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PROFESSOR DRUMMOND'S "ASCENT OF MAN."

A DIFFICULTY which will not improbably present itself to many minds on reading Professor Drummond's new book is that arising from the more or less unconscious effort of the reader to decide from what standpoint the book as a whole should be viewed. It is in many respects a book which arrests attention. There is a ring of greatness about it. The author has chosen the noblest of all subjects, and not only has he, on the whole, risen to the level of it, but the inspiration is felt to be so sustained that, even where he at times falls below it, the reader is always sure that he will rise again. This will perhaps be generally admitted. Yet it is not unlikely that some who do not succeed in focussing it properly, will feel that there is also an element of disappointment in it. The fact is that, although the book deals with scientific questions, its subject is not so much science as the poetry of science. It represents the soaring flights of a young and vigorous school of thought, which often rises into regions where the captive wing of science can almost certainly never hope to follow. But, like all true poetry, it has its justification. Even in its most daring generalizations there is an element of truth capable of commending itself to the soberest minds.

If this preliminary reservation may be allowed, it is possible to appreciate Professor Drummond's finely written book. The first three chapters take us up to the "Dawn of Mind," and their subject matter is indicated by their titles. They are, "The Ascent of the Body," "The Scaffolding left in the Body," and "The Arrest of the Body." They deal with the evolution of the human body from lower forms of life, with the numerous evidences of its ancestry it still retains—all of which are effectively recapitulated in a manner calculated to strike the general imagination—and, finally,

with the arrested development and degeneration of those organs and qualities in the body which reached their highest usefulness in the struggle for existence on a lower plane. Much of what is characteristic in these chapters, and also to some extent in the book as a whole, will be familiar to those who have read Fiske's *Destiny of Man*. It is hardly possible to discuss the theories themselves in a severely critical spirit. Their full acceptance would require assent to much that science can only take with reservation and qualification, and to do justice to the chapters they must be judged rather by the general effect they produce on the mind. They contain many fine passages. Many who have burnt the midnight oil watching for hours the development beneath the microscope of the embryo of frog, or fish, or insect, will realize that the author has for them often brought thought to birth in words in these chapters. Those wonderful fleeting structures, so often developed for a few hours to again pass and disappear as in the short span of a single summer night, the developing embryo dimly recapitulates the life history of its kind through measureless changing epochs in the past, and in unknown times and climates, all tell a story of the past history of life on our planet, the depth and range of which even the highest poetry has yet failed to compass. Professor Drummond makes us realize this in a high degree of the human body. As he well remarks (pp. 94-5) :—

“He who ponders over the more ancient temple of the Human Body will find imagination fail him as he tries to think from what remote and mingled sources, from what lands, seas, climates, atmospheres, its various parts have been called together, and by what innumerable contributory creatures, swimming, creeping, flying, climbing, each of its several members was wrought and perfected. What ancient chisel first sculptured the rounded columns of the limbs? What dead hands built the cupola of the brain, and from what older ruins were the scattered pieces of its mosaic-work brought? Who fixed the windows in its upper walls? What winds and weathers wrought strength into

its buttresses? What ocean-beds and forest-glades worked up its colourings? What Love and Terror and Night called forth the Music? And what Life and Death and Pain and Struggle put all together in the noiseless workshop of the past, and removed each worker silently when its work was done."

Haeckel in a striking passage once called attention to what must be the infinite and inconceivable delicacy of the albuminous matter comprising the single cell of microscopic dimensions in which all the higher forms of life originate—a simple cell capable of transmitting the molecular individual vital motion of the form of life it represents so accurately that afterwards the minutest bodily and mental peculiarities of the parents reappear in new life. Professor Drummond follows up and develops the same idea in a fine passage (pp. 95-6):—

"Recall the vast antiquity of that primal cell, from which the human embryo first sets forth. Compass the nature of the potentialities stored up in its plastic substance. Watch all the busy processes, the multiplying energies, the mystifying transitions, the inexplicable chemistry of this living laboratory. Observe the variety and intricacy of its metamorphoses, the exquisite gradation of its ascent, the unerring aim with which the one type unfolds—never pausing, never uncertain of its direction, refusing arrest at intermediate forms, passing on to its flawless maturity without waste or effort or fatigue. See the sense of motion at every turn, of purpose and of aspiration. Discover how, with identity of process and loyalty to the type, a hair-breadth of deviation is yet secured to each, so that no two forms come out the same, but each arises an original creation, with features, characteristics and individualities of its own."

All this every biologist who knows and understands his subject must have felt, even while he may have known it to be beyond his power to convey the feeling to others in words like these.

It is to be doubted, perhaps, whether the highest value of some of Professor Drummond's most characteristic theories does not consist merely in their suggestiveness. The theory, borrowed from Fiske, that in the human body

we have the highest possible product of organic evolution, and that therein the development of the vertebrate form has reached its limit, is one which, if we mistake not, few representatives of science will be willing to unreservedly accept. The author's views also respecting the degeneration of the body are, it would appear, carried much too far. His own argument leaves an uncomfortable feeling on the mind of even the uncritical reader that it has proved too much. Our waning powers of sight, our degraded ears, our inefficient skin, our degenerating teeth and jaws, are all most mercilessly exposed to an audience whose sympathies are reserved in advance for the superior creature with the expanding brain. But in this glorification of the intellect at the expense of the body Professor Drummond appears to be on rather doubtful ground. What *is* taking place would seem to be merely the adjustment of the body to changing conditions of life. Similar adjustments are always in progress in all the higher forms of life; some parts are always undergoing degeneration, while others are in like manner being progressively developed. But it is easy to imagine what Professor Drummond's probable reception would be if it were to be in his power to produce to a class of Scotch students a genuine representative of the primeval savage type with over-developed stomach, low stature, and weak, bandy legs, and then to point to his audience as examples of degraded bodily development from this standard. The Scotch, with the English professional classes, enjoy, as Mr. Galton has shown, a position almost at the head of the race list in height development, while the Australian Bushman is at the bottom with an average of 4 ft. 4.78 in. In weight and chest measurement also the races that are winning most ascendancy in the world to-day are well to the fore. In the stress and strain of life vigorous physical qualities are too closely associated with vigorous mental qualities to be thus sharply contrasted.

Besides, they are both subordinate to, and influenced by, larger considerations of ethical development, which are not mentioned. The gilded youth of Rome who jested and quoted Horace to each other while they pinched and patted the muscles of the Northern gladiators, on whom they had laid their bets, considered themselves vastly superior creatures to the mere barbarian who made their sport. But it is the Northern barbarian who rules the world now.

The fourth chapter in Professor Drummond's book is entitled "The Dawn of Mind." It is probably one of the least satisfactory in the book. Like so many others who have come into contact with uncivilized man, the author follows in an old and beaten track which it is high time we had abandoned. He is apparently ready to regard the immense interval which separates us from savage man as a result arising from his greatly inferior mental development, instead of from a lack of those qualities which contribute to social efficiency and the possession of which enable the higher races to develop stable civilizations and to store up knowledge of the arts and sciences. There is abundant evidence now-a-days to show that the children of uncivilized races, when brought up under the same conditions as European children, labour under no intellectual disability of a kind to prevent them from acquiring knowledge and learning with much the same facility as the children of the higher races. The intellectual interval between uncivilized man of the present day and the higher races is, in fact, comparatively small and insignificant compared with the enormous difference which must separate the minds of even the lowest savages from the earliest type of intelligence. Yet Professor Drummond innocently looks round the world and sees that the mind of man "exists to-day, among certain tribes at almost the lowest point of development with which the word human can be associated ; and that from that point

an Ascent of Mind can be traced from tribe to nation in an ever-increasing complexity and through infinitely delicate shades of improvement, till the highest civilized states are reached." Surely this betokens a state of mind in the author peculiar to an earlier stage of knowledge on this subject. He tells us further, that "in the very nature of things we should have expected such a result."

But the facts with which he supports these curious statements are something like the fabled dragon's teeth. For under the critical eye the arguments they suggest tend to rise up and annihilate each other so far as their support to his case goes. The descendants of the benighted cannibals of the Sandwich Islands who a century ago killed and ate Captain Cook, are already, he is compelled to admit, claiming to be admitted among civilized nations. A few pages on he tells us very effectively of the immense part which language has played in banking the experience of the race and in thus immeasurably widening the distance between man and the animal. But all the time he appears to be oblivious to the equally important and exactly similar part which a state of social stability (resulting from the possession of qualities contributing to social efficiency) has played in banking the gains of knowledge and in similarly widening the interval between civilized man and the savage. It is only when we understand the difference between civilized and uncivilized man to be, in the largest sense, the result, not of great intellectual inferiority but of an environment arising directly from his lack of qualities contributing to social efficiency, that we perceive the true bearing of the passage from Mr. Herbert Spencer, with which the author completes the destruction of his argument.

"It needs but to ask what would happen to ourselves were the whole mass of existing knowledge obliterated, and were children with nothing beyond their necessary language left to grow up without guidance or instruction from adults, to perceive that even now the higher intellec-

tual faculties would be almost inoperative from lack of the materials and aids accumulated by past civilizations. And seeing this, we cannot fail to see that development of the higher intellectual facilities has gone on *pari passu* with social advance alike as cause and consequence; that the primitive man could not evolve these higher intellectual faculties in the absence of a fit environment, and that in this as in other respects his progress was retarded by the absence of capacities which only progress could bring."

The latter half of Professor Drummond's book is devoted to the treatment of subjects connected with the development upwards throughout life of the altruistic and social qualities which reach their fullest expression in human society. This part of the book seems on the whole inferior to the first part. It is full of fine passages; but the attentive reader will nevertheless feel keenly that he misses something. The author somehow fails to secure his entire confidence. There is often an evident straining after effect; on the whole there is a scarcely concealed desire to hurry the reader on anyhow to a preconceived moral conclusion—that fault which so often does violence to the best intentions in a lower class of literature, even when the reader's entire sympathies are with the author. It has other faults too. A reader fully acquainted with the facts with which Professor Drummond is dealing can scarcely avoid feeling that the author himself lacks to some extent that firm grasp of the main principles underlying the facts which we have a right to expect from him. For instance, it soon becomes apparent that he has confused throughout, and mingled in inextricable entanglement in these pages, the facts connected with two totally distinct developments in life, namely, the parental development and the co-operative or social development. In the parental development he has a splendid subject, but this want of grasp renders the treatment disappointingly inadequate.

Every evolutionist who has made progress towards understanding his subject should have firmly fixed in his

mind the first principles of this parental development whatever else he may lack. Even a few bold strokes give an outline of a striking process of progress which has the directest connection with the highest ethical problems of human life, and into which an immense sequence of facts are seen to be fitted in simple and orderly relationship. We have at the bottom the institution of sex, the enormous physiological import of which—despite the author's doubts—science is beginning to clearly understand. But fertilization can only take place in the single cell stage of every organism. Observe, therefore, the results of this exacting condition to which life is thus subjected almost from the beginning, and the ascending series of phenomena of extraordinary interest to which it gives rise. We have on the one side the organism itself ever growing more and more complex as progress continues to be made upwards to higher forms of life. On the other hand, we have, notwithstanding this, the necessity imposed on nature of returning for every new life to exactly the same starting point as at the beginning—the single cell. The effort to bridge in the most efficient manner the enormous and ever-lengthening interval of helplessness between these two extremes—the single cell stage and the complex adult individual—is, therefore, the key to all the ascending phenomena of parenthood. It has provided the battle-ground of genera and species and types of life in one of the greatest and most persistent struggles in the history of life. In the birds and their eggs we have the culminating stage reached in one line of effort. In the mammalia another line of yet greater possibilities is opened up; the developing embryo is withdrawn altogether from the risks of a separate existence in the egg; it draws sustenance direct from the mother; the young reaches a more and more advanced stage of development before being born as we rise from the marsupials to the placentals; the parental instincts

become greatly developed ; the burthen of parenthood grows ever heavier, and the necessity for bearing it efficiently more imperative as the creature grows more complex and the distance between the two extremes continues to be lengthened out, till the climax is at length attained in man in whom the deepening of the parental feelings and the enormous prolongation of the period of infancy paves the way for the first beginnings of the social state. Altogether we have in this development the outlines of a vast connected process the interest and significance of which dominates the whole story of life.

But the treatment of so great a subject in the hands of so able a writer as Professor Drummond is not satisfactory. He begins naturally with the ethical significance of sex ; but after having excited the imagination by showing us "how deep from the very dawn of life this rent between the two sexes yawns," all he really brings us to is the somewhat inconsequent conclusion that "had sex done nothing more than make an interesting world, the debt of evolution to reproduction had been incalculable." In the long drawn out stage in which physiological necessity reduces the number of young, and higher equipment begins to take the place of numbers in the struggle for existence, Professor Drummond sees operating only the necessity for focussing the parental care on one so as to "concentrate it into love" and "to make it possible for the parent to recognise its young." The significant process by which the embryo ceased to be separated from the mother at an early stage, as in the eggs of reptiles and birds, and in which the connection during the always lengthening period of embryonic development grows ever closer as we rise in the mammals from the marsupials to the placentals, is explained by Professor Drummond in the same fanciful and disappointing way. It was all, we are told, "to make the children presentable at birth," so "that when first they caught the

mother's eye they were 'strong and of a good liking.'” And so on. Not till the author takes up Fiske's idea of the lengthening out of the period of infancy in man because of the time required for perfecting the more complex adult, and the influence of this fact in our social development, do we get any insight into the laws governing the development as a whole and the tremendous import of the process throughout; after which the author again relapses, and we see him at the previous level in the chapter on “the Evolution of a Father,”

It is while labouring under the disadvantage of having to feel that Professor Drummond has somehow failed him in these chapters as a guide in enabling him to see “in a plain way a few of the things which science is now seeing,” that the reader turns back in natural sequence to the introductory chapters, which were evidently written last. Here a much higher level of thought is reached, and both in these chapters and in the last chapter in the book we feel that we are again in the company of the author of *Natural Law in the Spiritual World*. But it is still necessary to use our own eyes, and walk cautiously with the author. Surely, for instance, the real *gravamen* of the indictment to which modern science has undoubtedly laid herself open in failing to give us a scientific explanation of our social and ethical development is not comprised in his charge that she has seen only the struggle for life, and has not considered the struggle for the life of others. Let Professor Drummond examine the accused, and deal fairly with her and he will see that it is not here that she has failed. Even the passages which he quotes from her spokesman in his own pages would be sufficient to produce the feeling that this cannot be so. The true cause of the failure has been quite different; it is one to which Professor Drummond himself often bears witness. It is that she has followed the method of regarding man and his social life as something

quite distinct and apart from the rest of Creation. If Professor Drummond will turn to Professor Huxley's *Romanes Lecture*, 1893,¹ he will see the cause of the failure written large therein. He will find the author there representing man's development and progress as the successful effort to arrest and suspend the cosmic process. The truth is just the reverse. It is the cosmic process that is everywhere triumphant even right down into the midst of our Western civilization and our modern life; and every phase and aspect of our development, social, political, ethical and religious, has its meaning to science only in regard to the furtherance of this process. This is where Professor Drummond himself seems to be so often following a false issue. The struggle for the life of others is not, as he seems at times to think, something apart and to which the struggle for life finally leads up. The contrary is the truth. The struggle for the life of others is only a phase of the eternal rivalry of life which has its cause in deep-seated physiological necessities from which we have no power to escape. The struggle for the life of others has no meaning for science apart from this larger rivalry. The latter is becoming regulated, raised, humanized, but always and ever more efficient and more imperative. Once it was physical only; now it is ethical, moral, religious; that is the meaning of the ascent. As Professor Drummond has himself well said in a passage in which he sees the truth—although it is contradictory to much that he has said elsewhere:—

“Hence it has been ordained that Life and Struggle, Health and Struggle, Growth and Struggle, Progress and Struggle, shall be linked together; that whatever the chances of misdirection, the apparent losses, the mysterious accompaniments of strife and pain, the Ascent of Man should be bound up with living. When it is remembered that, at a later day, Morality and Struggle, and even Religion and Struggle, are bound so closely that it is impossible to conceive them apart, the tremendous value of this principle . . . will be perceived.”

¹ *Evolution and Ethics.*

The writer of this Article does not think that it would be, on the whole, quite fair to Professor Drummond to attempt any lengthened criticism of the remarks on his own book, *Social Evolution*, contained in the last chapter in this section, seeing that, as we are told, the book was read only as the sheets of the *Ascent of Man* were almost in the press. To some extent the difficulty discussed appears to be one of terminology. Professor Drummond seems to feel it to be a serious cause of complaint against the argument developed in *Social Evolution* that our social development has been put on an *ultra-rational* basis. The writer must, however, plead "not guilty" to such a change in the sense in which Professor Drummond apparently intends it. The writer did not put it there, he merely found it there, where, as it appears to him, every close student of our social systems, our history, and even our systems of jurisprudence will ultimately find it—if only he is able to start with a mind free from prepossession, and to keep it free from confusion. All that has been attempted in this respect in *Social Evolution* is to explain in the light of modern science how it is part of the cosmic order of things that it has come to be there, why it has always been there, and why, if recent developments of the doctrine of evolution are to be accepted, the reasoning appears to have almost the cogency of mathematical demonstration that it must always remain there, and that the whole assault which a certain class of reasoners have directed against religion must in consequence prove to have been an attack upon an empty fort. It would be out of place to restate the argument here by which this view is supported. Nothing that has been said since the book has been published has led the writer to feel that he can usefully add anything to it, as it is developed in the book itself.

Professor Drummond's fear that the law of continuity would be put to confusion if such a conclusion were established appears to be groundless. The conflict between the

self-assertive reason of the individual and the forces that are making ultimately for the welfare of the race is itself apparently an inherent part of the law of progress. Otherwise the conflict would soon be suppressed. But its existence does not involve any idea of confusion. Order and progress are everywhere the results of such conflicting laws. The earth moves round the sun in obedience to the original centrifugal impetus. But the centripetal tendency is in constant conflict with this impetus. Yet no law is put to confusion; the result is the majestic progress of the earth round the sun for millions of ages and all the sequence of life on our planet. Life itself is, again, but the constant mean between two conflicting tendencies, anabolism and katabolism, and yet there is no confusion. Nay more, the masterly researches of Geddes and Thompson have revealed to us that the same eternal conflict of tendencies in the life of the individual cells themselves has been the probable basis upon which nature has reared the tremendous superstructure of sex, and all that this implies in the evolution of life. There is no confusion here—only the terms of a larger unity. And so, likewise, the law of continuity is not "put to confusion," but maintained, because we find in the social organism, founded on a system of religious belief, that "throughout its existence there is maintained within it a conflict of two opposing forces; the disintegrating principle represented by the rational self-assertiveness of the individual units; the integrating principle represented by a religious belief, providing a sanction for social conduct, which is always of necessity ultra-rational, and the function of which is to secure in the stress of evolution the continual subordination of the interests of the individual units to the larger interests of the longer-lived social organism to which they belong."¹

The great transforming lesson which modern science has

¹ *Social Evolution*, p. 102.

probably in its power to bring finally home to philosophy is that its province has limits, which may be strictly and scientifically defined, and that the definition of those limits leaves the capital problems of human life and human progress unsolved and insoluble from the point of view of individual rationalism. To the writer human society is now, and apparently always has been and always will be, founded on ultra-rational sanctions. To say so is not to utter a complaint which sounds "like a dirge." All efforts to place it on any other foundations must apparently, if the evolutionary science of our time is to be accepted, end in always bringing us back to that starting point to which so many past systems of philosophy have returned. We shall have to say of these problems—to quote words recently used by Mr. Arthur James Balfour—that after all "they come upon us with all the old insistence. They are restated but they are not solved."¹ *This* has been the dirge which has come sounding down through philosophy in the past. It is the result, as modern science appears to be about to indicate to us, of attempting a task which fundamental physiological conditions of life render impossible of accomplishment.

BENJAMIN KIDD.

¹ "A Criticism of Current Idealistic Theories," by A. J. Balfour. *Mind*, Oct., 1893.