this more advanced form of revelation, have made the most of

the characteristics of both the Saxon and the Latin races.

Origin and growth of M. Spiritualism.

It is apparently lost sight of that the discovery of a spiritual world in our day has not been due to human efforts or human instruments. There was no modern Columbus to effect its discovery; and it existed, and would have continued to exist, unsuspected, albeit the scattered and discredited tokens of its existence in the histories of all peoples and in their sacred writings. The revelation of its existence took place spontaneously on the part of the spirits themselves in the year 1848, at Rochester in the United States. At the house of a family named Fox, raps were heard in all directions. They at first elicited surprise, next provoked curiosity, and lastly suggested the idea of some unusual agency. This last impression was confirmed when one of the children of the family requested the peculiar agency to knock a certain number of times. It acceded so invariably to the request, that it was soon found that the force manifested intelligence. A method of communication was framed, and the sequel is the Spiritualism of the present day.

From that time—1848—the spirits, revealing a preconcerted plan, have developed the manifestations in number and power and extent. In some countries, Spiritualism has assumed a philosophical aspect, in others a phenomenal one. Is it needful to digress still further, and to point out that earthly intelligences have had little to do with the marvellous spread of

Spiritualism; and that the real promoters of it cannot be the very spirits who give such manifest indications of ignorance, coarseness, futility, and falseness? That they have been, and are, indispensable to open the rude preliminary channels which are necessary as a preparation to a more direct communication, and to alter the current of thought of a materialistic age by wrestling against materialism on its own ground, must be evident to every one who is aware that the evolution of ideas is, like every other evolution, never summary or rapid, but gradual.

Need of a Philosophy continued.

Reverting to the incoherent aspect of Spiritualism, to its already numerous sects, its noxious social doctrines, its 'Spiritualism without spirituality,' the question may well be asked, Is this its superiority over worn-out creeds? Is this what will supersede them? Is the origin of Spiritualism—physical phenomena—an elevated and moral one? Will its fruits be better than its origin? Apparently, *no;* really, *yes.* Spiritualists need not be reminded of the discourse delivered by the editor of the spiritualist periodical which has probably the widest circulation, advocating a higher ideal for Spiritualism; nor will they need to be reminded of the thoughtful words of a thoughtful Spiritualist: "The great value of the Kardec writings is, in my opinion, that they set forth, as the aim of his doctrines, the moral elevation of man—an aim which I once fondly hoped was to be achieved by what we understand as Spiritualism, but which experience

shows that mere phenomenalism will never accomplish." Phenomenal Spiritualism as it at present appears is neither a Science, a Philosophy, nor a Religion, though giving involved indications of all three. Less, however, is to be desired and hoped for from Spiritualism as a Science, or even as a Religion, than as a Moral Philosophy. Material Science has attained a position to which there needs only the addition of a spiritual fulcrum to enable her to continue in a less atheistic and depressing direction her onward progress, as she has ever done unassisted; no revelation having ever come to save mankind the trouble of acquiring experience and developing its intellectual activities. For although Christianity, as a revelation, might be said to have aided Science mediately, in that it aided and directed the course of civilisation by furnishing us with a more advanced form of revelation, and a more advanced moral code; yet the ground Science has covered has been so covered immediately by her own efforts.

Religion, on the other hand, tends to become simplified. If positive knowledge through Spiritualism is to supersede undiscerning faith, it is clear that the study of nature, illumined by spiritual discernment, will evoke more genuine religious aspirations than the soulless observances and ceremonials of a bygone age. At no time has man been better prepared to place works above faith, and to regard as the soul of all religions the admirable summary of Christ's moral

code, 'Love God above all things, and thy neighbour as thyself.'

Midway between these two factors of human progress—the material and the psychical—Philosophy has its place, and must infer its data from the quarried facts of Science and the intuitive truths of Religion.

But it cannot be too strongly insisted on that, for the promulgation of a philosophy, there needs a superiorly endowed philosophic mind. Though the study of Sociology would seem to preclude the idea that, had not the individual genius existed who formulated the laws of planetary motion, the body of knowledge which is called the Newtonian philosophy could never have been given to the world—for the course of human progress has never wanted a mind to further its advancement at the befitting epoch—yet it is quite correct to say that a mind of no less power than that of Sir Isaac Newton was indispensable to formulate it. It is therefore unnecessary to dwell on the obvious need of a powerful mind for the promulgation of a man-made philosophy, or to add that, without such a mind, so all-embracing a philosophy as would be required to co-ordinate and infer one from the complex facts of Spiritualism, would be humanly impossible. The advisability of a philosophy as all-embracing as possible becomes evident when we observe the present condition of Spiritualism and the relative positions of materialistic Science and asthenic Religion.

And in surveying the protracted history of Philo-

sophy, one can but coincide with the view of Mr. G. H. Lewes [1] that the future of Philosophy lies in the task of reconciling Science with Religion. If this be admitted, the admission cannot fail to strengthen the view that no man-made philosophy will achieve the task. Let us briefly consider the relative positions of the contending parties.

Material Science failing to apprehend by means of the senses, or by means of her delicate instruments, either the Conscious Soul in Man or the Infinite Mind in Nature, has christened both Nature and Man automatons, and virtually if not practically has denied the existence of a spiritual principle in either.

Religion, veiled by a revelation made nineteen centuries ago, fails to apprehend the evolution of ideas that has been gradually taking place on the surface of our globe, and affirms a spiritual principle in Man and Nature without rational qualification as without demonstrative proof.

Are these positions then easily reconciled? Do they not rather indicate an exterminating conflict? Were it not for the irresistible impression which assails the mind, that these radical differences are destined to disappear, this view would be the most natural one to entertain.

And what is the position of Spiritualism towards them? It is obviously at present one of expectancy. Having no complete philosophy, Spiritualists are not

[1] History of Philosophy, vol. i. pp. xxi, xxii.

pressed to pronounce. Yet, even now, they have to side with Science or Religion; and, as the disciples of a new revelation, should know how they stand towards both. They will pause to reflect that both have ever been most important factors in the world's progress. Science as represented by observation and experience —Religion as betrayed by emotional and moral aspirations—have ever occupied the mind of Man, and accompanied him in his progress, constantly acting upon his nature and being reacted on by him. Can Science have erred? can Religion? . . . The answer suggests itself. If progress means anything, it means that the factors which have been influential in promoting it cannot have been wholly wrong. Both have partaken of the imperfection of Man, and both have been evolved consistently with the course of human progress from the earliest ages. If, therefore, Spiritualism is to give rise to the Philosophy of the Future, it cannot come to *destroy* but to *fulfil;* and, so far from rejecting, must conciliate the material facts of Science with the psychical truths of Religion. To this end a moral philosophy is needed. Can a better one be found or adopted than that suggested by those more advanced intelligences who have been the spiritual, and, as far as we can judge, the sole promoters of this surprising movement? The fact cannot be too often repeated and reflected on, that not a single explanation of the phenomena has at any time been volunteered or discovered by human reason in connection with this subject.

Mission of Spiritualism.

What we know of it has in all cases been prompted by the inhabitants of the spiritual world, and Man has only obscured this knowledge by his ignorant views, prejudices, and errors. Are we not then justified in considering the philosophy suggested through Allan Kardec the most natural philosophy of Spiritualism? This philosophy has been found consonant not only with the facts of the time in which it was promulgated, but has been repeatedly observed to be consonant with all those evolved facts which the subsequent development of Spiritualism has been continuously bringing to light. Such a consilience is alone sufficient to constitute it a good philosophical basis; and—be it remarked—none more than the partisans of that philosophy see in it the preparatory if imprescriptible landmarks of the road which is to lead to the Unitary Philosophy of the Future.

Spiritual Evolution.

There is, however, a doctrine, or rather the suggestion of one, in Allan Kardec's compilation which has met with disapproval on the part of English Spiritualists. And yet, strange as it may seem, that doctrine is perhaps the most important one that has been proclaimed through that author. The reference is obvious. That doctrine is the Philosophy of Reincarnation.

Its parallel with Organic Evolution.

The parallel between Reincarnation and Darwinian Evolution has not been pointed out with sufficient clearness by the few English Spiritualists who have as yet pronounced themselves more or less in favour

of Reincarnation, and who, it is gratifying to observe, are among the most thoughtful of their number. The parallel, however, is very great; and not only is this so, but Evolution without Reincarnation is a maimed and incomplete doctrine enough.

Though some Spiritualists affect to believe that Evolution is a mere unproved theory, in opposition to the greatest number of distinguished living naturalists and scientists, it is well to call their attention to the fact that if Spiritualism and Evolution be alike true, they cannot clash, but must coalesce and complete each other.

The fact can scarcely be overlooked that all the biological sciences are now proceeding upon its basis; nor can the words of Mr. A. R. Wallace in his address to the Biological Section of the British Association:[1] "The agitation of this theory has been carried on vigorously for some years; but it may be said to be almost ended now that Prof. Mivart has fully adopted the doctrine, so far as the physical structure of man is concerned, leaving the question of intellect to be otherwise disposed of."—*Scotsman.*

On the same subject Prof. Hæckel says: "There is no doubt that this immense extension of our intellectual horizon must be looked upon as by far the most important, and rich in results, among all the numerous and grand advances which natural science has made in our day." And further: "All our labo-

[1] At Glasgow, 1876.

rious knowledge in comparative anatomy and physiology—in embryology and palæontology—in the doctrine of the geographical and topographical distribution of organisms, &c., constitutes an irrefutable testimony to the truth of the Theory of Descent."[1]

Prof. Huxley, referring to the excellent collection of palæontological materials organised by his friend Prof. Marsh, thus spoke of Evolution before the American Association for the Advancement of Science: "Before the gathering of such materials as those to which I have referred, Evolution was a matter of speculation and argument, though we who had adhered to the doctrine had good grounds for our belief. Now things are changed, and it has become a matter of fact and history. The history of Evolution, as a matter of fact, is now distinctly traceable. We know it has happened, and what remains is the subordinate question of how it happened."[2]—*Nature.*

[1] History of Creation, vol. i. pp. 2, 123.

[2] Since writing the above the British Association met at Plymouth, August 1877, and the President's address showed how uncompromisingly this doctrine has been assimilated by scientific minds.

"We have an illustration of this (mental) progress in the fact of continual occurrence, that Conceptions which prove inadmissible to the minds of one generation, in consequence either of their want of Intellectual power to apprehend them, or of their preoccupation by older habits of thought, subsequently find a universal acceptance, and even come to be approved as 'self evident.'"

—*Carpenter's Mental Physiology*, p. 229.

"Every kind of knowledge is useful in proportion as it tends to give people right ideas, which are the essential foundation of all right practice, and to remove wrong ideas, which are the fertile mother of every description of error in practice; and inasmuch as this world is absolutely governed by ideas, and often by the wildest and most hypothetical ideas, it is a matter of great importance that our knowledge of things and theories which seem far apart from our daily lives should be as far as possible true, and as far as possible removed from error."

—*Prof. Huxley's Lecture on Biology at the South Kensington Museum, as Reported by the Daily News* of December 18th, 1876.

"But if Evolution is not universal, it is nothing. If certain phenomena are to be left outside it, if it cannot without contradiction and confusion explain, potentially at least, how the whole world as it is follows necessarily from the world as it was, it certainly appears to me that it ought to modify either its method or its pretensions."

—*Arthur J. Balfour, M.P., in Fortnightly Review* for November 1877, p. 703.

Organic and Spiritual Evolution.

DARWINIAN, or Organic Evolution, succinctly defined, is the theory of the physical and mental development of organic life by means of a gradual and automatic process of differentiation and specialisation of the physical and mental organs of animate beings, through the influence of complex laws.

It is, as Prof. Hæckel has it,[1] "only a small fragment

[1] History of Creation, vol. i. p. 1.

of a far more comprehensive doctrine—a part of the universal Theory of Development, which embraces in its vast range the whole domain of human knowledge." Reincarnation, or Spiritual Evolution, on the other hand, is the theory of Psychical Development by means of an automatic process of successive incarnations on the earth, securing an indefinite progress to the individual Soul through the influence of a complex law of progress.

It is the 'finis coronat opus' of Organic Evolution, as the latter is the substratum of Reincarnation.

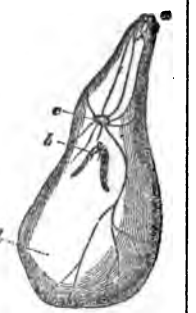
With regard to the purely physical evolution, it is not within the province of the present essay to enter into its merits by furnishing proofs or facts which are to be met with in profusion in the special works which treat of the subject, and which are sufficiently well known. It is needless to enter here into the revelations of palæontology, the data furnished by comparative anatomy, the possession of rudimentary organs by Man, the question of hereditary reversion, the appearance of the same characters in the development of the human embryo as in that of the vertebrates below him, and the thousand and one facts that have given Evolution an easy victory over the incoherent speculations of the Past. It will be sufficient to refer the reader to some of the works appended to the present essay, where he will probably find satisfactory data on this head.

But sufficient stress is not laid on the fact that

Darwinian Evolution is not limited to the physical, but embraces likewise the mental development of organic beings, and consequently that of Man. The Nervous system, and of this more especially the brain, being the physical basis of the intellectual or psychical manifestations of living beings, it follows that we should expect to find a great simplicity in the Nervous system of the lowest animals, gradually attaining a greater and greater complexity as we ascend the scale of organisation until it reaches its culmination in Man.

Progressive development of Nervous System.

This in sooth we do find. The lowest animals possessing a well-defined Nervous system, if such it may be called, appear to be the Ascidian mollusks. "An Ascidian consists essentially of an external membraneous bag or 'mantle,' within which is a muscular envelope, and again within this a respiratory sac, which may be considered as the dilated pharynx of the animal," &c.[1]



NERVOUS SYSTEM OF ASCIDIAN:—*a*, mouth; *b*, vent; *c*, ganglion; *d*, muscular sac.

"In ascending through the Molluscous series, we find the Nervous system increasing in complexity in accordance with the increasing complexity of the general organisation; the addition of new organs of special sensation, and of new parts to be moved by

[1] Dr. Carpenter's Mental Physiology, p. 45.

muscles, involving the addition of new ganglionic centres, whose functions are respectively adapted to these purposes."[1]

The next animal figured in Dr. Carpenter's work is an articulate.

"In the Articulated series, on the other hand, in which the locomotive apparatus is highly developed, and its actions are of the most energetic kind, we find the Nervous system almost entirely subservient to this function. In its usual form it consists of a chain of ganglia connected by a double cord; commencing in the head, and passing backwards through the body."[2]



GANGLIATED NERVOUS CORD OF CENTIPEDE.

With regard to the Amphioxus, Dr. Carpenter says, "In the curious little Amphioxus or Lancelet, which is the lowest known type of a Vertebrate animal, there is nothing that can be properly called a Brain; and we have here one of those 'experiments prepared for us by Nature' (as Cuvier termed them), which show that the axial cord is the fundamental portion of the Nervous apparatus of the Vertebrate animal, as it is the first in order of development."[3]

Prof. Clark says in reference to the Nervous system

[1] Dr. Carpenter's Mental Physiology, p. 49. [2] Ibid., 51. [3] Ibid., 65.

in the different series, "From this you may judge that in considering *typical* forms of life, it is the *relation* and not the *nature* of a substance which is to be taken into account. Relation should be the ruling standard. Accordingly, therefore, we see in the Protozoa the Nervous system, although formless, holding a *certain position* in reference to the other organs. In Zoophyta it is more collected, and arranged symmetrically, in reference to right and left, and above and below. In Mollusca it is more concentrated toward the side opposite the heart. In Articulata the concentration is still further carried out; and finally in Vertebrata, the Nervous system attains its highest confluence, not only toward the median line opposite the heart, but also in its tendency toward a *head*." [1]

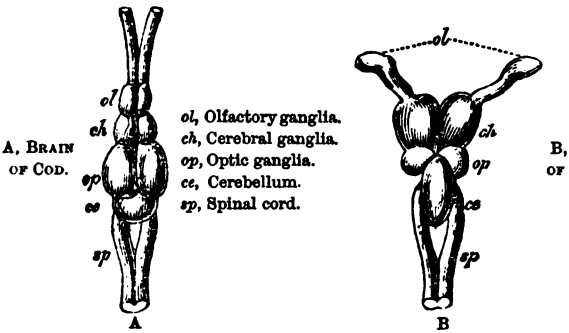
"In others of the lowest fishes having a Cartilaginous skeleton and a uniform worm-like body, such as the Lamprey, the spinal cord has a like uniformity throughout; and the Brain consists merely of a cluster of ganglia within the skull, which scarcely bear a larger proportion to it, than do the Cephalic ganglia of Insects to the ganglia of their Ventral cord." [2]

The next animals whose Nervous systems are figured in Dr. Carpenter's work are the brains of the Cod and the Shark. (P. 36.)

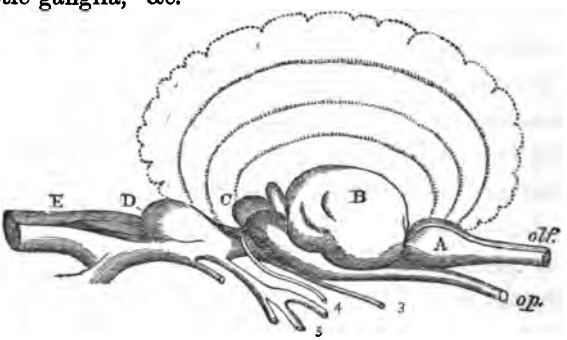
"In Reptiles we do not find any considerable advance in the development of the Brain, save that

[1] Mind in Nature, p. 126. [2] Mental Physiology, p. 65.

the Cerebral Hemispheres are somewhat larger, extending forwards so as to cover-in the Olfactive



ganglia, and backwards so as partly to overlie the Optic ganglia," &c.[1]

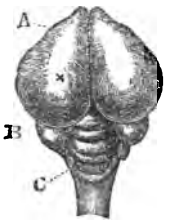


Brain of Turtle, with diagrammatic representation of the increased development of the cerebrum in higher vertebrata:—A, Olfactory ganglia; B, Cerebral ganglia; C, Optic ganglia; D, Cerebellum; E, Spinal cord; *olf.*, Olfactory nerve; *op.*, Optic nerve; 3. Third pair; 4. Fourth pair; 5. Fifth pair.

"Proceeding now to the Class of Birds, we find a considerable advance in the character of the Brain as compared with that of Reptiles. The Cerebral hemi-

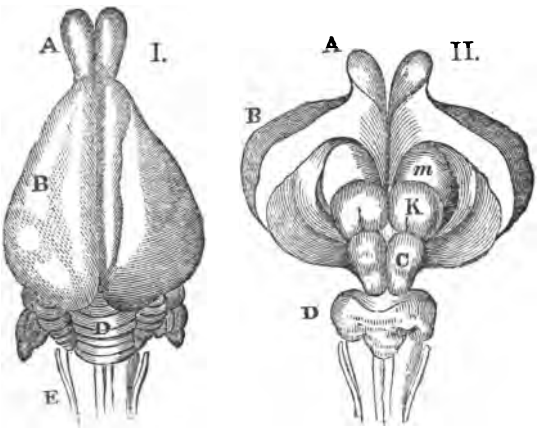
[1] Mental Physiology, p. 67.

spheres are greatly increased in size; so as to cover-in not merely the Olfactory ganglia, but in great part also the Optic ganglia," &c.[1]



BRAIN OF PIGEON: A, Cerebral hemisphere; B, Optic lobes; C, Cerebellum.[2]

After quoting several instances in illustration of the intelligence of birds, Dr. Carpenter says, "We arrive lastly at the Class of Mammalia, in which the development of the *Cerebrum* comes to be so predominant, as to *mask* what has been shown to constitute the fundamental part of the organisation of the Brain, namely, the Sensorial tract at its base," &c.[3]



BRAINS OF RODENTS: I. Rabbit; II. Beaver, with the hemispheres drawn apart:—A, Olfactory ganglia; B, Cerebral hemispheres; C, Optic ganglia; D, Cerebellum; E, Spinal cord; K, Thalami optici; *m*, Corpora striata.

In Dr. Ferrier's work on the "Functions of the

[1] Mental Physiology, p. 79.
[2] From Ferrier's Functions of the Brain, p. 36.
[3] Mental Physiology, p. 91.

Brain,"[1] the reader will find a representation of the Brain of a cat,



UPPER SURFACE OF THE HEMISPHERES OF THE CAT:—B, The crucial sulcus.

and at page 7 that of a dog (p. 39); in the same work, page 144, the base of the Brain of the monkey[2] (p. 40), and at page 9 the base of the human Brain (p. 41). It will thus be seen that a tolerably graduated scale of development of the Nervous system could be traced. And the modern principles of Evolution show that this development could only have occurred in the course of ages, by the working of those natural laws which have been succinctly defined as natural

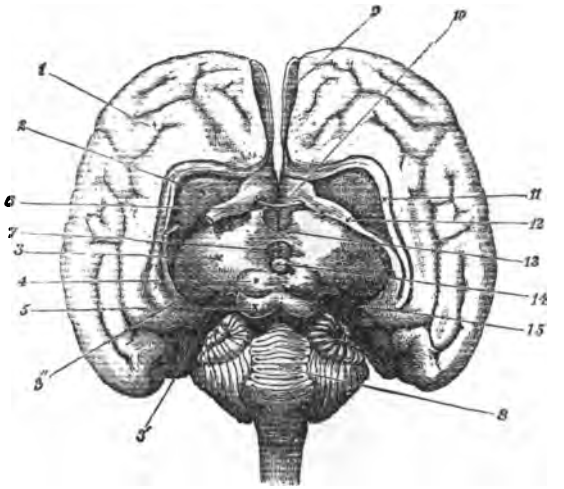
[1] Page 154.

[2] See further pl. xv. of Gratiolet and Leuret's Anatomie Comparée du Système Nerveux.

selection, the struggle for existence, the principle of heredity, &c.

Incompleteness of Organic Evolution.

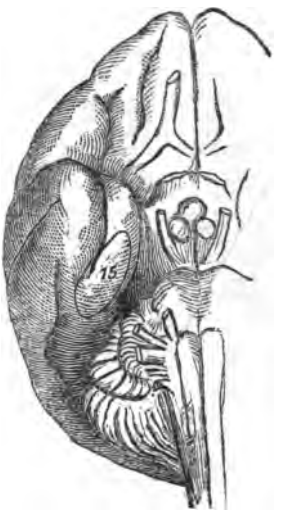
We perceive, therefore, that in order to attain the complex intellectual mechanism which Man possesses,



THE CEREBRAL HEMISPHERES OF THE DOG, separated after division of the corpus callosum, so as to expose the ventricles and basal ganglia :—1. The internal surface of the left hemisphere. 2. The corpus striatum. 3. The optic thalamus. 4. The nates, or anterior tubercles of the corpora quadrigemina. 5. The testes or posterior tubercles. 6. The anterior pillar of the fornix, which is divided on the left, undivided on the right side (12). 7. The third ventricle, exposed by drawing the optic thalami asunder. 8. The upper surface of the cerebellum. 9. The olfactory bulb or rhinencephalon. 10. The anterior commissure. 11. The corpus callosum, divided. 13. The soft commissure. 14. The pineal gland, situated over and concealing the posterior commissure. 15. The descending cornu of the lateral ventricle.

it has been indispensable that an incalculable number of organic forms shall have succeeded each other upon our earth; struggled for existence, suffered and rejoiced as best they could, then disappeared, leaving

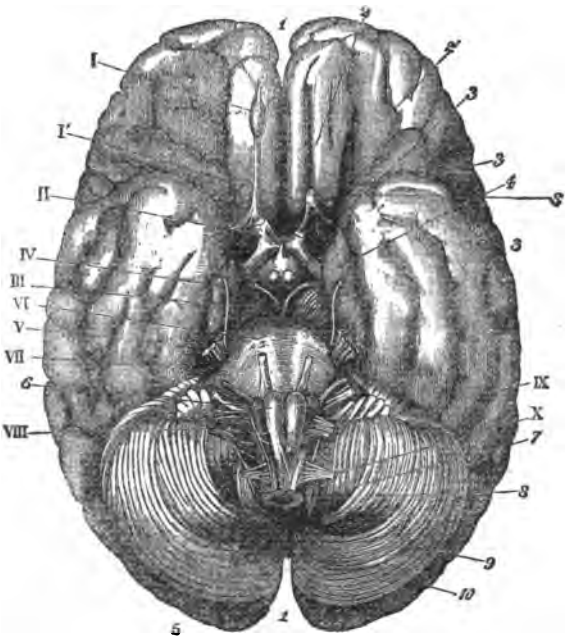
a more or less improved tenure of life to their successors. Now, the supporters of the theory of Descent cannot fail to see that this theory, considered as it is from an exclusively material standpoint, can scarcely emerge from the sphere of half-truths, and that it will not satisfy the intellectual and moral aspirations of



BASE OF THE BRAIN (RIGHT SIDE) OF THE MONKEY (ROY. SOC.).

our age until it is brought into relation with those facts of consciousness and intuitive convictions of immortality which no amount of material Science can quell within the human breast. It is difficult to credit the assertions of some of its partisans, that they feel that to lose their individuality for the benefit of the race is a sufficient reward for the

troubles and anxieties of life. It is conceivable as the first blush of enthusiasm for the doctrine, or as a *pis aller;* but its undiluted altruism is incon-



BASE OF THE BRAIN:—1. Superior longitudinal fissure. 2. The fissure of the left olfactory tract, which is cut. 2'. The orbital lobe. 3, 3, 3. The fissure of Sylvius. 4. The gyrus hippocampi. *S*, The subiculum cornu ammonis. 5. The occipital lobe. 6. The anterior pyramid of the medulla oblongata. 7. The amygdaloid lobule of cerebellum. 8. The biventral lobe. 9. The slender lobe. 10. The posterior inferior lobe. The Roman numerals I. to IX. indicate the respective cranial nerves. X. is the first spinal nerve.

ceivable as a permanent feeling, especially as it cannot but suggest itself that that benefit of the race has really little meaning, since the race is com-

posed of units whose short lives, however merry they might be under improved conditions, would be of the same duration as their own, and finally disappear collectively when our world will no longer furnish the indispensable conditions of existence.

What sufficiently noble motives can Materialistic Evolutionists substitute for those supplied by the prospect of immortality? What meaning can be elicited from the merciless plan of Nature described by Prof. Hæckel?

"If we contemplate the common life and the mutual relations between plants and animals (man included), we shall find everywhere, and at all times, the very opposite of that kindly and peaceful social life which the goodness of the Creator ought to have prepared for his creatures—we shall rather find everywhere a pitiless, most embittered *Struggle of All against All.* Nowhere in Nature, no matter where we turn our eyes, does that idyllic peace, celebrated by the poets, exist; we find everywhere a struggle and a striving to annihilate neighbours and competitors. Passion and selfishness—conscious or unconscious—is everywhere the motive force of life. The well-known words of the German poet—'The world is perfect save where Man—Comes in with his strife,' are beautiful, but, unfortunately, not true. Man in this respect certainly forms no exception to the rest of the animal world."[1]

[1] History of Creation, vol. i. p. 20.

But Prof. Hæckel says likewise that there is no plan in Nature, and makes the following statement:— "For we learn by it (natural selection) to understand how *arrangements serving a purpose can be produced by mechanical causes acting without an object, as well as by causes acting for an object.*"[1] This amounts to saying that there is no design in Nature; and most certainly, looking at Evolution from the material side only, there can be none: the marvel being that there is any order at all in the Universe. However ingenious the reasoning which may be brought to bear upon this question of design, it will be impossible to shake off the conviction as to the teeming evidence of a design of which we evidently have not the correct key.

In the province of ethics Evolution has been found wanting, and very importantly so. It must readily be seen that no system of morals worthy of the name can be founded upon it unless supplemented by Spiritual Evolution. Dr. Maudsley in his "Physiology of Mind" remarks, that "Moral action is certainly a necessary condition of the evolution of the social organism, that is, of the progress of the human race: the inductions of experience have not failed to teach men *that*."[2]

and its complement found in Spiritual Evolution.

This being so, Spiritual Evolution comes to furnish the key both of that design in Nature which Organic Evolution feels compelled to deny, and of the efficient

[1] History of Creation, vol. i. p. 262. [2] Page 419.

reasons for that moral action which has been ever necessary in the progressive career of Mankind. Moral action having been indispensable as a factor in the progress of Man, it may be taken for granted that it will continue to be so; and Evolution failing to furnish the inciting motives for this action, is thus shown to be an incomplete theory, though, as far as it goes, it can scarcely be disputed.

Man, who is conscious of his own intelligence, and knows that he forms part of the system of Nature, cannot logically bring himself to believe that he, the product, is the only intelligent part of the system. Placing the facts of Organic Evolution, or a gradual progress in organisation, alongside of his conviction of immortality, he must ask himself whether, since the mental organs of the race grow in complexity through the ages, this may not be the means by which his immortal Soul likewise grows. He must see that the whole question hangs upon that problem of the existence of the Soul, which has occupied the minds of men as an intuition from the first dawn of human intelligence upon our globe. Science has no cognizance of the Soul, never having been able to investigate its existence by her usual methods. At the same time, it is quite certain that, if she has not hitherto had experimental proof of its existence, neither has she had proof of its non-existence. According to the temper of individual minds, Matter is seen to bear in itself 'the promise and potency of all terrestrial life,'

or *vice versâ*. The question, therefore, of the existence of the Soul remains, as it has ever been, one of conjecture, sustained only by those human aspirations and intuitions to which allusion has been made.

The advent of the modern principles of Evolution, so far from broaching this question, has only impressed upon the mind a greater need of its solution. For, apart from their tendency, if they be not in some manner spiritualised in the course of time, to materialise thought, with the aid of the bias in the human mind towards a synthesis of belief, they are exceedingly mortifying to those who consider that they lead them half-way and there leave them, not knowing whether to proceed or to retrace their steps. They fail to answer, save in a partial and unsatisfactory manner, the great philosophical questions, Whence do I come? Whither do I tend? They assume to answer these questions as regards the race, but not as regards the units composing that race; or, more precisely, having no proof of the continued existence of the units, Scientific Evolution deals only with their temporary appearances in the world of sense, as the links in the chain of that race whose continued existence is sufficiently evident.

Automatism.

Since, moreover, certain actions have been found to occur in man and animals unattended, apparently, or really,—for there is an important difference between

these two terms[1] — by Consciousness, some minds have inferred that we are mechanical automata or machines; and from the absence of Consciousness have inferred the absence of Soul.

The conception has been more or less worked out by Physio-psychologists that, in the evolution of the human organism from simplicity to complexity, the course of development is to organise *mechanical*, physical, and mental processes; that is to say, that bodily and mental acts by frequent repetition tend to assume mechanical modes of working without the direct intervention of Consciousness or Volition, being first voluntary and laboured, and, subsequently, being performed without conscious effort and easily. These have been styled primarily and secondarily automatic functions, and are well known. Coughing, sneezing, breathing, &c., are primarily—walking, swimming, guarding the face with the hand, &c., are secondarily automatic. Similarly with mental processes. The inborn talent of the poet, the painter, the compositor, must be dependent on automatic mental processes, unattainable by those who do not possess this advantage. The experienced mind will form a correct judgment without any of those hesitations which would be shown by a less practised intellect, and as if automatically. So will an accountant cast up a sum with a rapidity which will astound a less competent person. There are men who will take in at a glance the contents of a shop-window when others will only notice a very few objects. It is impossible to doubt that in such cases processes take place in the mind which, from the perfection of their combination, may be classed along with those physical processes already cited.

The reflex functions of the Nervous system are therefore those which in the more complex organisms have developed

[1] Compare Lewes' Physical Basis of Mind, pp. 163, 354, 365, 368, *et seq.*, 379, 383, &c.

into mechanical modes of action, and are inherited with this disposition for mechanical action.[1]

The same in the Social Organism; men in simple Societies have no means of doing mechanical labour save by the employment of other men who are conscious, sentient, and volitional organisms; but as Societies grow more complex and attain a certain degree of Civilisation, machinery makes its appearance and is slowly perfected: so that little is required to regulate it and put it in mechanical motion.

Absence of proofs of immortality.

Those, therefore, who refuse to believe that they are mere temporary appearances in the procession of forms that go to make the race—both the temporary forms and the race eventually disappearing into nothingness—have to ask themselves what proof they have that they are anything else than so many ephemeral automata. It would be idle to recall the evidence which has been over and over again brought forward in defence of the existence of the Soul. Though that evidence has been considered satisfactory by many minds, it has not had the success which would have been necessary to arrest the inferences which have been drawn from Evolution.

But certain much-derided and involved phenomena are occurring in our midst, which it is pretended will enable Science to obtain experimental proof of the continued existence, under modified conditions, of the human Soul. It would not be the first time in the

[1] It is however worthy of remark, that as soon as anything happens to disturb the function of the automatic processes in the human organism, we become at once conscious of the disturbance.

history of our world in which a despised movement had effected more than had been expected of it. Already several scientific men have devoted their time[1] to their investigation; and in no case have they been denied after adequate examination. Either, then, these phenomena will furnish positive grounds for the conviction that the human Soul exists, or they will receive, in this respect, an official and authoritative contradiction. If the latter, the result must be that we shall continue to deify Matter at the expense, so to speak, of our immortality. If the former, it must be equally clear that Soul cannot alone form an exception to the great law of Evolution, which will therefore truly, as Prof. Hæckel has it, "embrace the whole domain of human knowledge." It is scarcely necessary to observe that the view taken in the present essay is in conformity with the former alternative. It will then suggest itself that, since each of the concatenated processional forms in process of Evolution is possessed of an intelligent and immortal principle in intimate connection with its corresponding physical substratum, the progress admittedly occurring must have an intelligent and intelligible object. It will likewise suggest itself that, since nothing in Nature takes place *per saltum*, but everything occurs in the

[1] Messrs. Alfred R. Wallace, naturalist; William Crookes, F.R.S., chemist; Cromwell Varley, F.R.S., electrician; Prof. Barrett, F.R.S., physicist; Lord Rayleigh, F.R.S., mathematician, &c.; Prof. Zöllner, mathematician and astronomer; C. Flammarion, astronomer; Carter Blake, lecturer on comparative anatomy, &c., &c.

relation of cause and effect, that is, as a gradual transition from antecedent circumstances; that since the bodily organisation is an illustration of this law of Continuity, the immortal principle or Soul must have an eternity behind, as it has an eternity before it. From this it will be inferred that,—altering a word in Sir James Macintosh's celebrated dictum,—Souls are not *made*, but *grow*.

Connection of body and mind.

Here it may not be considered inopportune to recall the intimate connection existing between the body and the mind, a connection which, as has been stated in another part, is not severed at death, the spiritual body bearing a definite correspondence to the physical, and having developed with it. There are two extreme views which have prevailed with regard to this connection.

The Materialistic view is that no connection exists, the operations of the mind being accounted for by the molecular changes taking place in the nervous mechanism; while the Spiritualistic holds that the Soul is an independent entity, playing on the nervous apparatus as a musician plays on a musical instrument, the imperfection in the execution being attributable to the imperfection of the instrument.

In both cases there is, as is doubtless perceived, an unsupported assumption together with an assertion that is defensible. In the Materialistic it is assumed that all the operations of the mind are due solely and exclusively to the automatic functions of the nervous

mechanism; yet in it is contained the defensible assertion that no mental operation occurs without corresponding molecular changes in the nervous matter, involving waste and repair of tissue.

In the Spiritualistic the assumption is that the human Soul bears no definite relation to its corresponding nervous mechanism; while it is accompanied by the defensible assertion that the Soul is circumscribed in its manifestations by the possibilities of the nervous apparatus with which it is conjoined.

Its intimate nature.

A third view, which, it is presumed, will be shared with other scientific minds by the readers of this essay, is that mind and body are intimately and proportionally connected. From the pages of Prof. Hæckel's work,[1] which contain much interesting matter on this subject, the following quotations are taken:—"It is above all necessary to recollect that body and mind can in fact never be considered as distinct, but rather that both sides of Nature are inseparably connected, and stand in the closest interaction. As even Goethe has clearly expressed it, 'matter can never exist and act without mind, and mind never without matter.'"

"At the lowest stage of human mental development are the Australians, some tribes of the Polynesians, and the Bushmen, Hottentots, and some of the Negro tribes. Language, the chief characteristic of genuine men, has with them remained at the lowest

[1] Op. cit., vol. ii. pp. 360, 363.

stage of development, and hence also their formation of ideas has remained at a low stage. Many of these wild tribes have not even a name for animal, plant, colour, and such most simple ideas, whereas they have a word for every single, striking *form* of animal and plant, and for every single sound or colour. Thus even the most simple abstractions are wanting. In many of these languages there are numerals only for one, two, and three: no Australian language counts beyond four."

Speaking of savages, Dr. Maudsley says,[1] "Wanting verbal language, they want the signs by which to denote and express such ideas; but it would be an error to suppose that they are only destitute of abstract ideas because they have not language. Constituted as their brains are, they would not have the capacity of abstract ideas, even if they had some capacity of language, because their brains have not the complication of nervous structure which is necessary to subserve such ideas; and it is probable that, were they possessed of abstract ideas, these would not fail to enforce some means of expression, and that language would thus develop with the development of their minds."

Influence of body on mind.

How the mind is affected by bodily states, and the body by mental states, is a fact that may be deemed commonplace; but to what extent this actually occurs is perhaps only really known to those who have made

[1] Op. cit., p. 275.

the mind their special study, and have had unusual opportunities of observation. Dr. Maudsley says, "The most ingenious introspectionist could never discover, from the revelations of self-consciousness, that the cause of a particular mood of mind lay in the liver, or in the heart, or in some other organ of the body; nor could he gain from them the least inkling how essentially the operations of these organs affect the character of the individual, the actual constitution of his *ego*." [1]

Again, "The person who has long addicted himself to alcoholic excesses, or to the habitual use of opium, or to some other pernicious vices, initiates a degeneration in the intimate elements of nervous structure, which, though we cannot yet detect its nature by microscopic observation, declares itself distinctly in a deterioration of moral sense and a pitiful enervation of will; and if the degeneration increase, the further depravation of will is shown by the loss of co-ordination of mental functions." [2]

The following is from Mr. Lewes' "Physical Basis of Mind:"—"Antoine Cros mentions the case of a patient, a young girl, suffering from congested liver and spleen, which of course altered the state of her blood, and thus for a time modified her constitution. Her moral character was greatly altered by it. She ceased to feel any affection for father or mother;

[1] Op. cit., p. 23. [2] Page 450.

would play with her doll, but could not be brought to show any delight in it; could not be drawn out of her apathetic sadness. Things which previously had made her shriek with laughter, now left her uninterested. Her temper changed, became capricious and violent. Congestion of the lungs, if unaccompanied by congestion of the liver, never produces such effects, because not thus altering the blood. The effects of liver congestion are familiar. Cros cites the case of a magistrate whose liver was enlarged, and whose skin showed a markedly bilious aspect, and in whom all affection seemed to be dead: he did not exhibit any perversion or violence, only want of emotive reaction. If he went to the theatre, he could not feel the slightest pleasure in it. The thoughts of his home, his absent wife and children, were, he declared, as unaffecting to him as a problem in Euclid."[1]

Dr. Maudsley further observes,[2] "Instead of mind being, as assumed, a wondrous spiritual entity, the independent source of power and self-sufficient cause of causes, an honest observation proves incontestably that it is the most dependent of all the natural forces."

In sleep the influence of the bodily conditions on the production of dreams is well known. It is a familiar fact that certain states of the stomach are productive of nightmare; and the pressure of the

[1] Page 327. [2] Page 125.

bed-clothes on the throat has brought about a dream in which the sleeper saw himself tried and sentenced to be hung! only realising that it was a dream when the suffocation produced his emancipation from it by waking him. The effect of emasculation on the character of the mind is very marked, and has consequently a suggestive bearing on the connection of the body and the mind; as also have the mental changes which occur at puberty, consequent upon certain physical changes. Reference should likewise be made to the phenomena of insanity as affording clear indications of the intimacy of this connection; and especially to the phenomena of Aphasia, or the defect and loss of expression by speech and even gesture, consequent on certain affections of the nervous matter.[1] So much, then, for the effect of body upon mind.

and of mind on body.

The influence of the mind upon the body has likewise, of course, much significance in regard to this question of the nature of the connection between the body and mind. The same author last quoted observes, "When emotional excitement is not discharged by motor channels it is apt to affect the internal viscera; it produces a disturbance or *un*ease of them which may increase in degree to *dis*ease; the principal channel through which this takes place

[1] On this subject see an interesting article by Dr. Hughlings Jackson in "Brain" for October 1878, "On Affections of Speech from Disease of the Brain."

being the complex vagus nerve, which regulates the force and rapidity of the heart's beats and the frequency of respirations, and influences to a great extent the secretions and movements of the stomach and intestines. It is through it that grief strikes the heart, getting its name of heart-rending, and through it that terror affects violently the movements of the heart and of respiration; through it that the bated breath of suspense, the nausea of disgust, and the impaired digestion of sorrow are produced; and through it that the bowels yearn in sympathy. A strong emotion, like an electric shock through the vagus, may cause sudden death by paralysing the heart, just as it may cause paralysis or convulsions of voluntary muscles. Emotion will often increase, lessen, or alter a secretion, bidding the tears flow, perverting the bile, making the tongue cleave to the roof of the mouth; and it may be questioned whether there is a single act of nutrition which emotion may not affect, inspiring it with energy or infecting it with feebleness, according to its pleasant or painful nature, and so aiding or hindering recovery from disease. It is certain that joy or hope exerts an animating effect upon the bodily life, quiet and equable when moderate, but, when stronger, evinced in the brilliancy of the eye, in the quickened pulse and breathing, in an inclination to laugh and sing. Grief or other depressing passion has an opposite effect, relaxing the arteries, enfeebling the heart, making the eye dull, impeding

digestion, and producing an inclination to sigh or weep. Herein we perceive a sufficient reason of the disease in an organ which is sometimes the result of a prolonged depressing passion, especially of depression in its highest degree—hopelessness."[1]

"A highly intelligent lady known to Dr. Tuke related to him that one day she was walking past a public institution, and observed a child, in whom she was particularly interested, coming out through an iron gate. She saw that he let go the gate after opening it, and that it seemed likely to close upon him, and concluded that it would do so with such force as to crush his ankle; however, this did not happen. 'It was impossible,' she says, 'by word or act to be quick enough to meet the supposed emergency; and, in fact, I found I could not move, for such intense pain came on in the ankle corresponding to the one which I thought the boy would have injured, that I could only put my hand on it to lessen its extreme painfulness. *I am sure I did not move so as to strain or sprain it.* The walk home—a distance about a quarter of a mile—was very laborious, and in taking off my stocking I found *a circle round the ankle, as if it had been painted with red currant juice, with a large spot of the same on the outer part.* By morning the whole foot was inflamed, and I was a prisoner to my bed many days.'"[2] But it is needless to multiply in-

[1] Page 384.

[2] Carpenter's Mental Physiology, p. 682. For a further illustration

stances of the intimate interaction of body and mind. That an intimate connection exists is fully demonstrated scientifically. That a definite relation obtains between the two seems demonstrated by many facts. There is an acknowledged relation even in unscientific minds between the size of the brain, and especially the anterior lobes of the brain, and the mental power of the possessor. It is always expected that the mind of a distinguished man will have been served by a brain of corresponding complexity, and for the same reasons the opposite holds good. It would be contrary to all physiological canons if the brain of a savage, who is unable to extend his calculating powers beyond the first four numerals, and has formed no abstract ideas, were found to exhibit the same qualities of structure as that of Sir Isaac Newton or of Napoleon I. The organ of mind, like other organs, develops by exercise continued during a sufficient period and under favourable conditions. At the same time there is a limit to the development of organs, which appears to depend on their inherent composition, and on their relation to the other bodily organs. In confirmation of this the reader will find much to interest him in the chapter on Evolution in Mr. Lewes' work already quoted, from which the following is an excerpt:—"Owing to the action and reaction of

Physical and mental organisations.

Limit to organic development.

of the intimate connection between the body and the mind, see an account on "Consciousness under Chloroform," contributed to the quarterly "Mind" for October 1878 by Mr. Herbert Spencer.

blood and plasmode, of tissues on tissues, and organs on organs, and their mutual limitations, the growth of each organism has a limit, and the growth of each organ has a limit. Beyond this limit, no extra supply of food will increase the size of the organism; no increase of activity will increase the organ. 'Man cannot add a cubit to his stature.' The blacksmith's arm will not grow larger by twenty years of daily exercise, after it has once attained a certain size. Increase of activity caused it to enlarge up to this limit; but no increase of activity will cause it to pass this limit. Why? Because here a balance of the co-operating formative forces has been reached. Larger muscles, or more muscle fibres, demand arteries of larger calibre, and these a heart of larger size; with the increase of muscle would come increase of connective tissue; and this tissue would not only compete with the muscle for pabulum, but by mechanical pressure would diminish the flow of that pabulum, &c."[1]

and consequently to mental development.

If this applies to organs generally, how much more must it not apply to the organ of mind, the complex substratum of all the intellectual manifestations. Here there must be a balance or composition of forces, not only between it and the other bodily organs, but even between the manifold centres of its own parts.

The following quotation from Sir B. C. Brodie's "Psychological Inquiries"[2] will not therefore seem surprising:—

[1] Page 104. [2] Vol. ii. p. 225.

"A friend of mine was in the habit of attending the Negro schools in Sierra Leone; and his report of them was, that the children, up to a certain point, learned so rapidly that, to use his own expression, it was delightful to teach them; but that they could go no further."

Dr. Carpenter confirms this:[1] "And, as a general rule, the children of the less civilised races show a remarkable *quickness* of perception, which sometimes engenders the belief that their capacity is not below our own. But their intellectual development very commonly stops at a point which leaves them 'great children' all their lives; and the *special* characters of the *type* then begin to manifest themselves unmistakably."

It is in accordance with physiological principles that the ruder races inherit their nervous systems in a certain definite relation to the capabilities of their race; and hence their mental development can only take place along certain lines.

Educational action of the senses.

The educational action of the senses, as is well known, is very great. In the cases in which one or more are lacking, the absence of their educational effect upon the mind is very noticeable.[2]

It is clear that the senses being the channels by which information is conveyed from the outer world

[1] Op. cit., p. 364.

[2] For an interesting case of this kind, the reader is referred to Laura Bridgman's, given with some details in Dr. Maudsley's work, p. 507.

to the mind, the absence of any of these must have a proportional influence on the development of the mind; just as it has been remarked that had we an additional sense we would receive through it additional and corresponding information. It is worthy of remark, too, that Science has advanced in a ratio corresponding to the inventions by means of which it has been possible to enhance the power of the senses, such, for instance, as the telescope, the microscope, the spectrum, and others; and the newly-discovered microphone will, it may be presumed, in due course open up to the ear of Man marvels comparable to those which the telescope and microscope have opened to his sight.

Infants illustrate the educational action of the senses in a remarkable degree. There is a period from their birth upwards when none of their senses have any significance; and it is interesting to observe their gradual development, the child feeling a natural attraction towards those stimulations which call forth their as yet torpid activity. Highly luminous objects and noisy sounds are sure to secure his attention and enjoyment. The absence of mental development in idiots, &c., likewise bears upon this question.

Early condition of human race.

It is not, it cannot be, for nothing that the mind is thus encased in physical conditions—at once the ruler and the ruled. In the infancy of Man's social existence he is overwhelmed by all those forces of Nature among which he has been cast, without knowledge, without

food, without weapons of defence, either intellectual or physical. The tempest finds him unsheltered, pestilence and famine unprepared. All the elements seem to conspire against him. Wild and murderous beasts dispute with him the mastery of that land which is his and their common right. Like them, he dwells in caves, the ready-made shelter which he shares with brutes. In their skins he has a ready though imperfect protection from the changes of the seasons. To follow his progressive career from this condition, in which, according to the anthropological sciences of our day, he must have existed at one period of our earth's history, cannot be contemplated. It must be left to the reader's mental vision to discern through the vista of the ages the manifold vicissitudes and complex agencies to which, and through which, Man owes the attainment of his present stage of moral and intellectual progress.

Mental condition of savages.

That there was a time when Man must have been little removed from the brutes becomes apparent when we consider that there are men in very analogous conditions at the present day.

"Nothing, however, is perhaps more remarkable in this respect, than that some of the wildest tribes in Southern Asia and Eastern Africa have no trace whatever of the first foundations of all human civilisation, of family life, and marriage. They live together in herds, like apes, generally climbing on trees and eating fruits; they do not know of fire, and use stones and

clubs as weapons, just like the higher apes. All attempts to introduce civilisation among these, and many of the other tribes of the lowest human species, have hitherto been of no avail; it is impossible to implant human culture where the requisite soil, namely, the perfecting of the brain, is wanting. Not one of these tribes has ever been ennobled by civilisation; it rather accelerates their extinction. They have barely risen above the lowest stage of transition from man-like apes to ape-like men, a stage which the progenitors of the higher human species had already passed through thousands of years ago."[1]

"The Bosjesmen are said to make so much more use of gestures than of speech that they are unintelligible to one another in the dark, and are compelled, when they want to converse at night, to assemble round their camp-fires."[2]

Dr. Elam, in his "Physician's Problems," refers to "the 'wild people' of Ceram, or the 'original people' of the Malay peninsula, who seem, objectively considered, to differ from the monkeys in little else than some unintelligible rudiments of articulate speech and the casual accomplishment of kindling a fire."[3]

Of the Fuegians Mr. Darwin remarks:[4] "I believe, in this extreme part of South America, man exists in

[1] Hæckel, op. cit., vol. ii. p. 363. [2] Maudsley, op. cit., p. 501.
[3] Page 101. For the ideas as to morals of the lower races of man, see M'Lennan's "Primitive Marriage," p. 140, and other parts of the same work.
[4] Journal of Researches, p. 230.

a lower state of improvement than in any other part of the world."

Mental condition of animals.

As a sequel to this picture of the intelligence of the lowest men, which could be considerably extended, the reader is referred to Mr. Darwin's "Descent of Man," vol. i. chap. ii., in which the mental powers of animals are compared with those of Man. After remarking on the mental distance between the lowest men and the most highly organised apes, he observes: "We must also admit that there is a much wider interval in mental power between one of the lowest fishes, as a lamprey or lancelet, and one of the higher apes, than between an ape and Man; yet this immense interval is filled up by numberless gradations. Nor is the difference slight in moral disposition between a barbarian, such as the man described by the old navigator Byron, who dashed his child on the rocks for dropping a basket of sea-urchins, and a Howard or Clarkson; and in intellect, between a savage who does not use any abstract terms, and a Newton or Shakespeare. Differences of this kind between the highest men of the highest races and the lowest savages, are connected by the finest gradations. Therefore it is possible that they might pass and be developed into each other. My object in this chapter is solely to show that there is no fundamental difference between man and the higher mammals in their mental faculties," &c.[1] A few lines farther on he adds: "With

[1] Page 35.

respect to animals very low in the scale, I shall have to give some additional facts under Sexual Selection, showing that their mental powers are higher than might have been expected. The variability of the faculties in the individuals of the same species is an important point for us, and some few illustrations will here be given. But it would be superfluous to enter into many details on this head, for I have found, on frequent inquiry, that it is the unanimous opinion of all those who have long attended to animals of many kinds, including birds, that the individuals differ greatly in every mental characteristic." . . .

"As Man possesses the same senses with the lower animals, his fundamental intuitions must be the same. Man has also some few instincts in common, as that of self-preservation, sexual love, the love of the mother for her new-born offspring, the power possessed by the latter of sucking, and so forth."[1] . . .

"The fact that the lower animals are excited by the same emotions as ourselves is so well established, that it will not be necessary to weary the reader by many details."[2] . . .

. . . "Most of the more complex emotions are common to the higher animals and ourselves."[3] . . .

"All animals feel *Wonder*, and many exhibit *Curiosity*."[4]

Mr. Darwin further points out that the principle of

[1] Page 36. [2] Page 39. [3] Page 41. [4] Page 42.

Imitation is shared with monkeys and some other animals by Man, and especially by Man in a barbarous condition. The power of *Attention* is also possessed by other animals besides Man. Reason and the sense of beauty are not exclusive characteristics of Man's mental powers, and are possessed in some degree by animals. Observations on the moral sense or conscience are likewise to be found in Mr. Darwin's "Comparison of the Mental Powers of Man and the Lower Animals," chap. iii. in the same work.

The following illustrations of the mental powers of animals are very suggestive.

Monkeys.

With regard to monkeys, "Rengger observed an American monkey (a Cebus) carefully driving away the flies which plagued her infant; and Duvaucel saw a Hylobates washing the faces of her young ones in a stream. . . . An adopted kitten scratched the above-mentioned affectionate baboon, who certainly had a fine intellect, for she was much astonished at being scratched, and immediately examined the kitten's feet, and without more ado bit off the claws."[1] . . . "Brehm gives a curious account of the instinctive dread which his monkeys exhibited towards snakes; but their curiosity was so great that they could not desist from occasionally satiating their horror in a most human fashion, by lifting up the lid of the box in which the snakes were kept.[2] . . .

[1] Pages 40, 41.

[2] Page 42.

Mr. Bartlett has given me a curious proof how variable this faculty (Attention) is in monkeys. A man who trains monkeys to act used to purchase common kinds from the Zoological Society at the price of five pounds for each; but he offered to give double the price if he might keep three or four of them for a few days in order to select one. When asked how he could possibly so soon learn whether a particular monkey would turn out a good actor, he answered that it all depended on their power of Attention. If, when he was talking and explaining anything to a monkey, its attention was easily distracted, as by a fly on the wall or other trifling object, the case was hopeless. If he tried by punishment to make an inattentive monkey act, it turned sulky. On the other hand, a monkey which carefully attended to him could always be trained.[1] . . . Rengger states that when he first gave eggs to his monkeys they smashed them and thus lost much of their contents; afterwards they gently hit one end against some hard body, and picked off the bits of shell with their fingers. After cutting themselves only once with any sharp tool, they would not touch it again, or would handle it with the greatest care. Lumps of sugar were often given them wrapped up in paper; and Rengger sometimes put a live wasp in the paper, so that in hastily unfolding it they got stung; after this had

[1] Page 44.

once happened, they always first held the packet to their ears to detect any movement within.[1] . . . It has often been said that no animal uses any tool; but the chimpanzee in a state of nature cracks a native fruit, somewhat like a walnut, with a stone. Rengger easily taught an American monkey thus to break open hard palm-nuts, and afterwards of its own accord it used stones to open other kinds of nuts, as well as boxes. It thus also removed the soft rind of fruit that had a disagreeable flavour. Another monkey was taught to open the lid of a large box with a stick, and afterwards it used the stick as a lever to move heavy bodies; and I have myself seen a young orang put a stick into a crevice, slip his hand to the other end, and use it in the proper manner as a lever. In the cases just mentioned stones and sticks were employed as implements, but they are likewise used as weapons. Brehm states, on the authority of the well-known traveller Schimper, that in Abyssinia, when the baboons belonging to one species (*C. gelada*) descend in troops from the mountains to plunder the fields, they sometimes encounter troops of another species (*C. hamadryas*), and then a fight ensues. The Geladas roll down great stones which the Hamadryas try to avoid, and then both species, making a great uproar, rush furiously against each other. Brehm, when accompanying the Duke of

[1] Page 47.

Coburg-Gotha, aided in an attack with firearms on a troop of baboons in the pass of Mensa in Abyssinia. The baboons in return rolled so many stones down the mountain, some as large as a man's head, that the attackers had to beat a hasty retreat; and the pass was actually for a time closed against the caravan. It deserves notice that these baboons thus acted in concert."[1]

Dogs. In reference to the intelligence of dogs, "No doubt it is often difficult to distinguish between the power of reason and that of instinct.[2] Thus Dr. Hayes, in his work on 'The Open Polar Sea,' repeatedly remarks that his dogs, instead of continuing to draw

[1] Page 51. For a comparison between the monkeys capable of using tools and the acquisition of this power by primeval man, as well as for the development of language, &c., see p. 52 *et seq.* in the same work.

[2] Mr. G. J. Romanes gives the following lucid explanation of the physio-psychological character of the animal instincts:—"All reflex action, or neurosis, is not attended with ideation, or psychosis. In our own organisation, for instance, it is only cerebral reflexes which are so attended; and even among cerebral reflexes there is good reason to believe that the greater number of them are not accompanied by conscious ideation; for analysis shows that it is only those cerebral discharges which have taken place comparatively seldom, and the passage of which is therefore comparatively slow, that are accompanied by any ideas, or changes of consciousness. The more habitual any action becomes, the less conscious do we require to be of its performance; it is, as we say, performed automatically, or without thought. Now it is of great importance thus to observe that consciousness only emerges when cerebral reflexes are flowing along comparatively unaccustomed channels, and therefore that cerebral discharges which at first were accompanied by definite ideas may, by frequent repetition, cease to be accompanied by any ideas. It is of importance to observe this fact, because it serves to explain the origin of a number of animal instincts. These instincts must originally have been of an intelligent nature; but the action which they prompted, having through successive

the sledges in a compact body, diverged and separated when they came to thin ice, so that their weight might be more evenly distributed. This was often the first warning and notice which the travellers received that the ice was becoming thin and dangerous.[1] . . . Mr. Colquhoun winged two wild ducks, which fell on the opposite side of a stream; his retriever tried to bring over both at once, but could not succeed; she then, though never before known to ruffle a feather, deliberately killed one, brought over the other, and returned for the dead bird.[2] . . . I saw a person

generations been frequently repeated, became at last organised into a purely mechanical reflex, and therefore now appear as actions which we call purely automatic or blindly instinctive. . . . . Thus we are able to explain all the more complicated among animal instincts as cases of 'lapsed intelligence.' But, on the other hand, a great many of the more simple instincts were probably evolved in a more simple way. That is to say, they have probably never been of an intelligent character, but have begun as merely accidental adjustments of the organism to its surroundings, and have then been laid hold upon by natural selection and developed into automatic reflexes. Take, for instance, the action of so-called 'shamming dead,' which is performed by certain insects and allied animals when in the presence of danger. That this is not a case of intelligent action we may feel quite sure, not only because it would be absurd to suppose that insects could have any such highly abstract ideas as those of death and its conscious simulation, but also because Mr. Darwin tells me that he once made a number of observations on this subject, and in no case did he find that the attitude in which the animal shammed dead resembled that in which the animal really died. All, therefore, that 'shamming dead' amounts to is an instinct to remain motionless, and therefore inconspicuous, in the presence of enemies; and it is easy to see that this instinct may have been developed by natural selection without ever having been of an intelligent nature—those individuals which were least inclined to run away from enemies being preserved rather than those which rendered themselves conspicuous by movement."—*Animal Intelligence*, "*Nineteenth Century*" *for October* 1878, p. 657.

[1] Page 46.

[2] Page 48.

pretending to beat a lady who had a very timid little dog on her lap, and the trial had never before been made. The little creature instantly jumped away, but after the pretended beating was over, it was really pathetic to see how perseveringly he tried to lick his mistress's face and comfort her." [1]

In J. Brown's "Horæ Subscesivæ" [2] will be found an anecdote which, quoted from memory, is in substance as follows:—A bitch, named in the work, who had for many days shown herself very loving to her litter of puppies, one day found one of their number dead. From that moment she paid no attention to the rest, and devoted herself by all the means in her power to revive the insensible one. After a time, having found her efforts useless, she took the little one up, and carried it to the river, swam to the middle of the stream and left it there, she swimming back to the shore, whence she watched it wistfully as it floated down the stream. Apparently then understanding that its pup was lost to her, she returned to her litter, and thenceforth gave all her attention to the rest of her offspring.

Mules. "The muleteers in South America say, 'I will not give you the mule whose step is easiest, but *la mas racional* —the one that reasons best;' and Humboldt adds: 'This popular expression, dictated by long experience, combats the system of animated machines, better per-

[1] Page 77. [2] Page 199.

haps than all the arguments of speculative philosophy."[1]

Speaking of birds, Dr. Maudsley observes: "In Birds, conformably to the increased development of the hemispheres (of the brain), the manifestations of intelligence are much greater (than in fishes); the tricks which some of them may be taught are truly marvellous, and those who teach them know well how much different birds differ in intelligence and temper."[2] *Birds.*

"A pair of Jackdaws endeavoured to construct their nest in one of the small windows that lighted the spiral staircase of an old church tower. As is usual, however, in such windows, the sill sloped inwards, with a considerable inclination; and consequently, there being no level base for the nest, as soon as a few sticks had been laid, and it was beginning to acquire weight, it slid down. This seems to have happened two or three times; nevertheless the birds clung with great pertinacity to the site they had selected, and at last devised a most ingenious method of overcoming the difficulty. Collecting a great number of sticks, they built up a sort of cone upon the staircase, the summit of which rose to the level of the window-sill, and afforded the requisite support to the nest; this cone was not less than six feet high, and so large at its base as quite to obstruct the passage up the staircase; yet notwith-

[1] Darwin, op. cit., p. 48.

[2] Op. cit., p. 99.

standing the large amount of material which it contained, it was known to have been constructed within four or five days. Now, as this was a device quite foreign to the natural habit of the bird, and only hit upon after the repeated failure of its ordinary method of nest-building, the curious adaptation of means to ends which it displayed can scarcely be regarded in any other light, than as proceeding from a *design* in the minds of the individuals who executed it.

"A Wren having built her nest in a rather dangerous situation in the slate quarries at Penrhyn, was liable to great disturbance from the occasional explosions. She soon learned, however, to take warning by the sound of the bell, which was rung to give notice to the workmen when a blast was about to be made, and would then quit her nest and fly to a little distance, remaining there until the shock of the explosion had passed off. This was noticed by the workmen, and the sagacity of the Wren was made a subject of exhibition to the visitors at the quarries, the bell being frequently rung for the mere purpose of causing her to quit her nest. After a time, however, it was observed that the bird no longer flew away upon the ringing of the bell, but that she remained until she saw whether or no the workmen began to move; if *they* drew off, *she* would go too; but if they remained in their places, she would not stir."[1] An explanation

[1] Carpenter, op. cit., p. 86.

of the wren's actions on the law of association is given, and other remarkable cases of the intelligence of birds follow in the same work.

Fishes, &c.

The intelligence of fishes is referred to in Dr. Maudsley's work.[1] "In fishes there is the first distinct appearance of simple ideas and of the lowest rudiments of emotion; carp will collect to be fed at the sound of a bell, thus giving evidence of the association of two simple ideas; and a shark, suspicious of mischief, will avoid the baited hook."

The intelligence of ants need scarcely be referred to, it being well known that they are possessed of considerable intelligence.[2]

Nervous system of lowest animals.

It will be remarked that in many of these cases there is evidence of the acquisition of experience by animals. In these different series of animals we are able to detect intelligent manifestations, because the complexity of their physical and mental activity bears a relation, however distant, to our own standard of complexity. It is, as has so often been repeated in works on the subject, the same in kind though not in degree. But if it is not easy to trace back intelligent manifestations much further, we may trace back the nervous system which is their physical correlative. In the Ascidian there must be an association of a few simple ideas if they be only connected

[1] Op. cit., p. 98.

[2] A remarkable instance of the intelligence of bees will be found in Dr. Maudsley's work, pp. 239, 240.

with those actions—the rejection of inappropriate food and unpleasant objects in its vicinity by means of a discharge of the water contained in its sac—which its nervous system appears to subserve. The difficulty of detecting the nerves of some of the lowest animals will be made apparent on a perusal of Mr. Romanes' article in the "Fortnightly Review" for October 1878,



MEDUSA.

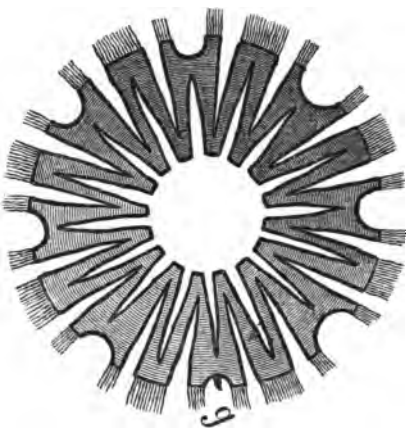
on "The Beginning of Nerves in the Animal Kingdom." In the case of the Medusæ or jellyfishes, their nervous centres, as pointed out by Mr. Romanes, occupy the circumference of the rim of the bell-like substance which thus forms the most important part of their organisms.

"Previous to my researches, the question as to whether or not the Medusæ possess a nervous system

was one of the most vexed questions in biology—some eminent naturalists maintaining that they could detect microscopical indications of nervous tissues, and others maintaining that these indications were delusive—the deliquescent nature of the gelatinous tissues rendering microscopical observation in their case a matter of great difficulty. . . . Accordingly I made the experiment of cutting off now one part and now another part of a jellyfish, in order to see whether by so doing I could alter the character of its movements in such a way as to show that I had removed nerve-centres or ganglia. The results which I obtained were in the highest degree astonishing. For, on removing the extreme margin of the swimming-bell, I invariably found that the operation caused immediate, total, and permanent paralysis of the entire organ. That is to say, if, with a pair of scissors, I cut off the whole marginal rim of the bell, carrying the cut round just above the insertion of the tentacles, the moment the last atom of the margin was removed, the pulsations of the bell instantly and for ever ceased. On the other hand, the severed margin continued its pulsations with vigour and pertinacity, notwithstanding its severance from the main organism.[1] . . . From these marginal ganglia there radiate what he (Mr. Schäfer, the microscopical observer) regards as delicate pale nerve-fibres, which sometimes present the appear-

[1] Page 511.

ance of fibrillation. These fibres spread over the entire expanse of the muscular sheet in great numbers.[1] . . . Now suppose that seven of these eight ganglia are cut out, the remaining one then continues to supply its rhythmical discharges to the muscular sheet of the bell, the result being, at each discharge, two contractile waves, which start at the same instant, one on each side of the ganglion, and which then course with equal rapidity in opposite directions, and so meet at the point of the disc which is opposite to the ganglion. Suppose now a number of radial cuts are made in the disc, according to such a plan as this,



g, Ganglion.

wherein every radial cut deeply overlaps those on either side of it. The contractile waves which now

[1] Page 513.

originate from the ganglion must either become blocked and cease to pass round the disc, or they must zigzag round and round the tops of these overlapping cuts. Now, remembering that the passage of these contractile waves is presumably dependent on the nervous network progressively distributing the ganglionic impulse to the muscular fibres, surely we should expect that two or three overlapping cuts, by completely severing all the nerve-fibres lying between them, ought to destroy the functional continuity of these fibres, and so to block the passage of the contractile wave. Yet this is not the case; for even in a specimen of *Aurelia* so severely cut as the one here represented, the contractile waves, starting from the ganglion, continued to zigzag round and round the entire series of sections. The same result attends other forms of sections."[1]

Mr. Romanes then proceeds to describe other forms of section of the substance of the marginal rim. These sections, purposely made as intricate as possible, without however destroying the continuity of substance, manifested the same disturbance when stimulation was applied to the single ganglion; and Mr. Romanes calls this particular communication of nervous disturbance, without prejudging its nature, a process of physiological induction, and observes: "But if, for the sake of a name, we call this process, whatever it may

[1] Page 514.

be, a process of *physiological induction*, we may apply a similar term to a process which seems closely analogous to, if it is not really identical with, the process we are now considering. I refer to some highly remarkable observations which were published a year or two ago in Mr. Darwin's work on Insectivorous Plants. It is there stated that while looking at a linear series of excitable cells with the microscope, Mr. Darwin could observe the passage of a stimulus along the series, the protoplasm in the cells immediately stimulated first undergoing aggregation, then the protoplasm in those next adjacent doing the same, and so on." [1]

The writer then proceeds to describe the effect of light on these creatures, and says: "Hitherto Light has never been actually proved to act as a direct stimulus to ganglionic matter. It is therefore of interest to note that it thus acts in the case of some species of Medusæ. *Sarsiæ*, for instance, almost invariably respond to a single flash by giving one or more contractions. If the animal is vigorous, the effect of a momentary flash thrown upon it during one of the natural pauses is immediately to originate a bout of swimming; but if the animal is non-vigorous, it usually gives only one contraction in response to every flash. That it is light *per se*, and not the sudden transition from darkness to light, which here

[1] Page 519.

acts as the stimulus, is proved by the result of the converse experiment, viz., placing a vigorous specimen in sunlight, waiting till the middle of one of the natural pauses, and then suddenly darkening. In no case did I thus obtain any response. Indeed, the effect of this converse experiment is rather that of inhibiting contractions; for if the sunlight be suddenly shut off during the occurrence of a swimming bout, it frequently happens that the quiescent stage immediately sets in. Again, in a general way, it is observable that *Sarsiæ* are more active in the light than they are in the dark; it appears as though light acts towards these animals as a constant stimulus.[1] . . . The question as to what part of the organism it is which is thus susceptible of luminous stimulation was easily determined by detaching various parts of the organism and experimenting with them separately. I thus found that it is the marginal bodies alone which are thus affected by light; for when these are removed, the swimming-bell, though still able (in the case of *Sarsia*) to contract spontaneously, no longer responds to luminous stimulation; whereas, if only one marginal body be left *in situ*, or if the severed margin, or even a single excised marginal body, be experimented on, unfailing response to this mode of stimulation may be obtained. Responses to luminous stimulation occur in all cases equally well, whether

[1] Page 521.

the light employed be direct sunlight, diffused daylight, polarised light, or any of the luminous rays of the spectrum employed separately. On the other hand, neither the non-luminous rays beyond the red, nor those beyond the violet, appear to exert the smallest degree of stimulating effect. Hence, in all respects, the rudimentary eye of *Sarsia* appears to be affected by the same qualities of light as are our own.[1] Referring to the slow response to luminous stimulation of one of the Medusids, Mr. Romanes observes: "Probably, therefore, we have here the most rudimentary type of a visual organ that is possible; for it is evident that if the ganglionic matter were a very little more stable than it is, it would either altogether fail to be thrown down by the luminous vibrations, or would occupy so long a time in the process that the visual sense would be of no use to its possessor. How great is the contrast between the excitability of such a sense-organ and that of a fully evolved eye, which is able to effect the needful molecular changes in response to a flash as instantaneous as that of lightning! Before leaving the case of luminous stimulation, I may observe that some of the Medusæ appear to be very fond of light; for on placing a number of *Sarsiæ* in a large bell-jar in a dark room, and then throwing a beam of light through a part of the water in the bell-jar, the Medusæ all crowded

[1] Page 522.

into the path of the beam, and dashed themselves against the glass nearest to the light, very much as moths might do under the influence of similar stimulation. On moving the lamp round the jar, a cluster of Medusæ always followed it. This latter experiment is important, because it proves that the marginal ganglia are so far co-ordinated in their action that they can steer the animal in any particular direction."[1]

Mr. Romanes further points out that the different nerve poisons "exert their anæsthesiating influence on the Medusæ quite as decidedly as they do on the higher animals;" and says, "It is easy to see that this is an important branch of the inquiry on which I am engaged; for in the nerve-poisons we have, as it were, so many tests whereby to ascertain whether nerve-tissue, where it first appears upon the scene of life, is of the same essential character, as to its various functions, as is the nerve tissue of higher animals."[2] It is a noteworthy fact in connection with the community of the lower and higher animals in their susceptibility to nerve poisons, that the sensitive plant (*Mimosa pudica*) likewise manifests this susceptibility; it having been found that if ether is introduced into a bell-jar under which the plant has been placed, it ceases to show any sensibility; and it may be presumed that the same experiment would

[1] Page 524. [2] Page 525.

be followed by a similar result in the case of other plants of like sensibility.[1]

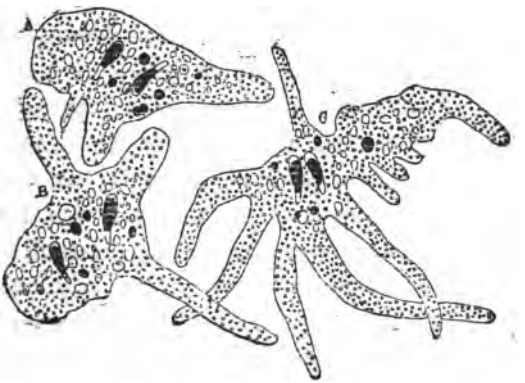
Whether or not Mr. Romanes will be borne out by future knowledge, when he says that the Medusa is probably the lowest animal in which a nervous system ever will be discovered, is a question which time will decide; but it may be hoped that we shall be able to trace back nerve tissue to the confines of that homogeneous substance from which it must have been differentiated. Dr. Maudsley on this subject makes the following observation:—"One must guard against the assumption that any kind of living protoplasm is really homogeneous. Hyaline it may be, but we know not how complex its structure may be. It is possible that sometimes tracks in the apparently homogeneous substance may be so far differentiated as to be adapted to convey impressions, and thus to serve the primitive function of nerve, although we cannot observe the least difference in structure. As nerve is formed by differentiation from apparently homogeneous substance, there must be a period when we cannot say with certainty whether what we see is nerve or is not."[2]

It thus accords with the general principle of Evolution that where nerves cease to be perceptible to our senses and their aids, there are, nevertheless, the ele-

[1] Indeed, Claude Bernard tells us (see La Science Expérimentale, p. 228 *et seq.*) that all organised substances are susceptible to anæsthetic influence.

[2] Op. cit., p. 87.

ments of a nervous system which has not yet become differentiated. The Amœba, for instance, the lowest type of animal life, whose general substance is so far undifferentiated that its nutrition and excretion is a general function of the protoplasm composing it, its unicellular substance having no determinate shape, has, nevertheless, as pointed out by



AMŒBA IN DIFFERENT FORMS, A B C (from Carpenter's "Mental Physiology," p. 41).

Prof. Clark, some nervous sense. "It creeps and changes its form, which indicates a muscular power; and seeing that one end of the body always precedes the other, it is fair to draw the inference that this muscular power is under the directing control of at least a certain degree of nervous sense."[1] Of such as these Dr. Maudsley observes, "They are nourished

[1] Op. cit., p. 11.

without digestive organs; breathe without respiratory organs; feel and move without organs of sense, without muscles, without nervous system."[1]

Mind in Plants.

With regard to the peculiar manifestations in plants which have shown some analogy to the mental manifestations of the lower animals, the reader is referred to an article of considerable interest by W. Lauder Lindsay, M.D., F.R.S.E., F.L.S., in the "Journal of Mental Science" for January 1876, entitled "Mind in Plants." The following, which is one of the introductory remarks, is all that can here be given:—"What I hold to be a certain community of, or in, mind between plants and animals—in so far as concerns its lower or rudimentary manifestations—is, I think, of sufficient interest and importance to deserve special study in connection more particularly with the surprising results recently recorded by Naturalists as to the behaviour, under certain circumstances, of Insectivorous or Carnivorous Plants."

The lecture delivered by Mr. F. Darwin at the London Institution on the "Analogies of Plant and Animal Life," in March 1878, is deserving of special attention in this respect.[2] Of course nothing in any way resembling a nervous system, as we are accus-

[1] Op. cit., p. 87.

[2] It was reported in the pages of "Nature" for March of the same year. If the reader will refer to p. 133 of "Nature" for December 12th, 1878, he will find the following observations made by the then retiring President of the Royal Society, Sir Joseph Hooker, C.B., K.C.S.I., in his address at the anniversary meeting of that body:—"Of special

tomed to observe it, is perceptible in plants, though there are manifested in them phenomena which in the higher animals occur only when accompanied by certain molecular changes in the nervous tissue. In Animals we find the nervous system gradually decreasing in complexity as we descend the animal series, till it assumes great simplicity, and finally becomes imperceptible in the lowest animals and in plants. It would seem, therefore, that such manifestations as we invariably, and with good reason, associate with mind, are displayed in the lower organisms without the instrumentality of nerve tissue properly so called. But if mental manifestations of some degree do occur without the instrumentality of nerve tissue, none can independently of the presence of that indefinable grouping of conditions which has been termed Life. As before stated, the human mind cannot perceive minute degrees of mental manifestations which are too far removed from the human standard of complexity, any more than the

interest to myself, as having been conducted in the Jodrell Laboratory at Kew, are Dr. Burdon Sanderson's investigations on the exceptional property possessed by the leaves and other organs of some plants which exhibit definite movements in response to mechanical, chemical, or electric stimuli. In 1873 this physiologist showed us in our meeting-room that the closing of the laminæ of the leaf of *Dionæa* is preceded by a preliminary state of excitement, and is attended with a change in the electric conditions of the leaf; and this so closely resembled the change which attends the excitation of the excitable tissues of animals, that he did not hesitate to identify the two phenomena," &c. See also Claude Bernard, "Leçons sur les Phénomènes de la Vie communs aux Animaux et aux Végétaux," 2 vols., J. B. Baillière et Fils, 1879, *passim*.

human ear can perceive vibrations of sound that go beyond or do not attain to a certain maximum or minimum number. Before the invention of the microscope, minute organisms did not exist as far as we were concerned; yet these have a life the same in kind though not in degree as ourselves. Like ourselves, they are encased in physical conditions, dependent on nutrition for their development; and in their reproduction also tend to increase beyond the means of subsistence, which tendency is checked by divers natural restraints.

Simplest forms of life.

"The simplest form of life is not, as commonly stated, a cell, but a microscopic lump of jelly-like substance, or protoplasm, which has been named *sarcode* by Dujardin, *cytode* by Hæckel, and *germinal matter* by Lionel Beale. This protoplasm, although entirely destitute of texture, and consequently destitute of organs, is nevertheless considered to be living, because it manifests the cardinal phenomena of Life: assimilation, evolution, reproduction, mobility, and decay. Examples of this simplest organism are Monads, Protamœbæ, and Polythalamia. Few things are more surprising than the vital activity of these organites, which puzzle naturalists as to whether they should be called plants or animals. All microscopists are familiar with the spectacle of a formless lump of albuminous matter (a Rhizopod) putting forth a process of its body as a temporary arm or leg, or else slowly wrapping itself round a

microscopic plant, or morsel of animal substance, thus converting its whole body into a mouth and a stomach; but these phenomena are surpassed by those described by Cienkowski, who narrates how one Monad fastens on to a plant and sucks the chlorophyll first from one cell and then from another; another Monad, unable to make a hole in the cell-wall, thrusts long processes of its body into the opening already made, and drags out the remains of the chlorophyll left there by its predecessor; while a third Monad leads a predatory life, falling upon other Monads that have filled themselves with food. Here, as he says, we stand on the threshold of that dark region where Animal Will begins, and yet there is here only the simplest form of organisation."[1]

Spontaneous Generation.

So simple are these lowest forms of organisation, that it has been deemed legitimate, not only on philosophical but also on material grounds, to infer their origination from inorganic matter by a natural process of spontaneous generation. Prof. Hæckel, who is a strenuous supporter of this conception, observes, "If we compare those elements which constitute the body of organisms with those which are met with in anorgana, we have first to note the highly important fact, that in animal and vegetable bodies no element occurs but what can be found outside of them in inanimate nature. There are no special organic ele-

[1] Op. cit., Lewes, p. 38.

ments or simple organic substances. The chemical and physical differences existing between organisms and anorgana, consequently, do not lie in their material foundation; they do not arise from the different nature of the *elements* composing them, but from the different manner in which the latter are united by chemical *combination*."[1] Referring to the most perfect inorganic forms, crystals, which only appear removed from the lowest organic forms by the magic formula, Life, the Professor adds, "If we cause any inorganic solution of salt slowly to evaporate, crystals are formed in it, which slowly increase in size during the continued evaporation of the water. This process of growth arises from the fact that new particles continually pass over from the fluid state of aggregation into the solid, and, according to certain laws, deposit themselves upon the firm kernel of the crystal already formed. From such an apposition of particles arise the mathematically definite crystalline shapes. In like manner the growth of organisms takes place by the accession of new particles. The only difference is, that in the growth of organisms, in consequence of their semi-fluid state of aggregation, the newly-added particles penetrate into the interior of the organism (inter-susception), whereas anorgana receive homogeneous matter from without only by apposition, or an addition of new particles to the surface."[2]

[1] Op. cit., vol. i. p. 328. [2] Page 335.

On this subject Mr. G. H. Lewes has the following:—"When a crystalline solution takes shape, it will always take a definite shape, which represents what may be called the *direction* of its forces, the polarity of its constituent molecules. In like manner, when an organic plasmode takes shape—crystallises, so to speak—it always assumes a specific shape dependent on the polarity of its molecules."[1] Alluding to the phenomena of repair from the blood in the physical organisation, "The nourishment of various organs from plasmodes derived from a common fluid, each selecting from that fluid only those molecules which are like its own, rejecting all the rest, is very similar to the formation of various crystals in a solution of different salts, each salt separating from the solution only those molecules that are like itself.[2] . . . Crystals not only grow by assimilation, but even repair injuries, with a certain superficial resemblance to the repair of animal tissues. Thus, according to the experiments of Jordan, cited by Sir James Paget (Lectures on Surgical Pathology, i. 153, and 2d ed., p. 115), an octohedral crystal of alum, if fractured and replaced in a motherlye, will in a few days exhibit a complete restoration of the original form. The whole crystal increases, but the increase is greatest on the broken edge, and the octohedral form is completely renewed.[3] . . . All

[1] Page 90. [2] Page 91. [3] Page 10.

the fundamental properties of matter are recognisable in organised matter. The elementary substances and forces familiar to physicists and chemists are the materials of the biologist; nor has there been found a single organic substance, however special, that is not reducible to inorganic elements . . . If we can decompose the organic into the inorganic, this shows that the elements of the one are elements of the other; and if we are not yet able to recompose the inorganic elements into organic matter (not, at least, in its more complex forms), may this not be due to the fact that we are ignorant of the proximate synthesis, ignorant of the precise way in which the elements are combined? . . . But the skill of man has already succeeded in making many organic substances, and will perhaps eventually succeed in making a cell, certainly will, if ever the special synthesis which binds the elements together should be discovered. . . . It is the speciality of organic phenomena which gives them a special place, although the speciality may only be due to a complication of general agencies."[1]

Prof. Hæckel resumes, "But it is necessary to add here that, by the recent progress of chemistry and physiology, the mysterious and miraculous character which at first seems to belong to this much-disputed and yet inevitable process of spontaneous generation,

[1] Pages 11, 12.

has been to a great extent, or almost entirely, destroyed. Not fifty years ago, all chemists maintained that we were unable to produce artificially in our laboratories any complicated combination of carbon, or so-called 'organic combination.' . . . When, therefore, in 1828, Wöhler, in Göttingen, for the first time refuted this dogma, and exhibited pure 'organic' urea, obtained in an artificial manner from a purely inorganic body (cyanate of ammonium), it caused the greatest surprise and astonishment. In more recent times, by the progress of synthetic chemistry, we have succeeded in producing in our laboratories a great variety of similar 'organic' combinations of carbon, by purely artificial means—for example, alcohol, acetic acid, formic acid. Indeed, many exceedingly complicated combinations of carbon are now artificially produced, so that there is every likelihood, sooner or later, of our producing artificially the most complicated, and at the same time the most important of all—namely, the albuminous combinations, or plasma-bodies. By the consideration of this probability, the deep chasm which was formerly and generally believed to exist between organic and inorganic bodies is almost or entirely removed, and the way is paved for the conception of spontaneous generation."[1]

[1] Vol. i. p. 342. For further observations on this subject see Dr. Charlton Bastian's "Beginnings of Life," vol. ii. p. 38 *et seq. et passim.*

In the preface to his work Dr. Bastian has the following:—"We know that the molecules of elementary or mineral substances combine to form acids and bases by virtue of their own 'inherent' tendencies; that these acids and bases unite so as to produce salts, which, in their turn, will often again combine and give rise to 'double salts.' And at each stage in this series of ascending molecular complexities, we find the products endowed with properties wholly different from those of their constituents. Similarly, amongst the carbon compounds there is abundance of evidence to prove the existence of internal tendencies or molecular properties, which may and do lead to the evolution of more and more complex chemical compounds. And it is such synthetic processes, occurring among the molecules of colloidal and allied substances, which seem so often to engender or give 'origin' to a kind of matter possessing that subtle combination of properties to which we are accustomed to apply the epithet 'living.'"[1]

"All *living beings*, whether animals or plants, are composed, essentially, of four chemical elements, Carbon, Hydrogen, Oxygen, and Nitrogen, which are combined in various proportions."[2]

On philosophical grounds the following may be said in favour of spontaneous generation. The

[1] Page viii.

[2] Prof. Clark, op. cit., p. 7.

nebular hypothesis has accounted for the origin of our earth. The hypothesis of organic evolution has accounted for the development of Life on our planet. The latter traces life back to the Protamœbæ and such-like microscopical germs. There it is content to rest for the present. Can the origin of life have been less mechanical than the origin of the planet and the development of the life upon it? Is it less absurd to conceive a supernatural act of creation for a Monad than to conceive a special act of creation for Man? Is it less absurd to conceive a personal God having materialised the microscopical organs necessary to construct a microscopical germ, than to conceive a personal God constructing a personal Man? If not specially constructed at the time when all the evolved conditions of the planet were fitted to admit of life, must not these germs have generated spontaneously by means of a law or natural process, the exact conditions of which are not yet discoverable? True it is that these conditions are said by some scientific men to have been discovered, and that they are disputed and denied by others. But if *the* alleged spontaneous generation does not take place, *a* spontaneous generation evidently does. If the natural conditions are not found and obtained artificially, the rational grounds for their existence are not destroyed. There is no intermediate possibility (as pointed out by Prof.

Virchow[1]) between a natural process of generation and a so-called supernatural one. There is, however, a statement made by some scientific men that spontaneous generation may have taken place at one period of the earth's existence, but does not take place at this moment. This view is akin to that which holds that Life must have originated from *one centre* only, and then dispersed throughout the earth in conformity with the general principles of Evolution.

On these two views Mr. Lewes thus expresses himself, "I cannot see the evidence which would warrant the belief that Life originated solely in one microscopic lump of protoplasm on one single point of our earth's surface; on the contrary, it is more probable that from innumerable and separate points of this teeming earth, myriads of protoplasts sprang into existence, *whenever* and *wherever* the conditions of the formation of organised substance were present. It is probable that this has been incessantly going on, and that every day new protoplasts appear, struggle for existence, and serve as food for more highly organised rivals," &c.[2]

Dr. Charlton Bastian observes very justly,[3] that according to this view of a single spontaneous generation, the very simple forms of Life would be the only

[1] In his lecture on "The Freedom of Science in the Modern State."
[2] Page 122. [3] Op. cit., p. xii.

existing organisms which would not have progressed in organisation since the first apparition of Life upon the surface of the globe—a consequence directly opposed to that conception of progress which flows naturally from the study of organic evolution in particular and all evolution in general. Mr. G. H. Lewes further observes,[1] "So far from believing that all plants and animals had their origin in one primordial cell, at one particular spot, from which descendants migrated and became diversified under the diverse conditions of their migration, it seems to me more consistent with the principle of Evolution to admit a vast variety of origins more or less resembling each other; and this initial resemblance will account for the similarities still traceable under the various forms; while the *early differences*, becoming intensified by development under different conditions, will yield the diversities. The evolution of organisms, like the evolution of crystals, or the evolution of islands and continents, is determined, 1st, by laws *inherent in the substances evolved*, and, 2d, by relations to the medium in which the evolution takes place. This being so, we may *à priori* affirm that the resultant forms will have a community strictly corresponding with the resemblance of the substances and their conditions of evolution, together with a diversity corresponding with their differences in substance and conditions.

[1] Page 120.

It is usually supposed that the admission of separate 'centres of creation' is tantamount to an admission of 'successive creations,' as interpreted by the majority of those who invoke 'creative fiats.' But the doctrine of Evolution, which regards Life as making its appearance *consequent upon a concurrence of definite conditions*, and regards the specific forms of Life as the necessary consequences of special circumstances, must also accept the probability of similar conditions occurring at different times and in different places. Upon what grounds, cosmical or biological, are we to assume that on only *one* microscopic spot of this developing planet such a group of conditions was found—on only one spot a particle of protein substance was formed out of the abundant elements, and under conditions which caused it to grow and multiply, till in time its descendants overran the globe? The hypothesis that all organic forms are the descendants of a single germ, or of even a few germs, and are therefore united by links of kinship more or less remote, is not more acceptable than the hypothesis that all the carbonates and phosphates, all the crystals, and all the strata found in different parts of the globe are the *descendants of a single molecule*, or a few molecules; or—since this may seem too extravagant—than that the various maladies which afflict organic beings are, in a literal sense, members of *families* having a nearer relationship than that of being the phenomena manifested by similar organs under similar conditions—a conception

which might have been accepted by those metaphysical pathologists who regarded Disease as an entity. Few philosophers have any hesitation in supposing that other planets besides our own are peopled with organic forms, though, from the great differences in the conditions, these forms must be extremely unlike those of our own planet. If separate worlds, why not separate centres? The conclusion seems inevitable that wherever and whenever the state of things permitted that peculiar combination of elements known as organised substance, there and then a centre was established—Life had a root. From roots closely resembling each other in all essential characters, but all more or less different, there have been developed the various stems of the great tree. Myriads of roots have probably perished without issue; myriads have developed into forms so ill-adapted to sustain the fluctuations of the medium, so ill-fitted for the struggle of existence, that they became extinct before even our organic record begins; myriads have become extinct since then; and the descendants of those which now survive are like the shattered regiments and companies after some terrific battle."

There being no hard and fast line of demarcation, and living being derived from not-living matter,[1]

[1] "If the hypothesis of Evolution is true, living matter must have arisen from not-living matter; for, by the hypothesis, the condition of the globe was at one time such that living matter could not have

there would seem to be an element superadded to matter, under special conditions, which constitutes it living; and hence some biologists have termed this unknown element the Vital Principle, endowing it with extraordinary powers. This Vital Principle is disputed and rejected by other biologists on the ground that "all that the facts warrant is the assertion that organic phenomena are special (which no one denies), and must therefore depend on special combinations of matter and force."[1]

It will thus be seen from the foregoing that the appearance of Life awaits only a *concurrence of definite conditions*, one of which evidently is a psychical element,[2] originally neither the cause nor the effect of the rest, but only one of the concurrent conditions. If organic matter is thus traced back to a simple speck of apparently homogeneous substance, Mind or Soul, which is intimately and inseparably connected with it, must similarly be traced back to its simplest constituents, manifested in the life of the

existed in it, life being entirely incompatible with the gaseous state."—*Prof. Huxley* in recent edition of the *Encyclopædia Britannica*, article "Biology," vol. iii. p. 689.

[1] Lewes, op. cit., p. 27.

[2] Dr. Carpenter, after describing the Amœba and Gromia, observes: "Now we can scarcely conceive that a creature of such simplicity should possess any distinct *consciousness* of its needs, or that its actions should be directed by any *intention* of its own; and yet the writer has lately found results of the most singular elaborateness to be wrought out by the instrumentality of these minute 'jelly-specks,' which build up 'tests' or casings of the most regular geometrical symmetry of form, and of the most artificial construction."—Op. cit., p. 41.

simplest Monads. A ready-made undeveloped Soul must be as unthinkable as a ready-made and undeveloped yet complex organic form.

To the philosophical truth, therefore, that souls are not *made* but *grow*, must be added the further truth that their origination is not due to an *act* but to a *process*.

Recapitulation.

It has been sought to show in the preceding pages that the typical human Mind or Soul is invariably, intimately, and inseparably as well as proportionately connected with matter, not only as regards the actions and reactions of the physical organism with which it is conjoined, but, as is proved by the study of organic and social evolution, even with the material conditions of the medium in which it develops, at once acting upon and being reacted on by the material conditions amongst which it develops. The attempt has likewise been made to show that while all the organs of the physical substance, not excluding the organ of Mind, have grown in complexity, the mental powers have grown in correspondence with them; and hence that there is a complete analogy in the growth of the physical and mental organisations.

Lastly, having traced the Mind back to its lowest manifestations in correspondence with the lowest forms of Life, the conclusion has been inevitable that in its origin also the Mind or Soul has corresponded with the origin of its physical substratum.

It was clearly not to be expected that within the

limits of an essay full justice should have been done to a subject which would require volumes for its complete demonstration. But in giving the groundwork for the conclusions arrived at, the sympathetic reader is reminded that he can easily complete for himself the developments which he may have found deficient, since the literature and the constant researches of modern science are replete with confirmatory evidence of these principles.

The Evolution of Ideas.

It remains now to point out how the conclusions arrived at affect the present and future character of the Evolution of Ideas. Every single discovery and every promulgation of religious, philosophical, or scientific principles has reacted on the human mind either beneficially or otherwise, either promoting or retarding the progressive career of ideas. For every action producing a reaction and a re-reaction, it follows that under the influence of time alone could a progressive variation of ideas have occurred. Seeing, too, that this progression of ideas is *collective* as well as *individual*, it becomes obvious that the series of actions and reactions becomes indefinitely extended. Great individual minds have given an impetus to the collective minds; but these in their turn have reacted, and the necessarily retarding, because not similarly qualified reactions, have continually brought about an unstable equilibrium of ideas, in conformity with the average character of the mental development at the time. It will be seen, therefore, that there is a connection, and

a very intimate one, between the *individual* and the *collective* mind, admitting however of variation, which has caused Emerson to observe: "When Nature has work to be done she creates a genius to do it. Follow the great man, and you shall see what the world has at heart in these ages. There is no omen like that."[1] In connection with this subject Dr. Maudsley observes: "No one who has given the least thought to the process of human evolution can be surprised that the prophet of a new religion, or a social reformer, or a philosopher, does not appear among a tribe of Red Indians; when a man of superior mental endowments does appear among them, he becomes a great hunter, or a great warrior, or a great orator in council; for he applies all his energies to the work in which it is the tribal ambition to excel and the tribal joy to succeed."[2]

This evolution of ideas is subject, like all else in Nature, to an uniform law. The mind of man being everywhere the same, there is a marked uniformity in the primitive growth of his ideas. The historic records of the Stone, Bronze, and Iron Ages are everywhere the same, and sufficiently attest that, intellectually as well as physically, Man is dependent for his development on the material conditions of the planet, and on his gradually acquired aptitudes to master them. His developing mind is necessarily subject to all the con-

[1] Quoted by Dr. Maudsley, op. cit., p. 53.
[2] Ibid., p. 53.

ditions among which he has been evolved, and these show everywhere an essential uniformity. "In the infancy of the human race, geographical and astronomical ideas are the same all over the world, for they are the interpretation of things according to outward appearances, the accepting of phenomena as they are presented, without any of the corrections that reason may offer. This universality and homogeneity is nothing more than a manifestation of the uniform mode of action of human organisation."[1]

At the end of his work already cited, Prof. Draper says: "These pages will not have been written in vain if the facts they present impress the reader, as they have impressed the author, with a conviction that the civilisation of Europe has not taken place fortuitously, but in a definite manner, and under the control of natural law; that the procession of nations does not move forward like a dream, without reason or order, but that there is a predetermined, a solemn march, in which all must join, ever moving, ever resistlessly advancing, encountering and enduring an inevitable succession of events; that individual life and its advancement through successive stages is the model of social life and its secular variations."[2]

As has been pointed out, it flows from well-established principles that the nervous system is a result

[1] A History of the Intellectual Development of Europe, vol. i. p. 37, by John William Draper.

[2] Ibid., vol. ii. p. 400.

of the antecedent mental development of the race. The Theory of Descent leaves no room for doubt that every complication of nervous structure, however insignificant, exists by virtue of hereditary transmission through the ages during which it has been gradually elaborating. Hence the evolution of ideas must be accompanied by a corresponding complication of the nervous mechanism; and it would seem unphilosophical to conclude from this, either that the evolution of ideas is the immediate cause of the evolution of nervous structure, or that the evolution of nervous structure is the immediate cause of the evolution of ideas. Mr. Herbert Spencer argues that function precedes the organ, which can then differentiate in correspondence with the function. Mr. G. H. Lewes, on the other hand, argues that increment of function does not precede, but is accompanied by, increment of organ, since the activity of the agent cannot precede the agent, while, in his turn, he argues that the organ must precede its function, or, in other words, that the agent must precede its own activity. But it seems probable that in this case too the reply will be that the organ does not precede but accompanies function, since the agent cannot be separated from its own activity.[1] The same problem is stated in other words when it is asked whether Life precedes organisation or organisation Life? Seeing that we

[1] See for a full and instructive development of this question, Lewes, op. cit., p. 69, *et seq.*

know nothing of Life apart from some form of organised substance, the inevitable answer is that they go hand in hand and accompany each other, Life, or vital function, being simple or complex according as the organisation is simple or complex.

The connection between the mind and its physical correlative being of so intimate and so inseparable a nature, it follows that there must be an intimate interaction between the growth of ideas and the growth of nerve structure. The growth therefore of these factors in our mental progress, which are two and yet one, illustrates the mysterious impulse of evolution referred to by Dr. Maudsley. "Whence comes the impulse of evolution on earth we know not; but certainly from a source that is past finding out by our finite apprehension—from the primeval central Power which hurled the planets on their courses, and holds the lasting orbs of heaven in their just poise and movement."[1]

It likewise illustrates that dualistic monism which reconciles old ideas and new.

[1] Op. cit., p. 58.

" Or le ciel et la terre et ce que Dieu renferme
Dans un jour éternel tout est né d'un seul germe;
Et ce germe est de Dieu la pensée ou la loi
Qui porte toute chose avec sa forme en soi.
De ce germe divin que le temps ramifie,
Tout naît, tout se nourrit et se diversifie,
De sorte qu'à la fois tout est vieux, tout est neuf,
Qu'un monde décrépit d'un autre monde est l'œuf,
Qu'une chose accomplie enfante une autre chose,
Et que chaque existence est une apothéose
Où l'être produit l'être en se décomposant,
Où tout se perpétue en se divinisant!
Et l'homme est ainsi né, fruit vivant de la terre
Non, comme Jehovah, complet et solitaire,
Mais de deux composé, mâle et femelle, afin
Que sa dualité lui revelât sa fin,
Et que cette union de l'homme et de la femme,
Qui féconde le corps et qui complète l'âme
Fut le symbole en lui de la divine loi
D'amour et d'unité qui doit tout fondre en soi!"

—*Lamartine, La Chute d'un Ange.*

"To the student of religion canonical books are, no doubt, of the utmost importance, but he ought never to forget that canonical books too give the reflected image only of the real doctrines of the founder of a new religion, an image always blurred and distorted by the medium through which it had to pass" (p. 102).

"To determine how much is peculiar to the supposed founder of a religion, how much he received from his predecessors, and how much was added by his disciples, is almost impossible; nay, it is perfectly true that no religion has ever struck root and lived, unless it found a congenial soil from which to draw its strength and support" (p. 140).

"I wish we could explore together in this spirit the ancient religions of mankind, for I feel convinced that the more we know of them, the more we shall see that there is not one which is entirely false; nay, that in one sense every religion was a true religion, being the only religion which was possible at the time, which was compatible with the language, the thoughts, and the sentiments of each generation, which was appropriate to the age of the world" (p. 261).

—*Max Müller's Lectures on the Science of Religion.*

"Dr. Channing, in a sermon *On the Evil of Sin*, speaking of the absurdity of the notion that in changing worlds there will be a change of character, says, 'In the first place, it contradicts all our experience of the nature and laws of the mind. There is nothing more striking in

the mind than the connection of its successive states. Our present knowledge, thoughts, feelings, characters, are the result of former impressions, passions, and pursuits. We are this moment what the past made us; and to suppose that, at death, the influences of our whole past course are to cease on our minds, and that a character is to spring up altogether at war with what has preceded it, is to suppose the most important law or principle of the mind to be violated, is to destroy all analogy between the present and future, and to substitute for experience the wildest dreams of fancy. In truth, such a sudden revolution in the character, as is here supposed, seems to destroy a man's identity. The individual thus transformed can hardly seem to himself or to others the same being. It is equivalent to the creation of a new soul.'" —*Maudsley's Physiology of Mind*, p. 448.

"Nihil in intellectu quod non ante fuerit in sensu.
Nihil—nisi intellectus."
—*Philosophy before Kant and Leibnitz's answer, see Max Müller's Science of Religion*, p. 19.

"Jesus answered, Verily, verily, I say unto thee, Except a man be born (again) of water[1] and *of* the Spirit, he cannot enter into the kingdom of God. That which is born of the flesh is flesh; and that which is born of the Spirit is spirit" (John iii. 5, 6).

"For in Him we live, move, and have our being."

Essence of all Religions.



HAT which forms the essence of all religions is the twofold conviction of the existence of a God and of a human Soul, or, in other words, of the existence of an Infinite Soul in Infinite Nature,[2] and a finite Soul

[1] *Over nine-tenths* of the weight of the body consists of water.

[2] Prof. Max Müller advocates the addition to the intuitions of Space and Time, which Kant formulated as existing in the Mind of Man, of a third, which he terms "simply the faculty of apprehending the

in finite Man.[1] Without these primal truths there would have been no need of religion, and none could have existed. With them it has ever been possible to furnish grounds for that moral action which, in the course of human progress, it has been the prerogative of Religion—taking the word in its widest significance—or religious feeling to promote.

In considering, therefore, the position of Religions as affected by the modern evolution of ideas, a return must be made to the primal truths whence they have all flowed, and to the primal action which has been their mainstay. From these primal truths, which must have been perceived in some form in all ages, all creedal systems must have taken their rise; and, according to the greater or less definiteness in their perception, must have been the interpretation of their relations. Moreover, it is obviously impossible to separate the religious feelings in Man from the rest of his intellectual processes; and, accordingly, we find that among the lowest savages the religious feelings are as vague and indefinite as we could expect. Among others, a little higher in the scale, but cannibals, such as the Feegeeans, who indulge in

Progression of religious views.

Infinite, not only in religion, but in all things; a power independent of sense and reason, a power in a certain sense contradicted by sense and reason, but yet a very real power, which has held its own from the beginning of the world, neither sense nor reason being able to overcome it, while it alone is able to overcome both reason and sense." —Op. cit., p. 20.

[1] The macrocosm and microcosm.

repulsive habits of various kinds, some of their religious views are thus described: "Their gods, described as having like characters, commit like acts. They live on the souls of those who are devoured by men, having first 'roasted' them (the 'souls' being simply material duplicates). They 'are proud and revengeful, and make war, and kill and eat each other;' and among the names of honour given to them are the 'adulterer,' the 'woman-stealer,' the 'brain-eater,' the 'murderer.'"[1] Yet Mr. Herbert Spencer adds the quotation that 'The Feegeeans looked upon the Samoans with horror because they had no religion, no belief in any such deities (as the Feegeean), nor any of the sanguinary rites which prevailed in other islands,'—a statement quite in harmony with that made by Jackson, who, having behaved disrespectfully to one of their gods, was angrily called by them 'the white infidel.'"[2]

Among the ancient Peruvians, who, at the time of their conquest by the Spaniards, were found to possess a considerable degree of civilisation, not however of a progressive character, the national religion was the worship of the Sun; and though a "Supreme Being, the Creator and Ruler of the universe," was acknowledged, and even worshipped, Prescott refers to a

[1] The Study of Sociology by Herbert Spencer, p. 293.
[2] Page 294.

number of other deities, such as the moon, the stars, thunder and lightning, mountains, rivers, &c.[1]

Among the Pagan Romans, again, the gods were anthropomorphic, shared the characteristics of men; and though there was a father of the gods, Jupiter, the monotheistic tendency was only manifested previously to the triumph of Christianity by the highest class of minds among them.[2]

In Buddhism, Mahomedanism, &c., we have so many adaptations of the religious feelings to all the other intellectual and to the material conditions under which they have arisen. In every clime religion has a character of its own; and in the multitudinous sects and the slight differences in each sect we have indications of the influence of temperament, education, associations, individual culture, &c., and the interaction resulting from these. A well-marked instance of this kind is given by Mr. Herbert Spencer.[3] Referring to an old gentleman of his acquaintance he says, "On the one hand, getting up early to his devotions, going to church even at a great risk to his feeble health, always staying for the sacrament when there is one, he displays what is ordinarily regarded as an exemplary piety. On the other hand, his thoughts ever tend in the direction of warfare; fights on sea and land furnish topics of undying interest to him; he revels

[1] Prescott's Conquest of Peru, vol. i. p. 84 *et seq.*
[2] See Lecky's History of European Morals, vol. i. p. 161 *et seq.*
[3] Op. cit., p. 296.

in narratives of destruction; his talk is of cannon. To say that he divides his reading between the Bible and Alison, or some kindred book, is an exaggeration, but still it serves to convey an idea of his state of feeling. Now you may hear him waxing wroth over the disestablishment of the Irish Church, which he looks upon as an act of sacrilege; and now, when the conversation turns on works of art, he names as engravings which above all others he admires, Cœur-de-Lion fighting Saladin, and Wellington at Waterloo. Or, after manifesting some kindly feeling, which, to give him his due, he frequently does, he will shortly pass to some bloody encounter, the narration of which makes his voice tremulous with delight. Marvelling though I did at first over these incongruities of sentiment and belief, the explanation was reached on observing that the subordination-element of his creed was far more dominant in his consciousness than the moral element. Watching the movements of his mind made it clear that to his imagination, God was symbolised as a kind of transcendently-powerful sea-captain, and made it clear that he went to church from a feeling akin to that with which, as a middy, he went to muster."

Prof. Max Müller has shown how intimate is the connection between religion and the evolution of language, and the latter is in its turn bound up with the evolution of ideas, the interaction of which with the material conditions of the globe, and again with

the *individual* and *collective* progress, has been referred to.

The mind of Man being everywhere essentially the same, it is not surprising to find a like development of ideas, as manifested in their habits, among races remote from each other, but living in analogous conditions. An example among many is afforded by the fact that the North American Indians and the African savages have both medicine-men, who are believed to bring them good or ill luck; and have both funereal rites, one of the chief features of which is the introduction into the graves of their departed tribesmen of those implements of the chase, &c., which they affected while living. The inhabitants of ancient Peru had likewise the latter habit, arising in the different cases from the common idea that their departed relatives continued the same occupations in the other life.[1] Here certainly, at least in the two former cases, there could have been no connection to account for the community of habits.[2]

Prof. Max Müller gives in his works many instances

[1] This custom is so general among primitive races that it furnishes a good illustration of the intuition as to the existence of the Soul.

[2] As pointed out by Mr. Herbert Spencer in the work already quoted, the Feegeeans practise sanguinary rites in connection with their funerals; and the reader will find in Prescott's Conquest of Peru, vol. i. p. 84, that similar customs were prevalent among the ancient Peruvians. Here again no connection is apparent.

Mr. Darwin, after referring to the savage practices of tattooing the body, perforating the nose, lips, ears, modifying the shape of the head, &c., &c., which prevail, and have long prevailed, in the most distant quarters of the world, observes: "It is extremely improbable that

of the analogy existing in the religious myths of different races which is not to be accounted for by derivation from each other.

The effect of temperamental and other conditions is further shown in our own time in the adhesion to Roman Catholicism of the imaginative and emotional Latin races, as compared with the more practical and matter-of-fact adhesion to Protestantism of the Northern. There is, therefore, a racial influence in the adoption of particular religious views; and the racial connection implies all those conditions of climate, food, soil, traditions, culture, international communication, &c., &c., which are all important factors in the development of our minds. It has often been said that in those countries which have espoused Protestantism its espousal has been followed by great material prosperity. That this result has not been due to this particular religion alone, but to all the other conditions as well, seems sufficiently obvious.

Religion is, by sociologists, said to have passed through the fetichistic, polytheistic, and monotheistic stages. However this may be, it is an expression of the modern conception that religion has, like all the other operations of the human mind, undergone a process of evolution; and that the errors and excres-

these practices, which are followed by so many distinct nations, are due to tradition from any common source. They rather indicate the close similarity of the mind of man, to whatever race he may belong, in the same manner as the almost universal habits of dancing, masquerading, and making rude pictures."—*Descent of Man*, vol. ii. p. 343.

cences[1] which have overgrown in rank luxuriance the primal truths of all religions have been due, in the strict relation of cause and effect, to the tentative efforts of the human mind in its development, conformably with the conditions which have influenced its course in space and in time.

In all the religious systems every new departure in this direction has been associated with an individual mind, to whom a more or less celestial origin has been naturally attributed; and the simple moral codes primarily formulated have been defaced or overgrown by the reaction of the ignorant multitudes whose moral elevation they were destined to promote. This but shows that though at first sight it may perhaps appear that, individually, minds may be more developed in a moral than in an intellectual sense, or *vice versa*, collectively it is requisite that there shall be a certain proportion between the two.

Religion and modern thought.

At the present moment, when the disparity between Religion and Science in their respective developments is so considerable, attention may be called to the observation of an historian of European morals:—"Religions, considered as moral teachers, are realised and effective only when their moral teaching is in conformity with the tendency of their age. If any part of it is not so, that part will be either openly abandoned, or refined away, or tacitly neglected."[2]

[1] See Max Müller, op. cit., p. 262.

[2] History of European Morals, by W. E. H. Lecky, M.A., vol. i. p. 157.

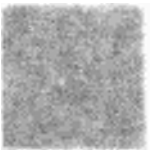
It does not seem too much to say that the teaching of Religion is at the present time in entire opposition to the tendencies of modern cultivated thought. Without entering into the consideration of those excrescences which have been referred to, the bearing of modern conceptions on the primal truths of Religion will have sooner or later to be taken into account.

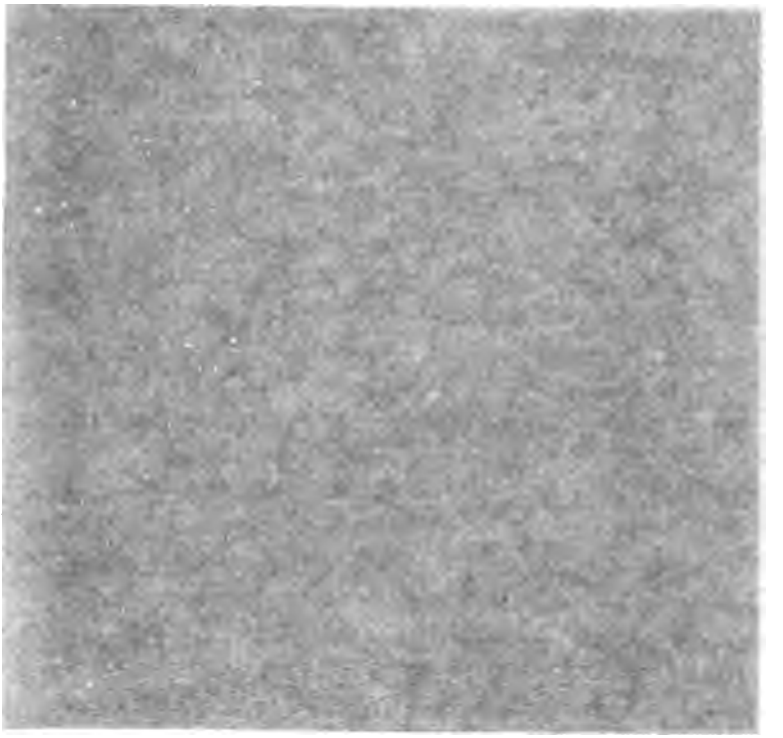
We are told that there exists a Deity, either personal —that is, having a bodily form similar to that of men; for we can conceive of no other and higher personality—either anthropomorphic, or vaguely otherwise; and it is added that the Deity created the universe.

We are further told that God made man of the dust of the ground and breathed into his nostrils the breath of life, thus endowing him with a soul. That the soul existing in each man—though not in each Man formed by the same process—is, after the earthly span of life, consigned to hell or heaven, according as during that life he has deserved either.

There is here evidently a confused apprehension both of the Infinite and the finite.

Infinity. The advances of modern astronomical science furnish grounds for the conception that Space, as occupied by the worlds which float in it, is Infinite. In "Nature" of November 22d, 1877, the reader will find an article by Mr. Norman Lockyer on 'The Modern Telescope.' From it we learn that with the aid only of the naked eye a portion of the





constellation of Gemini presents the following picture:—



and by the aid of the telescope the same portion of Space is thus presented—



The Sun is about 90,000,000 of miles from the earth, and, as is well known, while its attendant planets rotate round it in their respective orbits, it is itself coursing through Space in obedience to the attraction, as is believed, of a more distant orb.[1] When it is considered that this our solar system, which is thus moving on to other incredibly remote regions of Space, is so vast that we are told that a comet may perhaps, without quitting the confines of the system, be absent on its journey for a period of more than a thousand years, Infinity becomes perhaps a little more conceivable. In describing infinity, M. Flammarion observes,[2] that the Solar Systems occupying Space must be counted by hundreds of millions, since each star is a Sun like our own, and must incontestably be the centre of a system like our own.

[1] M. Flammarion observes: "De même qu'en traversant en wagon les paysages d'une vaste campagne, nous voyons les perspectives changer, les arbres, les habitations, les bois, les collines, être emportés par un mouvement apparent en sens opposé au nôtre, de même ce déplacement général des étoiles nous a appris que le Soleil nous emporte, nous et toutes les planètes de son système, dans une direction dont voici la position sur la sphère céleste:—

Ascension droite 260° 51′.
Déclinaison boréale 31° 17′.

Ce point se trouve dans la constellation d'Hercule. Nous voguons vers cette région avec une vitesse au moins égale à celle de la terre sur son orbite, c'est a dire qu'à part les 235 millions de lieues que nous parcourrons par an dans notre révolution autour du Soleil, nous en faisons au moins autant en avançant dans l'espace. Nous arrivons des parages etoilés ou scintille Sirius, et nous voguons vers ceux où brillent les astres de la Lyre et d'Hercule."—*Terres du Ciel*, p. 282.

[2] Op. cit., p. 11.

Much significance also cannot but be attached to the fact that the first telescopes showed nebulæ in remote space which could not be resolved into stars. These telescopes being improved, resolved the first nebulæ, but showed others that were not resolvable; and again these were resolved, but others came into view. The same fact is expressed by Mr. Norman Lockyer when he says,[1] "We get an immense gain to physical astronomy by the revelations of the fainter objects which, without the telescope, would have remained invisible to us; but, as we know, as each large telescope has exceeded preceding ones in illuminating power, the former bounds of the visible creation have been gradually extended, though even now we cannot be said to have got beyond certain small limits, for there are others beyond the region which the most powerful telescope reveals to us; though we have got only into the surface, we have increased the 3000 or 6000 stars visible to the naked eye to something like twenty millions."[2] And

[1] Loc. cit.

[2] M. Flammarion gives the following figures:—

Stars of the	1st	magnitude,	18.
,,	2d	,,	59.
,,	3d	,,	182.
,,	4th	,,	550.
,,	5th	,,	1620.
,,	6th	,,	4,900 (limit of vision of naked eye).
,,	7th	,,	16,000.
,,	8th	,,	58,000.
,,	9th	,,	210,000.
,,	10th	,,	735,000.
,,	11th	,,	2,570,000.
,,	12th	,,	9,000,000.

again, "Can we judge how far off the stars are that are only just visible with Lord Rosse's instrument? Light travels at the rate of 185,000 miles a second, and from the nearest star it takes some three and a half years for light to reach us, and we shall be within bounds when we say that it will take light 300 years to reach us from many a sixth-magnitude star. But we may remove this star 200 times farther away, and yet see it with the telescope, so that we can probably see stars so far off that light takes 60,000 years to reach us; and when we gaze at the heavens at night, we are viewing the stars not as they are at that moment, but as they were years or even hundreds of years ago; and when we call to our assistance the telescope, the years become thousands and tens of thousands. Expressed in miles, these distances become too great for the imagination to grasp; yet we actually look into this vast abyss of space and see the laws of gravitation holding good there, and calculate the orbit of one star about another."[1]

and he adds: "La treizième grandeur, atteinte depuis longtemps, est dépassée, et la quatorzième a déjà cédé le pas à la quinzième. Le grand équatorial de M. Newall montre aujourd'hui les étoiles de la seizième grandeur; demain la nouvelle lunette des Etats Unis fera connaître celles de la dix-septième. Il y a quarante ans, on pouvait estimer à cinquante millions le nombre des étoiles visibles dans les meilleures lunettes; il y a vingt ans, ce nombre s'élevait déjà à 75 millions; aujourd'hui il dépasse *cent millions*. Le nombre des étoiles s'accroît en proportion des distances atteintes. Traçons en imagination des sphères qui se succèdent l'une au delà de l'autre, autour de nous, de plus en plus grandes, de plus en plus immenses: l'espace qu'elles contiendront sera de plus en plus vaste et de plus en plus peuplé d'étoiles . . . et celà jusqu'à l'infini."—*Op. cit.*, p. 43.

[1] Loc. cit.

"Though it may take a beam of light a million of years to bring to our view those distant worlds, the end is not yet. Far away in the depths of space we catch the faint gleams of other groups of stars like our own. The finger of a man can hide them in their remoteness. Their vast distances from one another have dwindled into nothing. They and their movements have lost all individuality; the innumerable suns of which they are composed blend all their collected light into one pale milky glow." [1]

As Goethe said, it is not necessary to travel round the world in order to perceive that the sky everywhere is blue. It is a legitimate inference that however improved telescopes may become, new worlds, new nebulæ, and new solar systems will be perceived in endless succession.

Self-existence of matter and force.

This conception is reinforced by the equally modern conception of the indestructibility of Matter and Force. Matter and force are in our day considered to be indestructible, which is equivalent to self-existent. The log of wood burned in the grate exists as well after as before its combustion. The difference is, that in the former case it has been resolved, by the process of combustion, into elements which before cohered and formed the log. These exist still as ashes, smoke, soot, gases, &c., and the force which has been dissipated as heat. Could the process be

[1] History of the Intellectual Development of Europe, by John William Draper, vol. ii. p. 292.

reversed, the log of wood would be reconstructed as effectually, though more perfectly, than the Colonne Vendôme in Paris was reconstructed after its destruction by the Communists.[1]

The nebular hypothesis.

A third conception bearing on the infinity or endless successions of worlds in Space is what has been termed Cosmical Evolution. The nebular hypothesis of Laplace consists essentially in the conception that our solar system at one time existed as a chaotic and rarefied nebula in space, which while in a rotating condition lost its heat by radiation, contracted, and as a consequence its velocity of rotation was increased. From this rotating mass were thrown off all the heavenly bodies which show a direct connection with the central mass, the Sun, by their subjection to the laws of planetary motion in ellipses around it.[2] The subsequent history of

[1] For a fuller development of this conception, see Mr. Herbert Spencer's "First Principles," *passim*.

[2] Dr. Draper says in his work already quoted, "In 1846 it was discovered by the author of this book that the spectrum of an ignited solid is continuous, that is, has neither dark nor bright fixed lines. Fraunhofer had previously made known that the spectrum of ignited gases is discontinuous. Here, then, is the means of determining whether the light emitted by a given nebula comes from an incandescent gas, or from a congeries of ignited solids, stars, or suns. If its spectrum be discontinuous, it is a true nebula or gas; if continuous, a congeries of stars. In 1864, Mr. Huggins made this examination in the case of a nebula in the constellation Draco. It proved to be gaseous. Subsequent observations have shown that of sixty nebulæ examined, nineteen gave discontinuous or gaseous spectra; the remainder continuous ones. It may, therefore, be admitted that physical evidence has at length been obtained, demonstrating the existence of vast masses of matter in a gaseous condition, and at a temperature of incandescence. The hypothesis of Laplace has thus a firm basis."—Vol. ii. p. 283.

our earth in space and in time is well known. We have then here three conceptions of a strictly scientific character—

1. The Infinity of Nature.
2. The self-existence of Matter and Force.
3. The evolution of worlds.

From these three conceptions cannot a better idea be formed of the Deity than the one referred to?

The first makes it clear that there is no room *outside* of Nature for a Deity either personal or otherwise.

The second, that there can have been no creation of that which is self-existent.

The third, that the permanence of what is is attended by perpetual change.

The æther.

A fourth conception is that of a luminiferous æther occupying the interstellar spaces, and serving as a material medium of a more subtle nature than the Matter of which we have any cognisance. From Prof. Clerk Maxwell's article on "Ether" in the recent edition of the Encyclopædia Britannica the following remarks are taken; but it would repay the reader to complete the very brief remarks here given by a perusal of that article in its entirety.

"In the first place, it is capable of transmitting energy. . . . In the next place, this energy (of light and heat) is not transmitted instantaneously from the radiating body to the absorbing body, but exists for a certain time in the medium. . . .

"We must therefore regard the æther as possessing elasticity similar to that of a solid body, and also as having a finite density. . . .

"In the regions of interplanetary space the density of the æther is therefore very great compared with that of the attenuated atmosphere of interplanetary space, but the whole mass of æther within a sphere whose radius is that of the most distant planet is very small compared with that of the planets themselves. . . .

"We are therefore obliged to suppose that the medium through which light is propagated is something distinct from the transparent medium known to us, though it inter-penetrates all transparent bodies and probably opaque bodies too. . . .

"We must therefore consider the æther as somewhat loosely connected with the dense bodies, &c., . . . but the whole question of the state of the luminiferous medium near the earth, and of its connection with gross matter, is very far as yet from being settled by experiment. . . .

"Whatever difficulties we may have in forming a consistent idea of the constitution of the æther, there can be no doubt that the interplanetary and interstellar spaces are not empty, but are occupied by a material substance or body, which is certainly the largest, and probably the most uniform body of which we have any knowledge."

To consider then the bearing of these several con-

ceptions on the teaching referred to, it is not so much that the first three directly contradict that teaching, as that the whole tendency of thought has been revolutionised by them. The further discovery of science as to the derivation of the human organism from the lowest forms of life by a developmental process throughout the whole series of living beings; and, as to the primal origin of life, by a natural process occurring primevally or constantly, has ousted thought from its last retrenchments, and has compelled the substitution of a mechanical for a supernatural view of all that exists.

Organic evolution.

Under the circumstances, therefore, cannot a more definite and better idea be formed of the Infinite, an idea which will be more consonant with the present state of our knowledge and the tendencies of our more developed thought?

We have found, then, that Nature, as known to us, is Infinite. We see no bounds mentally or experimentally to the dissemination of worlds in Space. It consists of an infinite succession of worlds, which are connected by a subtle form of invisible and imponderable matter. These worlds, or colossal molecules in Space, are divided off into solar systems, and solar systems of solar systems, which by analogy we may compare with our own, but which by analogy and by reason we may presume to show an infinite diversity of composition and conditions, sustained by an essential unity of plan. In this infinite variety of solar

Material Nature.

systems, and solar systems of solar systems, there can be no confusion, but all are subject to definite natural laws ascribing to each its place in Space and Time. This order of Nature is accompanied by perpetual change. Each molecule in Space has its period of Birth, Growth, Development, and Decay. When, by reason of its decrepitude and decay, a world or a solar system no longer coheres, it is acted on by the cosmical force, and its disintegrated elements go to form other combinations of worlds in Infinity.

Ethereal Nature.

To this view of a form of more or less gross matter, which constitutes one aspect of the Infinity of Nature, must be added that of the subtle, ethereal matter which occupies the interstellar spaces, and serves as a medium in Nature for the transmission through it of that Light and Heat which furnish the necessary conditions of Life and of Thought upon the surface of each stellar mass. Hence this likewise is Infinite and Self-existent.

Psychical Nature.

To this, again, it is but rational to add an Infinite Soul, since if we cannot predicate Mind without Matter, we cannot for the same reason predicate Matter without Mind.[1]

And God said, "Let us make man in our image, after our likeness" (Gen. i. 26).

If there are any statements in that wonderful com-

[1] Both Science and Religion take cognisance of the Unknowable. Religion expresses it in terms of God. Science expresses it in terms of Force. *Compare* Herbert Spencer, "First Principles."

pilation which we all know as the Bible that can be understood in an almost literal sense, this is one. Science shows us that every part of our material bodies is derived from material Nature; and it is a truth which is self-evident, since, having a material body, we could only suspect its derivation from the matter which exists around us. *Ex nihilo nihil fit*, even supposing that nothing has any place in the order of Nature.

Man's material nature.

We are taught that our bodies are made up of cells and aggregations of cells, manifesting a great variety of composition and conditions, along with an essential unity of plan. Each cell is born, nourished, develops, and decays. Our bodies are sustained by perpetual change. Waste and repair is a constant process, the elements for which are borrowed from the earth, and return to it to form new combinations. In this process nothing is lost, the sum of matter in our bodies and out of them being constant; and our finite material organisms returning to earth as a whole when, by reason of their disintegration, they are acted on by the chemical force, and are given back to the earth from which they were borrowed. It is the perfect ledger account of Nature, in which not a thing is debited that is not at some time or other again credited.

We can see, therefore, that just as it is an indispensable condition of our finite activity that a certain amount of organised substance shall perpetually live and die, so it is an indispensable condition of the

infinite activity of Nature that in her infinite regions life and death shall succeed each other.

Man's ethereal nature.

Having considered the human personality in his material aspect, we have to consider him from his more spiritual nature. St. Paul has asserted a spiritual body in a very few words. "There is a natural body, and there is a spiritual body" (1 Cor. xv. 44).

Modern spiritual phenomena of an universal character have come to show that Man *has* a spiritual body, which subsists at death. This being so, we have to inquire from what realm of Nature it can have been derived; for, as we have seen, there is no realm *outside* of Nature, and we are neither more nor less than the products of her infinite laboratory. We have seen that the ethereal medium interpenetrates all transparent bodies, and probably opaque bodies too; although the nature of its connection with them is unknown. The Spiritual body is said to consist of a subtle form of ethereal matter interpenetrating the material body and bearing a definite correspondence to it. It is affirmed that it serves as a medium of communication between the psychical force and the material molecules composing the body.

Man's psychical nature.

Lastly, Man has a Soul, the existence of which is no longer a question of belief, but of the knowledge resulting from the unquestionable manifestations of its continued existence afforded by the phenomena referred to. Here, again, this soul has not proceeded

from nothing, but has emanated by a natural process from the Infinite Mind which exists in Nature—that Infinite Nature in which we live, move, and have our being.

Spiritual evolution,

The natural process by means of which the psychical element begins its laboured progress through the varied transformations of organised matter in correspondence with its physical correlative, has been referred to in another part. It remains to point out that since this process is, under special conditions, perpetually taking place, *the initial departures must vary both in time and space.*

and spiritual world.

Here it becomes necessary to recall the modern conception of a spiritual world, consisting, like the spiritual body, of a subtle form of ethereal matter, and existing as a complement to the physical, to which it bears a definite relation. Both worlds have developed conjointly; and the reason of the existence of the one is the reason of the existence of the other.

Hence it becomes intelligible that, in the intervals of development, Spiritual life succeeds and complements Physical life, and *vice versâ;* and that either being a continuance of the other, a complex law of progress holds good as well on the one side as on the other.

That the pre-eminent end of the evolution of life is the growth of the mental and moral faculties, is a truth which is based on experience. Organic evolution is there to show that the development of organic

forms has culminated, by successive differentiations, in the possession by Man of a nervous system of great complexity, which is undergoing further evolution in accordance with the laws of its development.[1]

The intimacy of the connection between the mind and its physical correlative, and the interaction of body and mind, have been pointed out in the foregoing pages. It has been seen that mind and matter are inseparably conjoined, both in the development of the former throughout the series of organic beings, and in that life which follows the present one. It is seen that, with every successive and progressive modification of structure, the life of the individual has attained a higher grade and higher power; that with the development of his senses man has acquired sense; that with the growth of his intellect he has devised means wherewith to enhance the power of the senses, and so perceive and apprehend more of the Infinite; that the conditions which have enabled him to devise them have been furnished by Nature; and that she is constantly furnishing him with them, subject to her self-existent and educational laws, and to the educability of his growing mind.

That conversely, with the loss of one or more of his senses his intellect is cramped, and his intellectual development is proportionately diminished. That this evolution of Man is brought about by an

[1] See Herbert Spencer, "Principles of Biology," vol. ii. p. 494.

evolution of cosmical matter which furnishes the conditions wherein he may achieve it. That the natural laws which have influenced the course of our evolution have been all-important, though indispensably inexorable factors in it. That "that progress in intelligence seen during the growth of the child into the man, or the savage into the philosopher, is commonly regarded as consisting in the greater number of facts known and laws understood: whereas the actual progress consists in those internal modifications of which this increased knowledge is the expression."[1] That objects have the qualities which we attribute to them, simply from the effect which they produce upon our minds through the nerves of sense, and not necessarily from any inherent qualities residing in them; and that, consequently, as we progress in organisation we shall attain to a clearer and clearer apprehension of The Infinite.

From all these considerations, which have been here but very briefly stated, it may, perhaps, be deemed legitimate to infer that *Life is the elaboration of Soul through the varied transformations of matter.*

Tracing, then, the evolution of the human Soul from its earliest beginnings to its present stage of growth, it seems clear that it will continue its development *in the same school and under like conditions;* and that, from the uniformity of development, and

[1] Herbert Spencer, Essays, vol. i. p. 1.

from the uniformity of the laws of Nature, *the experiences of individual Souls must be substantially similar in all cases.* Dr. Draper observes: "Does not this progression of life in our planet suggest a like progression for the solar system, which in its aggregate is passing in myriads of years through all organic phases? May we not also, from our solar system, rise to a similar conception for the universe?"[1]

Astronomical science shows that, though it is inferable from the nebular hypothesis and from the history of our earth, that all the planets have had a similar origin and a similar development, there is a diversity in their conditions—their distance from the sun, their size, the velocity of their rotation, &c., &c., being different. This diversity in conditions does not, however, exclude an essential uniformity. We perceive on our own planet a marked diversity of races—due, doubtless, to the original diversity in the conditions of their development—along with an essential uniformity.

There may, therefore, be many schools and many methods, all resulting, however, in a greater and greater approximation of the individual Soul to a clearer apprehension of the Infinite. It is also inferable that this clearer and clearer apprehension of the Infinite will result, for the individual Soul, in its progress through eternity, in psychical activities of

[1] Op. cit., vol. ii. p. 317.

which we can at present form no adequate conception.

Through the lower grades of matter to ethereal and spiritual worlds in infinity—from a lowly worm in the ground to the human—from human to activities which may be termed divine, is a prospect at once more coherent, more definite, and more soul-stirring than the childlike cosmologies of the past. It has the additional advantage of resting on, and according with, that sum of knowledge which the human mind has, through the ages, so labouredly acquired.

Spiritual Evolution continued.

Thus it is perceived that the knowledge gained by the individual, which has become organised in his nervous processes, has likewise become organised potentially in the spiritual body, which has grown with the physical, and bears a definite correspondence to it; so that the individual retains the knowledge, moral qualities, affections, tastes, emotive impulses, sympathies, form, &c., &c., which constituted his identity while in the flesh.

It follows, therefore, that the spiritual world is peopled by a section of humanity which has the same intellectual and moral characteristics as the other section which exists on the surface of our planet. These two sections offer thus no solution of continuity, and form one whole. *We cannot, therefore, in judging questions which affect the mind of man, sever the one from the other without narrowing our view to one aspect only of its development.*

Innate ideas.

The retention of the experiential knowledge acquired by the individual in subjection to the laws of earthly development, gives the solution of the vexed question as to innate ideas and experience. That school of thought which advocates the existence in man, of ideas and intuitions, not derived from his present earthly existence, is as correct as that which insists upon the fact that no ideas or intuitions can be possessed by man, that have not been a result of the experience he has gained. There is already an agreement, though incomplete, which has been suggested by the principle of heredity.

Prof. Croom Robertson, in an interesting article published in the "Nineteenth Century" for March 1877, entitled "How we come by our Knowledge," has the following:—"The old question of the relation of Knowledge and Experience is generally thought to have passed into a new phase in recent years. Nobody nowadays seriously maintains the sensationalist position of the eighteenth century. Even those who attach most value to Locke's way of thinking are ready to scout the notion of *tabula rasa*, and to allow that the old supporters of innate ideas, native intuitions, or whatever else they were called, had a real insight into the nature of knowledge as manifested by every human mind. There is an element or factor in the individual's knowledge that is there before, or at all events apart from that which happens to come to him by way of ordinary experience.

This other element or factor is now most commonly represented as an inheritance that each human being brings into life with him. The inheritance can perhaps be most definitely conceived in terms of the nervous organisation which, it is practically certain, is involved in all mental goings-on, but it must admit of expression in terms of consciousness also. We are to understand that a human child being what he is—the offspring of particular parents, of a particular nation, of a particular race, born at a particular stage in the race's development — does know and feel and will otherwise than he would if all or any of these circumstances were different. Nor does this apply only to the general laws and limits of his knowing, feeling, and willing: it must apply also to his simplest conscious experience of any sort."

Now, it is obvious that the general, and especially the nervous organisation perfected in the race, being transmitted hereditarily, will furnish the complication of nervous processes which are the indispensable accompaniments of developed thought. It will thus furnish the materials wherewith, and the conditions wherein, these particular processes of thought, which have been termed innate ideas, may arise; and Prof. Croom Robertson further points out that the social factor is important as affording the associations which a perfected language must suggest, as well as the teaching, guidance,

and general influence of the parents, &c. But from the fact that a great complication of nervous structure is transmitted, we manifestly cannot infer that the conscious ideas are transmitted likewise. There is, therefore, an agent to consider, which, however closely bound up with the potentiality of the nervous structure, supplies the other half of the involved mental process which results in thought. This agent must bear a definite relation to the developed nervous organisation, and to the race which transmits it. The conceptions referred to suggest this agent, or Soul, which brings with it a nervous organisation potentially organised in its ethereal substance, and bearing a definite relation to its own development through the ages, and to the development of the race.[1]

Loss of memory of pre-existence.

From the new combination which the spiritual

[1] It needs here but briefly to recall the fact that the theory of preformation, or the existence of the organism in the ovum, has given way in embryological science to that of epigenesis, or the evolution of organs from the elements of previous parts by a gradual differentiation from an original germ-cell. As explained by Dr. Allen Thomson, "The first steps in the development of a fecundated ovum are . . . those of cellular multiplication by fission or cleavage of the protoplasmic germ of the ovum, which results in the formation of a more or less laminar blastoderm. This blastoderm presents at first two layers of cells, ectoderm and endoderm, . . . but in all the higher animals there appears an additional intermediate layer or layers, constituting the mesoderm. From these layers the rudiments of the several systems and organs of the body are developed by processes of cellular multiplication and differentiation, according to certain histological and morphological laws." See his article on "Embryology" in the recent edition of the *Encyclopædia Britannica*. See also Lewes's "Physical Basis of Mind," chap. vi. p. 211.

substance forms with the more materially organised substance on its entrance into earthly life, it cannot be wondered at that all recollection of a previous existence, or of previous acquisitions, should be lost, Memory being so dependent on definite nervous processes, and becoming obliterated or confused when the integrity of these is interfered with: as is proved by the phenomena of amnesia, or loss of memory, and amnesic aphasia, or loss of memory of words; and by those of what has been termed double consciousness. And, in the normal condition, we fail to recollect entirely what has occurred in our earliest years; our existence at that time offering in memory a decided solution of continuity.

Thus we bring with us into life all our antecedent acquisitions in connection with the race and its conditions of development. As pointed out by Prof. Knight, the mind of the infant is more like a palimpsest than a virgin blank;[1] so that he has to work up anew, and add to, more or less intelligently, the impressions which have become effaced and confused in his cerebral processes by reason of the new combination which these have undergone. Having all the materials, both those which have been transmitted by the race, and those of its own previous acquisitions,

[1] See his article on "Ethical Philosophy and Evolution" in the *Nineteenth Century* for September 1878.

Problem of heredity.

each mind will manifest a certain variation, since the spontaneous acquisitions of each have varied to some extent in Space and Time. As affecting merely the mental characteristics, the principle of heredity, pure and simple, can scarcely be adduced as a complete explanation of the variation so obviously shown by different minds. From the transmitted cerebral processes of two given parents, of no special mental power, is born a genius who revolutionises the world; and, conversely, from those of two given parents, of considerable mental power, children are born who show little in common with the mental power of the parents. If the cerebral processes are transmitted in their integrity, the mind of the child should show an exact correspondence with one or both of the parents. Nevertheless the conceptions referred to, though admitting of variation, suggest some limitation from the racial connection which obtains in both forms of life, thus indicating a twofold law of variation with limitation. Accordingly, Mr. Darwin, alluding to the scope of heredity pure and simple, observes, "It has often been objected to views like the foregoing, that the most eminent men who have ever lived have left no offspring to inherit their great intellect. Mr. Galton says (Hereditary Genius, 1870, p. 330), 'I regret I am unable to solve the simple question whether, and how far, men and women who are prodigies of genius are infertile.

I have, however, shown that men of eminence are by no means so.'"[1]

From all these conceptions there naturally flow important moral consequences, which will be found to agree with the more developed thought of our time. In modern works the freedom of the will is no longer discussed in the spirit in which it was discussed in former times. There is now scarcely any one who is not ready to admit that a balance of motives is the immediate cause of conduct; and that, consequently, no action can be initiated without the presence of one or more motives which prompt it. This balance of motives is in its turn the result of the mental action which institutes a comparison between the motives, and gives prominence to that one among them which, in accordance with the intellectual convictions or experience of each, should influence the individual's course of conduct; or a single motive may be sufficiently powerful as a determining cause of action to necessitate very little mental action or comparison.

Free-will.

From the intimacy of the connection of the mind with the body, and the inseparable nature of this connection, it is obvious that the mental action will be influenced, to a greater or less extent, by all those organic states which react upon it. Again,

[1] Descent of Man, vol. i. p. 171.

there may be motives to action which, from their having become organically associated by frequent repetition, will require no mental action or comparison whatever; so that, whereas before they influenced the mind, and through the mind the body, they now produce their effects automatically; and so much so, that it requires a mental effort to prevent their occurrence.[1] In like manner, the frequent repetition of a good resolution, will tend to communicate an opposite tendency to action. Dr. Carpenter quotes the case of those men who have not sufficient power of mind to keep them "from yielding to alcoholic seduction, and have enough to make them 'keep the pledge' they have taken against it: the mere repetition to themselves of a determination to do so having the good effect of augmenting the force of that determination, and of helping them to keep out of the way of temptation," &c.[2]

Law of association.

Man, having a rational mind, is not free to desire to do anything without a more or less rational motive; arising, either independently of the workings of the mind, or resulting from them. This leads us to the law of the association of ideas, which shows that these workings of the mind occur, not in a desultory and disconnected manner, but in a definite order, one idea calling up another, that

[1] The principle of reflex action has been referred to in another part.
[2] Mental Physiology, p. 422.

has been associated in experience, by contiguity of occurrence, or similarity of character, &c. So that every idea gives rise to another, not fortuitously, but through the connection which has been formed between them in previous experience. While thus disclosing the nature of the development of the mind, the law of association discloses its essential character, and the one follows from the other.

This association, as has been referred to, exists in the lowest living beings, and manifestly assumes a greater and greater complexity as we trace it in the chain of beings upwards to man. There is, therefore, no freedom of the mind in the sense of its independence from all the conditions of its existence and growth, though there is obviously a freedom of the mind along the lines of its development, these lines being conditioned by its nature, and the nature of its development.

The conception that the mind grows through the ages by acquiring experience, both intellectual and moral, implies that a definite law of mental development exists, and this law, like all the other laws of Nature, is seen to be *inherent in the nature of that which is ruled by it.*

The mind, then, can only act in accordance with the sum of the experiences it has gained at each successive period. Its action will, therefore, show an exact correspondence with the degree of its intellectual and moral development. Further, another

phase or condition in the complex development of the individual human mind is its inseparable connection with the collective mind of the race. The preceding truism applies, consequently, as well to the mental development of societies, whose evolution of ideas results from an interaction of the individual and the collective mind in correspondence with all the conditions of development. Hence, virtue and vice, good and evil, right and wrong, have shown a constant correspondence with the necessities and conditions of human development in Space and Time. Polygamy is considered wrong by Christian nations; it is not so considered by the Turks, whose conditions of development have been different. Murder, theft, adultery, are not, as has been seen, considered wrong by the Feegeeans. Infanticide is not considered wrong by many tribes; and even in China—where over-population is said to be the cause—infanticide is common. In many savage countries it is considered right and hospitable to lend their wives and daughters to a stranger staying in their dwellings. Many savages destroy their old people in the most heartless manner. In Sparta theft was allowed by law provided it was not detected. The most inhuman gladiatorial exhibitions were not considered wrong by the ancient Romans. It was not, at one time, considered wrong to torture the Jews, and extort their possessions from them. During the Middle Ages it was not considered

Moral problems.

wrong to apply the most inhuman tortures for differences in religious opinions, nor to burn old women for their so-called dealings with Satan.[1] It is not considered wrong in Spain to indulge in bull-fights, which inflict torture on the animals used, the bulls and the horses; nor in England, until recently, to make a public spectacle of the hanging of a man, or the pounding of one in a prize-fight. Dr. Maudsley observes very justly, that "within historical and comparatively recent time, such words as liberty, honour, right, and the like, have gradually undergone perceptible changes in meaning, and it is probable that they may continue to do so in the time to come; for words, like creeds and laws, grow, change, decay, and die."[2]

It is clear, therefore, that there has not been at any time any absolute standard of right and wrong. Should there be one, it could not apply to us who are finite, relative, and imperfect. That moral ideals, though subsequently reacted on, should have been ever necessary in the evolution of mankind, is only a further proof of the relativity of our minds.

[1] The law of the association of ideas in the race is apparent from the fact that the Jews are only now beginning to be treated with social consideration; and in some countries, such as Germany and others, are still looked upon with loathing or dislike. It is apparent also in the fact that the tortures of hell are, by some minds, considered to be still reserved for the followers of other sects; and that witches and Spiritualists are still looked upon, by some minds, as having dealings with Satan.

[2] Physiology of Mind, p. 277.

Prof. Max Müller observes, "Whenever we can trace back a religion to its first beginnings, we find *it* free from many of the blemishes that offend us in its later phases. The founders of the ancient religions of the world, as far as we can judge, were minds of a high stamp, full of noble aspirations, yearning for truth, devoted to the welfare of their neighbours, examples of purity and unselfishness. What they desired to found upon earth was but seldom realised, and their sayings, if preserved in their original form, offer often a strange contrast to the practice of those who profess to be their disciples. As soon as a religion is established, and more particularly when it has become the religion of a powerful state, the foreign and worldly elements encroach more and more on the original foundation, and human interests mar the simplicity and purity of the plan which the founder had conceived in his own heart, and matured in his communings with his God." &c.[1]

But since virtue and vice, good and evil, right and wrong, are relative terms, applying only to the relative conditions of our growth, and having no absolute existence in Nature; since we are what we have become and no more; since Man is not responsible to a higher Power, what, it may be asked, are the moral consequences of such con-

[1] Chips from a German Workshop, vol. i. p. xxiv.

clusions? and what can be substituted for the previous belief in the moral responsibility of Man?

Condition of religion.

But what, it may be asked in return, is and has been the state of the question? In order to reinforce the assumption that man was upon his trial on earth, a number of other assumptions have been found indispensable. As when a child tells a fib, he is compelled to invent a host of other fibs to give coherence to the first, it has been found necessary to invent an original sin, the total depravity of human nature, a revengeful God; and last, but not least, a hell of torments and an inane heaven. And what has followed? That which happens to the child with regard to his fibs has happened likewise to religion and her assumptions. With the inevitable progress of knowledge has come an inevitable progress of the moral nature, and one by one these baseless figments of the imagination have been shown up and dispelled by the glow of a more enlightened reason, or refined away. It is now seen that man has not fallen from a high estate—unless it be as an emanation from the Infinite Soul in Nature—but is rising to one; that he is not responsible to a revengeful God, but is responsible to himself for his progress through eternity; that hell and heaven are not actual places, but conditions of the mind, involving remorse and regret on his apprehension of the infringement of the material, mental, and moral

laws of his development and his neglected opportunities.

Complementary development in spiritual world.

As has been pointed out, there is a spiritual world as well as a physical world. From our knowledge of the developmental nature of the conditions of our existence in the physical world, we should naturally infer, even if no more positive evidence were at hand, that the nature of the conditions in the spiritual world—though considerably modified by reason of the difference in all the material conditions—would be similarly developmental, and hence complementary. And, as a matter of fact, the study of the conditions of spiritual existence, as we are at present enabled to pursue it, confirms the inference.

Virtuous, good, and right actions are, therefore, those which, in conformity with all the conditions of our development, will tend to promote our individual and collective progress through eternity, and must perforce grow with our growth. Their contraries are those which tend to retard our individual and collective progress, and must, soon or late, produce the deepest suffering, remorse, and regret.

Collective overruling individual development.

There is, moreover, a condition of our development which it is needful to point out here. The principles of organic evolution have shown that, in the development of living beings on our planet, individuals have constantly been sacrificed, so to speak,

in favour of the race. There is something akin to this in Spiritual Evolution. As has been observed, there is a *collective* as well as an *individual* progress; and the connection being constant and inseparable, the one is dependent on the other. Hence the collective development overrules the individual; the *collective* being made up of numerous individuals, and directing and influencing the latter. This interaction is familiar. The individual does not suffer only from the consequences of his own errors, but often also from the errors of neighbours and friends and relations. From ignorance of the appropriate hygienic measures, a neighbour begets typhoid fever in his house. This does not affect him and his family alone, but it spreads to others who had observed the strictest sanitary precautions. In speaking of moral and criminal epidemics, Dr. Elam observes, "We have attempted to trace these aberrations, and have here met constantly with the conviction that man, who has an *individual* responsibility, is the plaything, not only of *his own* passions and instincts, but, through the laws of his being, also of those of others. We have seen that through these same laws, and others of still more profound and complex operation, large masses are likewise subject to evil influence from the caprices or vices of one." [1]

[1] A Physician's Problems, p. 218.

From the loose commercial principles of the directors of a great bank, thousands of individuals and families are brought to the verge of ruin. Of such interaction many instances will probably suggest themselves to the reader. But it is not perhaps sufficiently perceived that the converse holds good. We profit by every progress of the race. A child born at the present day is heir to all the progress which has been brought about by the wonderful advances of Science, and heir also to all the comforts of our present life; so that, without further comment, it will be perceived that our pleasures and pains are not single only, but conjoint, and that we do not progress singly, but as a whole; that our individual progress is indissolubly bound up with that of the race; nay, that it is bound up likewise with the planet in all its material conditions, and even with all those lower reigns of minds who are struggling up to that stage which *we* have reached. This conception is fraught with moral consequences which are to-day almost unconsciously felt working in our minds.

Progress in our relations to animals.

There is no other explanation of the kindly feelings which are widening the scope in civilised societies of the Associations for the Prevention of Cruelty to Animals; no other for the leniency manifested in the desire to regenerate criminals, as opposed to hanging them; no other, again, in the energetic projects for opening up vast continents and

countries to the benefits to be derived from civilisation; no other, lastly, for those principles of co-operation, as opposed to a limited self-interest, which are already affording an earnest of all their possibilities.

Mr. Lecky thus alludes to the progress of morals: "At one time the benevolent affections embrace merely the family; soon the circle expanding includes first a class, then a nation, then a coalition of nations, then all humanity, and finally, its influence is felt in the dealings of man with the animal world."[1]

In a "Memoir on the Mental Progress of Animals during the Human Period,"[2] Mr. Shaw observes, "But it is not so much the change wrought by our race on mountains, seas, and rocks of adamant, as the change effected by man on the forms of life that is most to be wondered at. The relation of organism to organism is a relation the importance of which can scarcely be understated."

If man has wrought thus unconsciously the elevation of the minds below him, how much will he not consciously be capable of doing?

To criminals.

The researches of Prof. Benedict on nineteen brains of criminals,[3] communicated at the International Congress of Anthropology in the recent Paris Exhibition, have shown, what was antecedently infer-

[1] Op. cit., vol. i. p. 101.

[2] See the "Journal of the Anthropological Institute" for August 1877, p. 96.

[3] See the "Revue d'Anthropologie," edited by M. Paul Broca, for October 15, 1878, p. 750.

able from the principles of organic evolution, that the brains of criminals are defective in structural quality. Spiritual evolution shows, further, that they are not eliminated by being hanged. The method of Nature toward the human mind being developmental, it is obviously our duty to second her action in this direction, by the employment of measures which will tend to improve the mind, and produce a healthy reaction in the nerve structure of these, who are always either insane or mentally disqualified.

To the globe. Mr. G. P. Marsh has shown in his work[1] that the action of man on the earth has corresponded with his degree of knowledge, primarily destructive and wasteful, and ultimately constructive and foreseeing. The engineering projects which in recent times have been carried into effect, and have improved the material conditions of portions of the planet, such as improved modes of communication, drainage, irrigation, &c., &c., are well known, while the exploration of Africa has called forth the persistent energies of those countries which march in the van of civilisation.

To our fellowmen. Lastly, co-operative projects of different kinds have been entertained in different countries; and where they have been carried into effect on the truer principles of co-operation, they have been attended with the best results. The credit bank of Herr Shultze

[1] Earth and Man, *passim*.

at Delitsh, in Germany, and its consequent developments in that country, and the more communistic Familistère of M. Godin at Guise (Aisne), in France, have shown that it is possible to make work diffuse its benefits on all alike.

On the principles of co-operation also, as has been seen, the material, mental, and moral laws of our development are dependent. In the name, therefore, of all these principles it behoves Religion to proclaim the Universal Brotherhood of Man.

Conclusion.

That this Religion of Nature will not be understood by all minds alike is a necessity of the case. But it seems likewise to be a necessity of the case that individual minds should be educated up to it as far as may be possible. The evident principle underlying it is centred in the affections. It breathes the deepest love to the Infinite Mind, Whose Self-Existence is the Cause of our own. It breathes love to all our fellow-travellers through eternity, whether near or remote, who hand-in-hand throughout the infinite Ladder of Progress ascend in one vast cohort to the Unknowable Cause of our existence. This Cause remains in Itself, and must remain Unknown; but the fact is manifest that we exist and progress.

It is before this Tribunal of our Progress that Religion and Science are arraigned.

Religion has sinned more from the nature of her development than from her nature. In proceeding by long stages she has been unable to accompany

us in our progress; and, after opposing her advance, has allowed Science to act as pioneer in her own special way. It may be hoped that she may in future proceed in concert with Science, and that it will no longer be possible for a minister of Religion to be ignorant of the laws of Nature and presume to teach the laws of God.

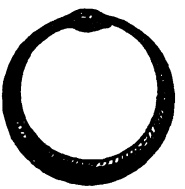
Science has sinned more from her nature than from the nature of her development. By confining her view as well as her study to one aspect only of our development, she has led the human mind into a blind alley, and rendered necessary a revelation of the other. It may be hoped that she will no longer sap the basis of all Religion, and that she will perceive that the laws of Nature are the laws of God.

In dismissing the case and recommending a speedy consummation of the reconciliation which must inevitably take place, Progress admonishes both in the following words of Paul Broca, pronounced within the precincts of the great Assembly of Peace, the International Exhibition of Paris.

"A une époque dont l'antiquité prodigieuse échappe à toutes nos chronologies, au milieu des monstres gigantesques, qui se disputaient la possession de notre sol apparut un être faible et chétif, nu et sans armes, soutenant à peine, au jour le jour, son existence famélique et ne trouvant, dans le creux des rochers, qu'un refuge insuffisant contre les dangers incessants qui venaient l'assaillir. Au calcul

des chances ordinaires, cet être paraissait privé de tout ce qui, dans la bataille de la vie, assure la survivance des espèces ; entouré d'ennemis nombreux et terribles, dénué de moyens d'attaque et de moyens de défense, exposé, pendant sa longue et débile enfance, à toutes les agressions, à toutes les vicissitudes, il semblait voué à la destruction par une nature marâtre. Mais il possédait deux merveilleux instruments, plus parfaits en lui qu'en toute autre créature : le cerveau qui commande et la main qui exécute. A la force brutale jusqu'alors reine du monde il opposait l'intelligence et l'adresse, lutte grandiose où, suivant l'expression du poëte, ceci devait tuer cela. Les espèces colossales des temps géologiques ont disparu : l'homme est resté : il a vaincu tous ses rivaux, vaincu la nature elle-même, et à cette place ou nous sommes, là où jadis, d'une main novice, il taillait ses premières armes dans les silex roulés par un fleuve encore innomé, il étale aujourd'hui les splendeurs de l'Exposition Universelle." [1]

1 Revue d'Anthropologie for October 15, 1878, p. 693.



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