

HENRY DRUMMOND



**THE ASCENT
OF MAN**

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Henry Drummond

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Preface

"THE more I think of it," says Mr. Ruskin, "I find this conclusion more impressed upon me--that the greatest thing a human soul ever does in this world is to see something, and tell what it saw in a plain way." In these pages an attempt is made to tell "in a plain way" a few of the things which Science is now seeing with regard to the Ascent of Man. Whether these seeings are there at all is another matter. But, even if visions, every thinking mind, through whatever medium, should look at them. What Science has to say about *himself* is of transcendent interest to Man, and the practical bearings of this theme are coming to be more vital than any on the field of knowledge. The thread which binds the facts is, it is true, but a hypothesis As the theory, nevertheless. with which at present all scientific work is being done, it is assumed in every page that follows.

Though its stand-point is Evolution and its subject Man, this book is far from being designed to prove that Man has

relations, compromising or otherwise, with lower animals. Its theme is Ascent, not Descent. It is a History, not an Argument. And Evolution, in the narrow sense in which it is often used when applied to Man, plays little part in the drama outlined here. So far as the general scheme of Evolution is introduced--and in the Introduction and elsewhere this is done at length --the object is the important one of pointing out how its nature has been misconceived, indeed how its greatest factor has been overlooked in almost all contemporary scientific thinking. Evolution was given to the modern world out of focus, was first seen by it out of focus, and has remained out of focus to the present hour. Its general basis has never been re-examined since the time of Mr. Darwin; and not only such speculative sciences as Teleology, but working sciences like Sociology have been led astray by a fundamental omission. An Evolution Theory drawn to scale, and with the lights and shadows properly adjusted--adjusted to the whole truth and reality of Nature and of Man--is needed at present as a standard for modern thought; and though a reconstruction of such magnitude is not here presumed, a primary object of these pages is to supply at least the accents for such a scheme.

Beyond an attempted readjustment of the accents there is nothing here for the specialist--except, it may be, the reflection of his own work. Nor, apart from Teleology, is there anything for the theologian. The limitations of a lecture-audience made the treatment of such themes as might appeal to him impossible; while owing to the brevity of the course, the Ascent had to be stopped at a point where all the higher interest begins. All that the present volume covers is the Ascent of Man, the Individual, during the earlier stages of his evolution. It is a study in embryos, in rudiments, in installations; the scene is the primeval forest; the date, the world's dawn. Tracing his rise as far as

Family Life, this history does not even follow him into the Tribe; and as it is only then that social and moral life begin in earnest, no formal discussion of these high themes occurs. All the higher forces and phenomena with which the sciences of Psychology, Ethics, and Theology usually deal come on the world's stage at a later date, and no one need be surprised if the semi-savage with whom we leave off is found wanting in so many of the higher potentialities of a human being.

The Ascent of Mankind, as distinguished from the Ascent of the Individual, was originally summarized in one or two closing lectures, but this stupendous subject would require a volume for itself, and these fragments have been omitted for the present. Doubtless it may disappoint some that at the close of all the bewildering vicissitudes recorded here, Man should appear, after all, so poor a creature. But the great lines of his youth are the lines of his maturity, and it is only by studying these, in themselves and in what they connote, that the nature of Evolution and the quality of Human progress can be perceived.

HENRY DRUMMOND.

Introduction

I - EVOLUTION IN GENERAL

THE last romance of Science, the most daring it has ever tried to pen, is the Story of the Ascent of Man. Withheld from all the wistful eyes that have gone before, whose reverent ignorance forbade their wisest minds to ask to see it, this final volume of Natural History has begun to open with our century's close. In the monographs of His and

Minot, the Embryology of Man has already received a just expression; Darwin and Haeckel have traced the origin of the Animal-Body; the researches of Romanes mark a beginning with the Evolution of Mind; Herbert Spencer has elaborated theories of the development of Morals; Edward Caird of the Evolution of Religion. Supplementing the contributions of these authorities, verifying, criticizing, combating, rebutting, there works a multitude of others who have devoted their lives to the same rich problems, and already every chapter of the bewildering story has found its editors.

Yet, singular though the omission may seem, no connected outline of this great drama has yet been given us. These researches, preliminary reconnaissances though they be, are surely worthy of being looked upon as a whole. No one can say that this multitude of observers is not in earnest, nor their work honest, nor their methods competent to the last powers of science. Whatever the uncertainty of the field, it is due to these pioneer minds to treat their labour with respect. What they see in the unexplored land in which they travel belongs to the world. By just such methods, and by just such men, the map of the world of thought is filled in--here from the tracing up of some great river, there from a bearing taken roughly in a darkened sky, yonder from a sudden glint of the sun on a far-off mountain-peak, or by a swift induction of an adventurous mind from a momentary glimpse of a natural law. So knowledge grows; and in a century which has added to the sum of human learning more than all the centuries that are past, it is not to be conceived that some further revelation should not await us on the highest themes of all.

The day is for ever past when science need apologize for treating Man as an object of natural research. Hamlet's "being of large discourse, looking before and after" is

withal a part of Nature, and can be made neither larger nor smaller, anticipate less nor prophesy less, because we investigate, and perhaps discover, the secret of his past. And should that past be proved to be related in undreamed-of ways to that of all other things in Nature, "all other things" have that to gain by the alliance which philosophy and theology for centuries have striven to win for them. Every step in the proof of the oneness in a universal evolutionary process of this divine humanity of ours is a step in the proof of the divinity of all lower things. And what is of infinitely greater moment, each footprint discovered in the Ascent of Man is a guide to the step to be taken next. To discover the rationale of social progress is the ambition of this age. There is an extraordinary human interest abroad about this present world itself, a yearning desire, not from curious but for practical reasons, to find some light upon the course; and as the goal comes nearer the eagerness passes into suspense to know the shortest and the quickest road to reach it. Hence the Ascent of Man is not only the noblest problem which science can ever study, but the practical bearings of this theme are great beyond any other on the roll of knowledge.

Now that the first rash rush of the evolutionary invasion is past, and the sins of its youth atoned for by sober concession, Evolution is seen to be neither more nor less than the story of creation as told by those who know it best. "Evolution," says Mr. Huxley, "or development is at present employed in biology as a general name for the history of the steps by which any living being has acquired the morphological and the physiological characters which distinguish it. Though applied specifically to plants and animals this definition expresses the chief sense in which Evolution is to be used scientifically at present. We shall use the word, no doubt, in others of its many senses; but after all the blood spilt, Evolution is simply "history," a

"history of steps," a "general name" for the history of the steps by which the world has come to be what it is. According to this general definition, the story of Evolution is narrative. It may be wrongly told; it may be coloured, exaggerated, over- or under-stated like the record of any other set of facts; it may be told with a theological bias or with an anti-theological bias; theories of the process may be added by this thinker or by that; but these are not of the substance of the story. Whether history is told by a Gibbon or a Green the facts remain, and whether Evolution be told by a Haeckel or a Wallace we accept the narrative so far as it is a rendering of Nature, and no more. It is true, before this story can be fully told, centuries still must pass. At present there is not a chapter of the record that is wholly finished. The manuscript is already worn with erasures, the writing is often blurred, the very language is uncouth and strange. Yet even now the outline of a continuous story is beginning to appear--a story whose chief credential lies in the fact that no imagination of man could have designed a spectacle so wonderful, or worked out a plot at once so intricate and so transcendently simple.

This story will be outlined here partly for the story and partly for a purpose. A historian dare not have a prejudice, but he cannot escape a purpose--the purpose, conscious or unconscious, of unfolding the purpose which lies behind the facts which he narrates. The interest of a drama--the authorship of the play apart--is in the players, their character, their motives, and the tendency of their action. It is impossible to treat these players as automata. Even if automata, those in the audience are not. Hence, where interpretation seems lawful, or comment warranted by the facts, neither will he withhold.

To give an account of Evolution, it need scarcely be remarked, is not to account for it. No living thinker has yet

found it possible to account for Evolution. Mr. Herbert Spencer's famous definition of Evolution as "a change from an indefinite incoherent homogeneity to a definite coherent heterogeneity through continuous differentiations and integrations" --the formula of which the *Contemporary Reviewer* remarked that "the universe may well have heaved a sigh of relief when, through the cerebation of an eminent thinker, it had been delivered of this account of itself"--is simply a summary of results, and throws no light, though it is often supposed to do so, upon ultimate causes. While it is true, as Mr. Wallace affirms in his latest work, that "Descent with modification is now universally accepted as the order of nature in the organic world," there is everywhere at this moment the most disturbing uncertainty as to how the Ascent even of species has been brought about. The attacks on the Darwinian theory from the outside were never so keen as are the controversies now raging in scientific circles, over the fundamental principles of Darwinism itself. On at least two main points--sexual selection and the origin of the higher mental characteristics of man--Mr Alfred Russel Wallace, co-discoverer with Darwin of the principle of Natural Selection though he be, directly opposes his colleague. The powerful attack of Weismann on the Darwinian assumption of the inheritability of acquired characters has opened one of the liveliest controversies of recent years, and the whole field of science is hot with controversies and discussions. In his 'GermPlasm,' the German naturalist believes himself to have finally disposed of both Darwin's "gemmules" and Herbert Spencer's "primordial units," while Eimer breaks a lance with Weismann in defence of Darwin, and Herbert Spencer replies for himself, assuring us that "either there has been inheritance of acquired characters or there has been no evolution."

It is the greatest compliment to Darwinism that it should have survived to deserve this era of criticism. Meantime all prudent men can but hold their judgment in suspense both as to that specific theory of one department of Evolution which is called Darwinism, and as to the factors and causes of Evolution itself. No one asks more of Evolution at present than permission to use it as a working theory. Undoubtedly there are cases now before Science where it is more than theory--the demonstration from Yale, for instance, of the Evolution of the Horse; and from Steinheim of the transmutation of Planorbis. In these cases the missing links have come in one after another, and in series so perfect, that the evidence for their evolution is irresistible. "On the evidence of Palaeontology," says Mr. Huxley in the *Encyclopaedia Britannica*, "the evolution of many existing forms of animal life from their predecessors is no longer an hypothesis but an historical fact." And even as to Man, most naturalists agree with Mr. Wallace who "fully accepts Mr. Darwin's conclusion as to the essential identity of Man's bodily structure with that of the higher mammalia and his descent from some ancestral form common to man and the anthropoid apes," for "the evidence of such descent appears overwhelming and conclusive. But as to the development of the *whole Man* it is sufficient for the present to rank it as a theory, no matter how impressive the conviction be that it is more. Without some hypothesis no work can ever be done, and, as everyone knows, many of the greatest contributions to human knowledge have been made by the use of theories either seriously imperfect or demonstrably false. This is the age of the evolution of Evolution. All thoughts that the Evolutionist works with, all theories and generalizations, have been themselves evolved and are now being evolved. Even were his theory perfected, its first lesson would be that it was itself but a phase of the Evolution of further opinion, no more fixed than a species, no more final than

the theory which it displaced. Of all men the Evolutionist, by the very nature of his calling, the mere tools of his craft, his understanding of his hourly shifting place in this always moving and ever more mysterious world, must be humble, tolerant, and undogmatic.

These, nevertheless, are cold words with which to speak of a Vision--for Evolution is after all a Vision---which is revolutionizing the world of Nature and of thought, and, within living memory, has opened up avenues into the past and vistas into the future such as science has never witnessed before. While many of the details of the theory of Evolution are in the crucible of criticism, and while the field of modern science changes with such rapidity that in almost every department the textbooks of ten years ago are obsolete to-day, it is fair to add that no one of these changes, nor all of them together, have touched the general theory itself except to establish its strength, its value, and its universality. Even more remarkable than the rapidity of its conquest is the authority with which the doctrine of development has seemed to speak to the most authoritative minds of our time. Of those who are in the front rank, of those who by their knowledge have, by common consent, the right to speak, there are scarcely any who do not in some form employ it in working and in thinking. Authority may mean little; the world has often been mistaken; but when minds so different as those of Charles Darwin and of T. H. Green, of Herbert Spencer and of Robert Browning, build half the labours of their life on this one law, it is impossible, and especially in the absence of any other even competing principle at the present hour, to treat it as a baseless dream. Only the peculiar nature of this great generalization can account for the extraordinary enthusiasm of this acceptance. Evolution has done for Time what Astronomy has done for Space. As sublime to the reason as the Science of the Stars, as overpowering to the

imagination, it has thrown the universe into a fresh perspective, and given the human mind a new dimension. Evolution involves not so much a change of opinion as a change in man's whole view of the world and of life. It is not the statement of a mathematical proposition which men are called upon to declare true or false. It is a method of looking upon Nature. Science for centuries devoted itself to the cataloguing of facts and the discovery of laws. Each worker toiled in his own little place--the geologist in his quarry, the botanist in his garden, the biologist in his laboratory, the astronomer in his observatory, the historian in his library, the archaeologist in his museum. Suddenly these workers looked up; they spoke to one another; they had each discovered a law; they whispered its name. It was Evolution. Henceforth their work was one, science was one, the world was one, and mind, which discovered the oneness, was one.

Such being the scope of the theory, it is essential that for its interpretation this universal character be recognized, and no phenomenon in nature or in human nature be left out of the final reckoning. It is equally clear that in making that interpretation we must begin with the final product, Man. If Evolution can be proved to include Man, the whole course of Evolution and the whole scheme of Nature from that moment assume a new significance. The beginning must then be interpreted from the end, not the end from the beginning. An engineering workshop is unintelligible until we reach the room where the completed engine stands. Everything culminates in that final product, is contained in it, is explained by it. The Evolution of Man is also the complement and corrective of all other forms of Evolution. From this height only is there a full view, a true perspective, a consistent world. The whole mistake of naturalism has been to interpret Nature from the standpoint of the atom --to study the machinery which

drives this great moving world simply as machinery, forgetting that the ship has any passengers, or the passengers any captain, or the captain any course. It is as great a mistake, on the other hand, for the theologian to separate off the ship from the passengers as for the naturalist to separate off the passengers from the ship. It is he who cannot include Man among the links of Evolution who has greatly to fear the theory of development. In his jealousy for that religion which seems to him higher than science, he removes at once the rational basis from religion and the legitimate crown from science, forgetting that in so doing he offers to the world an unnatural religion and an inhuman science. The cure for all the small mental disorders which spring up around restricted applications of Evolution is to extend it fearlessly in all directions as far as the mind can carry it and the facts allow, till each man, working at his subordinate part, is compelled to own, and adjust himself to, the whole.

If the theological mind be called upon to make this expansion, the scientific man must be asked to enlarge his view in another direction. If he insists upon including Man in his scheme of Evolution, he must see to it that he include the whole Man. For him at least no form of Evolution is scientific or is to be considered, which does not include the whole Man, and all that is in Man, and all the work and thought and life and aspiration of Man. The great moral facts, the moral forces so far as they are proved to exist, the moral consciousness so far as it is real, must come within its scope. Human History must be as much a part of it as Natural History. The social and religious forces must no more be left outside than the forces of gravitation or of life. The reason why the naturalist does not usually include these among the factors in Evolution is not oversight, but undersight. Sometimes, no doubt, he may take at their word those who assure him that Evolution has nothing to

do with those higher things, but the main reason is simply that his work does not lie on the levels where those forces come into play. The specialist is not to be blamed for this; limitation is his strength. But when the specialist proceeds to reconstruct the universe from his little corner of it, and especially from his level of it, he not only injures science and philosophy, but may fatally mislead his neighbours. The man who is busy with the stars will never come across Natural Selection, yet surely must he allow for Natural Selection in his construction of the world as a whole. He who works among star-fish will encounter little of Mental Evolution, yet will he not deny that it exists. The stars have voices, but there are other voices; the star-fishes have activities, but there are other activities. Man, body, soul, spirit, are not only to be considered, but are first to be considered in any theory of the world. You cannot describe the life of kings, or arrange their kingdoms, from the cellar beneath the palace. "Art," as Browning reminds us,

"Must fumble for the whole, once fixing on a part,

However poor, surpass the fragment, and aspire

To reconstruct thereby the ultimate entire."

II - THE MISSING FACTOR IN CURRENT THEORIES

But it is not so much in ignoring Man that evolutionary philosophy has gone astray; for, of that error it has seriously begun to repent. What we have now to charge against it, what is a main object of these pages to point out, is that it has misread Nature herself. In "fixing on a part" whereby to "reconstruct the ultimate," it has fixed upon a part which is not the most vital part, and the reconstructions, therefore, have come to be wholly out of focus. Fix upon the wrong "part," and the instability of the

fabric built upon it is a foregone conclusion. Now, although reconstructions of the cosmos in the light of Evolution are the chief feature of the science of our time, in almost no case does even a hint of the true scientific standpoint appear to be perceived. And although it anticipates much that we should prefer to leave untouched until it appears in its natural setting, the gravity of the issues makes it essential to summarize the whole situation now.

The root of the error lies, indirectly rather than directly, with Mr. Darwin. In 1859, through the publication of the *Origin of Species*, he offered to the world what purported to be the final clue to the course of living Nature. That clue was the principle of the Struggle for Life. After the years of storm and stress which follow the intrusion into the world of all great thoughts, this principle was universally accepted as the key to all the sciences which deal with life. So ceaseless was Mr. Darwin's emphasis upon this factor, and so masterful his influence, that, after the first sharp conflict, even the controversy died down. With scarce a challenge the Struggle for Life became accepted by the scientific world as the governing factor in development, and the drama of Evolution was made to hinge entirely upon its action. It became the "part" from which science henceforth went on "to reconstruct the whole," and biology, sociology, and teleology, were built anew on this foundation.

That the Struggle for Life has been a prominent actor in the drama is certain. Further research has only deepened the impression of the magnitude and universality of this great and far-reaching law. But that it is the sole or even the main agent in the process of Evolution must be denied. Creation is a drama, and no drama was ever put upon the stage with only one actor. The Struggle for Life is the "Villain" of the piece, no more; and, like the "Villain" in the

play, its chief function is to re-act upon the other players for higher ends. There is, in point of fact, a *second* factor which one might venture to call *the Struggle for the Life of Others*, which plays an equally prominent part. Even in the early stages of development, its contribution is as real, while in the world's later progress--under the name of Altruism-- it assumes a sovereignty before which the earlier Struggle sinks into insignificance. That this second form of Struggle should all but have escaped the notice of Evolutionists is the more unaccountable since it arises, like the first, out of those fundamental functions of living organisms which it is the main business of biological science to investigate. The functions discharged by all living things, plant and animal, are two in number. The first is Nutrition, the second is Reproduction. The first is the basis of the Struggle for Life; the second, of the Struggle for the Life of Others. These two functions run their parallel course--or spiral course, for they continuously intertwine--from the very dawn of life. They are involved in the fundamental nature of protoplasm itself. They affect the entire round of life; they determine the whole morphology of living things; in a sense they are life. Yet, in constructing the fabric of Evolution, one of these has been taken, the other left.

Partly because of the limitations of its purely physical name, and partly because it has never been worked out as an evolutionary force, the function of Reproduction will require to be introduced to the reader in some detail. But to realize its importance or even to understand it, it will be necessary to recall to our minds the supreme place which function generally holds in the economy of life.

Life to an animal or to a Man is not a random series of efforts. Its course is set as rigidly as the courses of the stars. All its movements and changes, its apparent

deflections and perturbations are guided by unalterable purposes; its energies and caprices definitely controlled. What controls it are its functions. These and these only determine life; living out these is life. Trace back any one, or all, of the countless activities of an animal's life, and it will be found that they are at bottom connected with one or other of the two great functions which manifest themselves in protoplasm. Take any organ of the body-- hand or foot, eye or ear, heart or lung--or any tissue of the body--muscle or nerve, bone or cartilage--and it will be found to be connected either with Nutrition or with Reproduction. Just as everything about an engine, every bolt, bar, valve, crank, lever, wheel, has something to do with the work of that engine, everything about an animal's body has something to do with the work prescribed by those two functions. An animal, or a Man, is a consistent whole, a rational production. Now the rationale of living stands revealed to us in protoplasm. Protoplasm sets life its task. Living can only be done along its lines. There start the channels in which all life must run, and though the channels bifurcate endlessly as time goes on, and though more life and fuller is ever coursing through them, it can never overflow the banks appointed from the beginning.

But this is not all. The activities even of the higher life, though not qualitatively limited by the lower, are determined by these same lines. Were these facts only relevant in the domain of physiology, they would be of small account in a study of the Ascent of Man. But the more profoundly the Evolution of Man is investigated the more clearly is it seen that the whole course of his development has been conducted on this fundamental basis. Life, all life, higher or lower, is an organic unity. Nature may vary her effects, may introduce qualitative changes so stupendous as to make their affinities with lower things unthinkable, but she has never re-laid the foundations of the world.

Evolution began with protoplasm and ended with Man, and all the way between, the development has been a symmetry whose secret lies in the two or three great crystallizing forces revealed to us through this first basis.

Having realized the significance of the physiological functions, let us now address ourselves to their meaning and connotations. The first, the function of Nutrition, on which the Struggle for Life depends, requires no explanation. Mr. Darwin was careful to give to his favourite phrase, the Struggle for Life, a wider meaning than that which associates it merely with Nutrition; but this qualification seems largely to have been lost sight of-- to some extent even by himself--and the principle as it stands to-day in scientific and philosophical discussion is practically synonymous with the Struggle for Food. As time goes on this Struggle --at first a conflict with Nature and the elements, sustained by hunger, and intensified by competition --assumes many disguises, and is ultimately known in the modern world under the names of War and Industry. In these later phases the early function of protoplasm is obscured, but on the last analysis, War and Industry--pursuits in which half the world is now engaged--are seen to be simply its natural developments.

The implications of the second function, Reproduction, lie further from the surface. To say that Reproduction is synonymous with the Struggle for the Life of Others conveys at first little meaning, for the physiological aspects of the function persist in the mind, and make even a glimpse of its true character difficult. In two or three chapters in the text, the implications of this function will be explained at length, and the reader who is sufficiently interested in the immediate problem, or who sees that there is here something to be investigated, may do well to turn to these at once. Suffice it for the moment to say that

the physiological aspects of the Struggle for the Life of Others are so overshadowed even towards the close of the Animal Kingdom by the psychical and ethical that it is scarcely necessary to emphasize the former at all. One's first and natural association with the Struggle for the Life of Others is with something done for posterity--in the plant the Struggle to produce seeds, in the animal to beget young. But this is a preliminary which, compared with what directly and indirectly rises out of it, may be almost passed over. The significant note is ethical, the development of Other-ism, as Altruism--its immediate and inevitable outcome. Watch any higher animal at that most critical of all hours--for itself, and for its species--the hour when it gives birth to another creature like itself. Pass over the purely physiological processes of birth; observe the behaviour of the animal-mother in presence of the new and helpless life which palpitates before her. There it lies, trembling in the balance between life and death. Hunger tortures it; cold threatens it; danger besets it; its blind existence hangs by a thread. There is the opportunity of Evolution. There is an opening appointed in the physical order for the introduction of a moral order. If there is more in Nature than the selfish Struggle for Life the secret can now be told. Hitherto, the world belonged to the Food-seeker, the Self-seeker, the Struggler for Life, the Father. Now is the hour of the Mother. And, animal though she be, she rises to her task. And that hour, as she ministers to her young, becomes to the world the hour of its holiest birth.

Sympathy, tenderness, unselfishness, and the long list of virtues which make up Altruism, are the direct outcome and essential accompaniment of the reproductive process. Without some rudimentary maternal solicitude for the egg in the humblest forms of life, or for the young among higher forms, the living world would not only suffer, but would cease. For a time in the life history of every higher

animal the direct, personal, gratuitous, unrewarded help of another creature is a condition of existence. Even in the lowliest world of plants the labours of Maternity begin, and the animal kingdom closes with the creation of a class in which this function is perfected to its last conceivable expression. The vicarious principle is shot through and through the whole vast web of Nature; and if one actor has played a mightier part than another in the drama of the past, it has been self-sacrifice. What more has come into humanity along the line of the Struggle for the Life of Others will be shown later. But it is quite certain that, of all the things that minister to the welfare and good of Man, of all that make the world varied and fruitful, of all that make society solid and interesting, of all that make life beautiful and glad and worthy, by far the larger part has reached us through the activities of the Struggle for the Life of Others.

How grave the omission of this supreme factor from our reckoning, how serious the effect upon our whole view of nature, must now appear. Time was when the science of Geology was interpreted exclusively in terms of the action of a single force --fire. Then followed the theories of an opposing school who saw all the earth's formations to be the result of water. Any Biology, any Sociology any Evolution, which is based on a single factor, is as untrue as the old Geology. It is only when both the Struggle for Life and the Struggle for the Life of Others are kept in view, that any scientific theory of Evolution is possible. Combine them, contrast them, assign each its place, allow for their inter-actions, and the scheme of Nature may be worked out in terms of them to the last detail. All along the line, through the whole course of the development, these two functions act and react upon one another; and continually as they co-operate to produce a single result, their specific differences are never lost.

The first, the Struggle for Life, is, throughout, the Self-regarding function; the second, the Other-regarding function. The first, in lower Nature, obeying the law of self-preservation, devotes its energies to feed itself; the other, obeying the law of species-preservation, to feed its young. While the first develops the active virtues of strength and courage, the other lays the basis for the passive virtues, sympathy, and love. In the later world one seeks its end in personal aggrandizement, the other in ministration. One begets competition, self-assertion, war; the other unselfishness, self-effacement, peace. One is Individualism, the other, Altruism.

To say that no ethical content can be put into the discharge of either function in the earlier reaches of Nature goes without saying. But the moment we reach a certain height in the development, ethical implications begin to arise. These, in the case of the first, have been read into Nature, lower as well as higher, with an exaggerated and merciless malevolence. The other side has received almost no expression. The final result is a picture of Nature wholly painted in shadow--a picture so dark as to be a challenge to its Maker, an unanswered problem to philosophy, an abiding offence to the moral nature of Man. The world has been held up to us as one great battlefield heaped with the slain, an Inferno of infinite suffering, a slaughter-house resounding with the cries of a ceaseless agony.

Before this version of the tragedy, authenticated by the highest names on the roll of science, humanity was dumb, morality mystified, natural theology stultified. A truer reading may not wholly relieve the first, enlighten the second, or re-instate the third. But it at least re-opens the inquiry; and when all its bearings come to be perceived, the light thrown upon the field of Nature by the second factor

may be more impressive to reason than the apparent shadow of the first to sense.

To relieve the strain of the position forced upon ethics by the one-sided treatment of the process of Evolution, heroic attempts have been made. Some have attempted to mitigate the amount of suffering it involves, and assure us that, after all, the Struggle, except as a metaphor, scarcely exists. "There is," protests Mr. Alfred Russel Wallace, "good reason to believe . . . that the supposed `torments` and `miseries` of animals have little real existence, but are the reflection of the imagined sensations of cultivated men and women in similar circumstances; and that the amount of actual suffering caused by the Struggle for Existence among animals is altogether insignificant. Mr. Huxley, on the other hand, will make no compromise. The Struggle for Life to him is a portentous fact, unmitigated and unexplained. No metaphors are strong enough to describe the implacability of its sway. "The moral indifference of nature" and "the unfathomable injustice of the nature of things" everywhere stare him in the face. "For his successful progress, as far as the savage state, Man has been largely indebted to those qualities which he shares with the ape and the tiger. That stage reached, "for thousands and thousands of years, before the origin of the oldest known civilizations, men were savages of a very low type. They strove with their enemies and their competitors; they preyed upon things weaker or less cunning than themselves; they were born, multiplied without stint, and died, for thousands of generations, alongside the mammoth, the urus, the lion, and the hyaena, whose lives were spent in the same way; and they were no more to be praised or blamed, on moral grounds, than their less erect and more hairy compatriots.... Life was a continual free fight, and beyond the limited and temporary relations of the family, the Hobbesian war of each against all was the

normal state of existence. The human species, like others, plashed and floundered amid the general stream of evolution, keeping its head above water as it best might, and thinking neither of whence nor whither.

How then does Mr. Huxley act--for it is instructive to follow out the consequences of an error--in the face of this tremendous problem? He gives it up. There is no solution. Nature is without excuse. After framing an indictment against it in the severest language at his command, he turns his back upon Nature--sub-human Nature, that is -- and leaves teleology to settle the score as best it can. "The history of civilization," he tells us, "is the record of the attempts of the human race to escape from this position." But whither does he betake himself? Is he not part of Nature, and therefore a sharer in its guilt? By no means. For by an astonishing *tour de force*--the last, as his former associates in the evolutionary ranks have not failed to remind him, which might have been expected of him--he ejects himself from the world-order, and washes his hands of it in the name of Ethical Man. After sharing the fortunes of Evolution all his life, bearing its burdens and solving its doubts, he abandons it without a pang, and sets up an *imperium in imperio*, where, as a moral being, the `cosmic' Struggle troubles him no more. "Cosmic Nature," he says, in a parting shot at his former citadel, "is no school of virtue, but the head-quarters of the enemy of ethical nature. So far from the Ascent of Man running along the ancient line, "Social progress means a checking of the cosmic process at every step and the substitution for it of another, which may be called the ethical process; the end of which is not the survival of those who may happen to be the fittest, in respect of the whole of the conditions which exist, but of those who are ethically the best.

The expedient, to him, was a necessity. Viewing Nature as Mr. Huxley viewed it there was no other refuge. The "cosmic process" meant to him the Struggle for Life, and to escape from the Struggle for Life he was compelled to turn away from the world-order, which had its being because of it. As it happens, Mr. Huxley has hit upon the right solution, only the method by which he reaches it is wholly wrong. And the mischievous result of it is obvious --it leaves all lower Nature in the lurch. With a curious disregard of the principle of Continuity, to which all his previous work had done such homage, he splits up the world-order into two separate halves. The earlier dominated by the `cosmic` principle-- the Struggle for Life; the other by the `ethical` principle--virtually, the Struggle for the Life of Others. The Struggle for Life is thus made to stop at the `ethical` process; the Struggle for the Life of Others to begin. Neither is justified by fact. The Struggle for the Life of Others, as we have seen, starts its upward course from the same protoplasm as the Struggle for Life; and the Struggle for Life runs on into the `ethical` sphere as much as the Struggle for the Life of Others. One has only to see where Mr. Huxley gets his `ethical` world to perceive the extent of the anomaly. For where does he get it, and what manner of world is it? "The history of civilization details the steps by which men have succeeded in building up an artificial world within the cosmos. An *artificial* world within the cosmos?"

This suggested breach between the earlier and the later process, if indeed we are to take it seriously, is scientifically indefensible, and the more unfortunate since the same result, or a better, can be obtained without it. The real breach is not between the earlier and the later process, but between two rival, or two co-operating processes, which have existed from the first, which have worked together all along the line, and which took on `ethical` characters at

the same moment in time. The Struggle for the Life of Others is sunk as deep in the "cosmic process" as the Struggle for Life; the Struggle for Life has a share in the "ethical process" as much as the Struggle for the Life of Others. Both are cosmic processes; both are ethical processes; both are both cosmic and ethical processes. Nothing but confusion can arise from a cross-classification which does justice to neither half of Nature.

The consternation caused by Mr. Huxley's change of front, or supposed change of front, is matter of recent history. Mr. Leslie Stephen and Mr. Herbert Spencer hastened to protest; the older school of moralists hailed it almost as a conversion. But the one fact everywhere apparent throughout the discussion is that neither side apprehended either the ultimate nature or the true solution of the problem. The seat of the disorder is the same in both attackers and attacked--the one-sided view of Nature. Universally Nature, as far as the plant, animal, and savage levels, is taken to be synonymous with the Struggle for Life. Darwinism held the monopoly of that lower region, and Darwinism revenged itself in a manner which has at least shown the inadequacy of the most widely accepted premise of recent science.

That Mr. Huxley has misgivings on the matter himself is apparent from his Notes. "Of course," he remarks, in reference to the technical point, "strictly speaking, social life and the ethical process, in virtue of which it advances towards perfection, are part and parcel of the general process of Evolution. And he gets a momentary glimpse of the "ethical process" in the cosmos, which, if he had followed it out, must have modified his whole position. "Even in these rudimentary forms of society, love and fear come into play, and enforce a greater or less renunciation of self-will. To this extent the general cosmic process

begins to be checked by a rudimentary ethical process, which is, strictly speaking, part of the former, just as the `governor' in a steam-engine is part of the mechanism of the engine.

Here the whole position is virtually conceded; and only the pre-conceptions of Darwinism and the lack of a complete investigation into the nature and extent of the "rudimentary ethical process" can have prevailed in the face of such an admission. Follow out the metaphor of the `governor,' and, with one important modification, the true situation almost stands disclosed. For what appears to be the `governor' in the rudimentary ethical process becomes the `steam-engine' in the later process. The mere fact that it exists in the "general cosmic process" alters the quality of that process; and the fact that, as we hope to show, it becomes the prime mover in the later process, entirely changes our subsequent conception of it. The beginning of a process is to be read from the end and not from the beginning. And if even a rudiment of a moral order be found in the beginnings of this process it relates itself and that process to a final end and a final unity.

Philosophy reads end into the earlier process by a necessity of reason. But how much stronger its position if it could add to that a basis in the facts of Nature? "I ask the evolutionist," pertinently inquires Mr. Huxley's critic, "who has no other basis than the Struggle for existence, how he accounts for the intrusion of these moral ideas and standards which presume to interfere with the cosmic process and sit in judgment upon its results. May we ask the philosopher how *he* accounts for them? As little can he account for them as he who has "no other basis than the Struggle for existence." Truly, the writer continues, the question "cannot be answered so long as we regard morality merely as an incidental result, a by-product, as it

were, of the cosmical system." But what if morality be the main product of the cosmical system--of *even* the cosmical system? What if it can be shown that it is the essential and not the incidental result of it, and that so far from being a by-product, it is *immorality* that is the by-product?

These interrogations may be too strongly put.

`Accompaniments' of the cosmical system might be better than `products'; `revelations through that process' may be nearer the truth than `results' of it. But what it is intended to show is that the moral order is a continuous line from the beginning, that it has had throughout, so to speak, a basis in the cosmos, that upon this, as a trellis-work, it has climbed upwards to the top. The one--the trelliswork--is to be conceived of as an incarnation; the other--the manifestation--as a revelation; the one is an Evolution from below, the other an Involution from above. Philosophy has long since assured us of the last, but because it was never able to show us the completeness of the first, science refused to believe it. The defaulter nevertheless was not philosophy but science. Its business was with the trellis-work. And it gave us a broken trellis-work, a ladder with only one side, and every step on the other side resting on air. When science tried to climb the ladder it failed; the steps refused to bear any weight. What did men of science do? They condemned the ladder and, balancing themselves on the side that was secure, proclaimed their Agnosticism to philosophy. And what did philosophy do? It stood on the other half of the ladder, *the half that was not there*, and rated them. That the other half was not there was of little moment. It was in themselves. It ought to be there; therefore it must be there. And it is quite true; it is there. Philosophy, like Poetry, is prophetic: "The sense of the whole," it says, "comes first."

But science could not accept the alternative. It had looked, and it was not there; from its standpoint the only refuge was Agnosticism-- there were no *facts*. Till the facts arrived, therefore, philosophy was powerless to relieve her ally. Science looked to Nature to put in her own ends, and not to philosophy to put them in for her. Philosophy might interpret them after they were there, but it must have something to start from; and all that science had supplied her with mean time was the fact of the Struggle for Life. Working from the standpoint of the larger Nature, Human Nature itself, philosophy could put in other ends; but there appeared no solid backing for these in facts, and science refused to be satisfied. The position was a fair one. The danger of philosophy putting in the ends is that she cannot convince everyone that they are the right ones.

And what is the valid answer? Of course, that Nature has put in her own ends if we would take the trouble to look for them. She does not require them to be secretly manufactured upstairs and credited to her account. By that process mistakes might arise in the reckoning. The philosophers upstairs might differ about the figures, or at least in equating them. The philosopher requires fact, phenomenon, natural law, at every turn to keep him right; and without at least some glimpse of these, he may travel far afield. So long as Schopenhauer sees one thing in the course of Nature and Rousseau another, it will always be well to have Nature herself to act as referee. The end as read in Nature, and the end as re-read in, and interpreted by, the higher Nature of Man may be very different things; but nothing can be done till the End-in-the-phenomenon clears the way for the End-in-itself--till science overtakes philosophy with facts. When that is done, everything can be done. With the finding of the other half of the ladder, even Agnosticism may retire. Science cannot permanently pronounce itself "not knowing," till it has exhausted the

possibilities of knowing. And in this case the Agnosticism is premature, for science has only to look again, and it will discover that the missing facts are there.

Seldom has there been an instance on so large a scale of a biological error corrupting a whole philosophy. Bacon's aphorism was never more true: "This I dare affirm in knowledge of Nature, that a little natural philosophy, and the first entrance into it, doth dispose the opinion to atheism, but on the other side, much natural philosophy, and wading deep into it, will bring about men's minds to religion. Hitherto, the Evolutionist has had practically no other basis than the Struggle for Life. Suppose even we leave that untouched, the addition of an Other-regarding basis makes an infinite difference. For when it is then asked on which of them the process turns, and the answer is given 'On both,' we perceive that it is neither by the one alone, nor by the other alone, that the process is to be interpreted, but by a higher unity which resolves and embraces all. And as both are equally necessary to the antinomy, even that of the two which seems irreconcilable with higher ends is seen to be necessary. Viewed *simpliciter*, the Struggle for Life appears irreconcilable with ethical ends, a prodigious anomaly in a moral world; but viewed in continuous reaction with the Struggle for the Life of Others, it discloses itself as an instrument of perfection the most subtle and far-reaching that reason could devise.

The presence of the second factor therefore, while it leaves the first untouched, cannot leave its implications untouched. It completely alters these implications. It has never been denied that the Struggle for Life is an efficient instrument of progress; the sole difficulty has always been to justify the nature of the instrument. But if even it be shown that this is only half the instrument, teleology gains