

SIXPENCE

ROOT = PRINCIPLES

IN

RATIONAL AND SPIRITUAL
THINGS

INCLUDING AN EXAMINATION OF
HAECKEL'S "RIDDLE"

BY

THOMAS CHILD

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HEAVEN AND HELL

THINGS HEARD AND SEEN

By EMANUEL SWEDENBORG

Synopsis of ~~Contents~~

OF all the works of Swedenborg this is one of the most popular; and in many translations and editions has been widely circulated. It comprehends a vast mass of information on the nature of heaven: its form; its division into two kingdoms, according as love or wisdom is predominant; into three heavens, the "natural," "spiritual," and "celestial," which severally betoken that the heavenly state enjoyed therein is based respectively upon the love of obedience, the love of truth, or the love of goodness; on the correspondence between all things in heaven, and all things on earth; on the sun of heaven, and light and heat there; on the changes of state with its inhabitants; on angelic habitations, clothing, governments, employments, speech, writings, states of wisdom and innocence, and on the connection of heaven with the human race. It further treats concerning infants, the wise and simple, the poor and rich, and marriages, in heaven; heavenly happiness, and the immensity of heaven.

In the Intermediate State, which all men first enter after death, there is, according to Swedenborg, no change possible of the essential and ruling love: it is a condition in which the ruling love of each human being is made manifest. None who die are so pure as not to need to put off some false notions and some infirmities of character; none are so bad as not to have had some elements of good nature and deference to conventional requirements which simulate real goodness, which it is necessary that they should also put off. Inasmuch, then, as all who die are in a condition in which good and evil, truth and falsity, are mingled together, they all enter this Intermediate State, in which each becomes "homogeneous," goodness finding its own appropriate truth, and evil becoming united with its own appropriate evil. Swedenborg contends that the Reformed Churches have made a serious mistake in their rebound from the errors and priestcraft associated with the Romish doctrine of Purgatory by rejecting the truth of the middle state, which formed the basis of the Romish perversion, and to the existence of which the Scriptures testify.

The third part of the work treats of hell and its miseries, showing that the Lord rules the hells, so as best to promote the happiness of their inhabitants, as far as their states will allow; that He casts no one into hell, but that the wicked spirits cast themselves into it; and that all in hell are as fully immersed in falsities as they are sunk in evils. He teaches, therefore, that devils have no conscience, and are not tormented by it. He explains the meaning of "hell-fire" and "gnashing of teeth"; describes something of the profound wickedness and direful arts of infernal spirits; the appearance, situation, and variety of the hells; and the nature of the equilibrium between heaven and hell, by which men on earth are maintained in moral freedom.

Beyond all question, had Swedenborg published this work as containing only ingenious speculations concerning heaven, hell, and the world of spirits, it would have been read everywhere, and by all. It furnishes in the idea of "amelioration of the hells" the rational solution of the difficulty as to eternal punishment, combining the result of the arguments of those who maintain the eternity of the hells, with the truly humanitarian arguments of those who insist on final restitution; harmonising the strong points of both, by showing that hell torments cannot be eternal in the sense which is ordinarily understood, and yet that infernal spirits can never become angels, as restitutionists assert.

Inasmuch as the ruling love of each soul alone determines his or her future state, the evil or wicked in the other life are where they prefer to be. Heaven would communicate more intolerable pangs to the lost than do their own unhappy abodes. The intention of punishment in hell is not vindictive, but *restraining*, to prevent the infernals from rushing into more direful evils. Hence no one is punished there for sins committed in the natural world; but for evils committed there.

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CENTRICAL
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ROOT-PRINCIPLES

INTRODUCTORY

CHAPTER I

The Lines Re-laid

It is the strangest feature of the great controversy between Church Theology and naturalistic¹ Rationalism that neither Theologian nor Rationalist grasps the positions on which the last proof must rest.

The Theologian stands aloof from the fundamental fact of the universe. He thinks it enough to affirm, for example, on certain abstract grounds, the existence of a God as acting in, apart from, or previous to, the external universe. He does not realise that to the Rationalist of any order the position is futile until the *nexus* between such God and the universe is made rationally clear through the disclosure of the possibility of creation, and the method of Divine action. The Rationalist, on the other hand, deems it sufficient to proclaim an actual abiding Substance. Instead of establishing the Substance as Cause *per se*, he placidly accepts the position that the first for the senses is the first for the mind—the first and only conceivable or existent—without proving that sense-first to be in itself either adequate or primal. The plea, of course, is that of non-multiplication of causes, on the impossible ground, in this case, that the sequent universe

proves that Substance the absolute Cause. It is forgotten that sequence proves antecedence only, that in nature there is nothing but sequence, and that the mind has a claim as to Cause when the last word of the senses has been spoken. Moreover, there is in this attitude an intellectual hurry to affirm and assert where affirmation is out of place through insufficient evidence, and a forgetfulness of the possibly provable suggestion that such Substance might constitute a fitting Instrument, as distinct from Cause. These grounds give sufficient warrant for the charge of inadequacy in the conclusion that physical substance is Cause proper.

Similarly, on the question of the universe as Mechanism, the Theologian thinks it enough to assert the Will of the God he is supposed to have proved, as being either now, or in some far time past, the Source of fact and law, whether the universe be Mechanism or not. He omits to make clear, or is unable to show, the relation of Will to Mechanism, and the possibility of their co-activity. So, concurrently, the naturalistic Rationalist, in affirming Mechanism, and even striving, altogether unnecessarily, to prove it, stands on the quite inadmissible conception that proved Mechanism is proved Cause. God, as something distinct from the mechanical universe, is necessarily excluded. He neglects to

¹ "Naturalistic," because there is a spiritual Rationalism both possible and actual, as well as a natural Rationalism—a distinction we shall have some means of observing in the course of this book.

observe the axiomatic character of the truth that structured and unstructured material forms must alike come under mechanical order to exist at all. He fails also to see that to assert that the universe is mechanical does not dispose of its being something besides, but involves the necessary idea of *ab extra* production. The phrase "Mechanical cause" in truth is a contradiction of fact, there being nothing known in the order of Mechanism but sequence. Therefore, so far as the universe is mechanical it is not causal—the element of cause attributed to it, viz., force, not being mechanical in itself, and the attributed term is only tolerated in virtue of its connection with matter.

The like failure of apprehension holds with the question of Necessity. The Theologian, denied the right of purpose in the universe, affirms chance as the alternative for his opponents, and on being met by the doctrine of Necessity, either accepts it, or, without perception of its rightful place, aims at its disproof, maintaining the will of God and the freedom of Man. He thus misses his opportunity through not perceiving the respective places of necessity and freedom both spiritual and physical, mistakenly opposing one truth with another, and ending in the mire of falsity, with extrication impossible. The Rationalist, on the other hand, seizing the material truth of necessity, proclaims it the primary and universal fact. He is as blind as the theologian to the possibility of conjoint necessity and freedom, and more than blind to the consideration that his foundation-stone of Necessity is that which above all he ^{is} bound to see well and truly laid within the cement of Sufficient Cause. This is the fact of facts which, to ensure his Rationalism, he must prove with absolute conviction to be the Primal, Sole, and Universal Power. But this he has not done. He is content to assume the partially proved as the universally actual, forgetting that, be-

fore all, Necessity itself must be accounted for. Necessity of itself is explanatory of nothing as to Cause, and, after its most strenuous assertion and material proof, leaves the fundamental or primary problem precisely where it stood.

Thus it is with all the lines of approach to what Haeckel has called the "Riddle," the situation realising afresh the old story of the knights and the shield, but with this profound difference that the truth cannot be reached by combining the accounts. What is needed is not merely that the other view should be realised by either side, but that which neither at the present time sees—a higher synthesis. This can only be achieved by a restoration of fundamental principles of reason at present ignored, the chief and inmost of which is—the perception of Sufficient Cause and the rights of reason in asserting it. Our rational life seems to be consuming under the fear, or the pretence, of multiplying causes, and the claims and needs and perceptions of reason are being deliberately ignored. A form of rationality is by both parties being made to do duty for reason's essential authority; the one claiming reason so far as it will assist his preconceived theology, the other so far as it will ratify his assumed philosophy of science. Neither is true reason. Neither stands first and chiefly upon reason's primal claims as the guardian paramount of universal human interests, because neither has the true reverence for reason whole and absolute as the only instrument of investigation and source of perception. Two standards of rationality are not possible, and there are two to-day because both parties represented by them are outside of reason's province, each within its own petty compound of special interests, material or theologic. Neither is in reason's province absolute, though both are clamorous for its king's approval. When each is true enough to human interests to return to the common centre, then for the first time

will unity of perception and thought be possible. One of the first principles of reason is that of Sufficient Cause.

We seem to be losing the sense of this need, and under the fear of multiplication of Causes we grasp any appearance of Cause with fact enough in it for the unconscious trick of personation. The loss is correspondingly avenging itself, so that we hardly know the kind of Cause which this stupidly insistent reason would hold Sufficient. We are lost in the fog of specialities, each in his own. The Instrument in which each works and believes is taken for Cause, and all sober, sustaining sense of Right Reason has in consequence been shaken to its core. Does not your Theologian (miscalled spiritual) work in the Instrument of Diffused Material Divinity, and your Monist in the medium of his Primal Cloud Substance, and each take each for Cause, when yet, reason being witness, there is no Cause in them?

It is, fundamentally, the restoration of this departing element in our modern warfare of Essentials—the acceptance of the principles of reason in its demand for Cause—at which we now aim. We have as profound a conviction of the wrong attitude of the religious as of the rationalistic champion in this warfare. Yet we hold with both in all that is fundamental to either as an understood partial exhibition of universal truth; for they cannot be other than partial expositions until they return to fundamental principles of reason. In these we seek to unite them: and we hope that in this union the higher synthesis of the future may be foreshadowed. There are few things in the whole world at present that strike the mind more strangely, with a sort of quizzical mournfulness, than the cry of both parties that their side is sure in the end to win. We have the spokesman of modern monism holding forth with every assurance on the final and universal prevalence of world-science, to the annihilation of theologic conceptions. At the same time we

have the theologian who contemplates the prophesied displacement of his particularism with an astounded and scornful sense of the impossible. We repudiate both attitudes as dishonouring to truth. We repudiate the positions on which they are founded as claiming universality. If there were more truth, there would be less fear or care, to the perishing of blatancy.

A word about the present positions and prospective relations of these two powers—the Christian Church and natural Rationalism. We look upon the Christian Church, so-called, as constituting in its combined beliefs, and so far as *they* are concerned, a serious perversion of all that is true for reason in religion. We rejoice therefore in the necessary destructive work that is now being accomplished as something that will clear the air preparatory to the acceptance of a true Christian Religion. The downfall of the Church has been internally assured by herself, and what is equally to the purpose, foretold of her in unmistakable terms in the very Sources upon which she relies for her authority. She has desolated those very Sources by irrational and unchristian creeds and preachments. We trace the rise of the New Age in which we now stand to the destruction, foretold in these Sources, of the Church's irrational dogmas. We observe its extension into the circumstances of thought and life by which we are surrounded, specifically in the rejection of the dismantled, denominational, creedal Church and her fundamental mysteries of dogma. This is being accomplished through the rising determination either to enter intellectually into the mysteries of faith by rationally grasping truths and dogmas of whatsoever order, or, failing rational comprehension, to reject them. This determination may be observed going on inside as well as outside the Church's gates, and it is the hope rather than the danger of the Church.

In this destructive work lies the

first mark of the true honour to reason. To-day the intellect is the instrument of attaining religious principles, but not therefore to be held as the source and measure of those principles, any more than she is of nature's truths—the present distinguishing human mark being absolute intellectual freedom. Without such freedom a New Age would not be possible. With it a strong enduring foundation is laid, yet perilous with the perils of liberty. For what erratic structure might not be built thereon in the tempting name of truth? We take it that this position of perfectly open universal rationality is the basis of true Rationalism. What the *natural* Rationalist does not as yet see, however, is the possibility of realising in a rational way the fundamental *facts* under-lying (shall we say, necessarily?) the perversions of the so-called Christian Church: nor will he be prepared for any possible reconstruction.

But we by no means indicate a reconstruction of doctrine. That is impossible. The doctrine of the Old Church must pass into the limbo of the forgotten if she herself is to continue even as an organisation. In this respect, as in some others, she is incapable of reformation, is too unsound for amendment. Tried once, but that for all the centuries, and proved a failure, nothing but newness will suffice. Does she ever dream that that word "Behold I make *all* things new!" may apply to herself, and to herself first of all, among the re-creations of this New Age? But the change must be complete and not in doctrine only; for what of her spirit? Her autocratic self-claims (the antithesis of the spirit of Jesus); her selfish exclusiveness; her lack of aid, and even of interest, in fundamental human advancement; her self-motived God-and-Mammon blending; her compelled servitude of the spiritual and Divine to general or individual aims; her superstition, and fetish-worship of the Sacred Books she has failed to understand, and because of that failure; and

not the least, the deliberate, Satanic, age-long purpose of "Kill, kill, kill," engendered of that ignorant fetishism, and effected both spiritually and physically against those denying or questioning her shibboleths. Here surely is degradation even too deep for renewal. But men can be renewed where Churches must perish; and from such regeneration, through rational apprehension of religious truth and its application to life, we turn no averted eyes. Rather, we look to see whether it can, and by such means, be accomplished: whether such rational religious truth is still extant. We should not be true to a universal Rationalism, a Rationalism both spiritual and natural, otherwise. We assume nothing, and we wait the time for proof. But we perceive that reason fully trusted is so absolutely universal that what is true in natural reason, to humanity aiming at purity, leads inevitably to a correspondent spiritual rationality; and would do so in practice, were men but loyal to the logic of truth and less anxious about keeping a private logic-office of their own. Even the natural Rationalist may be sure that all is quite safe here, seeing that, when the last is reached, the only justification of spiritual verity is natural rationality.

On these lines, then, we run, desirous only of realising some little of that critical reconstruction which such universal principles should be able to effect.

Another introductory point. Great play is made with the circumstance of the acceptance of the Evolutionary Theory by modern theologians; and quotations to this effect are almost taken for proof of the theory in question. But the fact that Old Church Theologians have been driven from point to point down to their imminent fall into the abyss of final denial, only reveals the hidden inclined plane, from Scriptural misinterpretation to materialistic Pantheism, on which the Church has stood these seventeen centuries past. It was she that led the way to the denial of Christianity through her

rampant proofs of impossible dogma. Led the way? She is the mother of such denial; and from the first utterance of perverse and irrational dogma, she mutely prophesied her own deliverance, bound hand and foot, to the mercies tender or cruel of her rationalistic progeny. That fact is the real reading of current tendencies. Is it wonderful, then, that the Church should have been logically bound to swallow every bitter potion which her resolute, remorseless, home-born tyrants have in rigorous order concocted? The retaliatory method of nature is practical justice, shown here against this double-headed evil, the Church of Faith-alone and of Meritorious Works. It is the only way in which an effete dispensation can be abolished, her own Scriptures fortelling her doom can be vindicated, and the advent of a New Age of genuine rationality can be assured. It is the natural method of sin brought home and lying at the door, the last step of the acceptance of the Evolutionary Theory by six-day Creationists being as natural as the rest. We wish the naturalistic Rationalists joy of their converts, and of the worth, intellectual and other, of such adherents. But let them pity, let them not laugh too openly. The poor slaves of their Church's past, willing to enter into freedom, have in the act of attaining been selling themselves for nought. They have confounded nature's evolution by her Self-Selection with, what should have been for them, a profounder, more perfect evolution, from and through and momentarily in, an abiding Sufficient Cause.

How did they expect to amalgamate things immiscible — evolution from nature with that first Creative Act, which they have not yet given up? If the naturalistic theory is true, it is universally true, as true at the beginning as the end; and therefore the only actor in the drama. Any creative act is thus imaginary and illusive, or else Natural Selection did it! Seriously, Selection could not begin with matter

produced as the act of a Creator, since it is then the Creator that acts and therefore continues to act, and not nature—except as a medium of Creative Selection. But as with Natural Selection there is no creation, the only conceivable ground on which it could be supposed to act at all is that it had always acted and had never begun to do so. Natural Selection and a *Beginning* is an impossible conjunction of terms.

In short, Nature's Selection, as the theory of existence, means the eternal permanence of the selective matter, and the *reductio ad absurdum* of any creative act. So the God of the theologians is ruled out, and they have all but consented to the dethronement. The last act of this drama has yet to come—the last consent to be given. But amid the confusions of this warfare there is nothing more interesting than the quiet and assured assumption of Mother and Offspring alike that the Modern evolutionary theory is one and the same thing with the evolution of nature.

Will the reader who wishes to get behind appearances be now willing to follow us further in these introductory observations, while we trace out the genealogical relations of the principles involved in this discussion? We shall endeavour to show that as Monism is the child of natural Rationalism, so are the Critical and Rationalistic attitudes the home-born Children of no less venerable a parent than the Mother Church herself, through the fatherhood of the principles she has sought to embody.

CHAPTER II

The Old¹ Church and her Offspring — Naturalistic Rationalism, in their relation to the Age.

BETWEEN the Church, considered as a doctrinal embodiment (with which

¹ The term "Old" is here used as descriptive of the past and lingering orthodoxy as contrasted with the New religious ideas of this Age.

important

alone we are here concerned) and the current spiritual doubt and denial, there is a manifest relationship. For, generally, what the Church interiorly is in one generation, the world outside will be the next; and, specifically, the present denial of spiritual truth is the direct descendant of the Church's perversion of truth professedly received. This we shall try to make clear. In one sense we regret to delay the consideration of our immediate subject while we consider the question of the doctrinal attitude of the Church and its consequences, but in reality our present seeming swerve from the straight road yields the only point of view from which that subject can be seen in its true perspective. How shall we discover the relation of Natural Rationalism and spiritual truth unless we realise the relation of that Rationalism to the perversion of Spiritual truth in the past? We desire to make this diagnosis dispassionately and without prejudice against any party involved, aiming only at principles. It is doctrine we are discussing, and neither persons nor Denominations.

When the Church of Him who proclaimed that His Kingdom was not of this world had laid aside the uncomfortable garment of spiritual brotherhood worn in the apostolic and subsequent age, she felt free to ally herself with powers to which her Master's Kingdom did not belong. The two went very well together: decadence of spiritual brotherhood seeks refuge in temporal convention.

Then, also, there properly followed the beginning of the perversion of doctrine. It is unnecessary to recount the weary history of apostasy from the teaching and spirit of Christ to the establishment, from out of self-intelligence, of the world-desolating phantasies of Faith-alone and Meritorious Works. It was not enough that the Master should be rent in two by making Him at once Divine and Human, but the desecrating hand must be laid upon the absolute Uni-

personal Godhead of the Sacred Books. That perfect Unity of Essentials (Love, Wisdom and Power) was divided into a trinity of persons, each of which by Himself was God and Lord. The nucleus of the Christian Pantheon was this Trine of Gods, each with his different nature, the three with their opposing feelings and conceptions and functions—an unmistakable tritheism. The fallacy has fallen into pieces, and the demanded belief in the impossible has struck root as doubt and flourished as denial.

As evil leads to evil, so one article of faith led to another. A scheme of divine vengeance, miscalled justice, was established by which one of the three divinities demanded satisfaction for sin against himself and his law by the death of an innocent victim in place of the guilty, while another (who, if the claim were just, ought equally to have made it) offered himself as the victim demanded, contrary to the Sacred Law that the innocent was *not* to suffer for the guilty, or innocent blood to be shed. But then, in the imaginings of that time, God could always justly do what was unjust in man, Himself forbidding it them. And here we touch the depth and moral obliquity of these profanities, which were in spirit and truth far from the Master's divine principle of unconditional and absolute forgiveness, and from anything that the declaration "God so loved the world," could possibly mean.

And as worse follows bad, if worse it be, the believers in this unscriptural and irrational doctrine were, according to these imaginings, to share in the benefits flowing from the Second Person's act by the device of faith in the glorious ignominy of the substitute, who was in consequence to cover their filthy rags by His garment of righteousness. Thus personal purity was not in the deeds—Men had no need to get rid of their evils. Salvation from sin was hardly even in question: it was punishment the impulse to the

doctrine feared; and salvation from the penalty was sufficient. And this technical salvation could stand against "a hundred thousand sins a day"! Yet this saving and omnipotent faith-alone was supposed to bring about the graces of life; but when did it? The very belief in such a scheme forbad the existence in such believers of any graces whatever—unless by the accident (frequent we hope and believe) of the life being better than the creed.

So, on and on through the weary catalogue of fundamental errors in both great sections of the Church, whether Merit or Faith-alone prevailed, brought to a fitting close in each by an impossible resurrection of material bodies into a spiritual world and an eternal hell of material fire prepared by their God for those who would neither believe with the one nor obey with the other. From first to last such doctrines were manifest materialistic caricatures of the Bible's spiritual teachings, and formed together a fatally complete instrument for the enslavement of the human mind both in will and in understanding. It was appalling work; yet human nature stood there revealed. For if men had not believed that their Bible or their Church contained and was right in such things, they would not have believed in even the semblance of spiritual truth or life; and thus the growth of the ages, whether intellectual or spiritual, would have been abruptly closed in barbaric relapse.

Such were the superficial facts of that perverted Christianity of the past which still lingers on in human thought. But what was the internal state, the unconscious essentials lying beneath this attitude? Because there, if anywhere, we shall find the meaning of to-day, and for this end we have passed these things in review. The essentials of that attitude of perversion, for Catholic and Protestant alike, lay in the imperfect recognition or the absolute rejection of the purely spiritual teaching of their Sacred Books. It lay in their having only the vaguest and most general perception

that any principle of interpretation from within those books (though the fact plainly appears in the books themselves) was necessary for their true unfoldment. It lay in the conception that self-intelligence, accredited to the individual by one section and to the Church by the other, is the last authority or arbiter on revealed truth. In this they forgot that all facts, supposed revealed or not, *are their own authority and contain their own interpretation*, for the obtaining of which reason is but the necessary instrument. They altogether lost sight of the fact that collation of texts is nothing where spiritual principle is lacking.

This analysis of the theological thought of the past, with its placing of reason in the seat of authority instead of using it as the instrument of inquiry, brings us sharply up to the question, "Where shall we find the true progeny of this state to-day?" And we reply without hesitation, and on the showing of its own open claims,—in Natural Rationalism. This is the daughter of her orthodox mother, the Church as to doctrine: the state of the Mother was a life led on the undeclared, and in some, unconscious principle, openly exhibited and inculcated by her daughter to-day as the basis of all true, free thought and life—the principle of self-intelligence as the source of truth.

We must now distinctly apprehend what is involved in this appeal of both Orthodox Christian doctrine and of Natural Rationalism to reason or, more properly to self-intelligence as the primary and even unconscious source and arbiter of truth. It may be objected that Orthodox Christianity has always founded itself on an appeal to its Scriptures. So, nominally, it has. Yet there has always lain at the back of such appeal, and dominating it, that principle of thought from the self which has determined the lines on which the interpretation of those Scriptures must run. It has gone to its Scriptures with a preconception, deep and unconscious, lying in the hidden workings of its natural mind, of how they should be

interpreted—a preconception from the self which has turned these Scriptures into the tool of its self-intelligence, as also into its happy hunting ground. It has not gone at the outset to these Scriptures as themselves the source of the principle on which they should be interpreted. To take one case only: it is orthodox doctrine, in at least the Faith-alone School, that the Scriptures must stand or fall by the law of literal and textual interpretation and criticism; and the result to-day is that, rightly or wrongly, from the Revelational point of view, the Scriptures have fallen accordingly. That standpoint was at once to assume the mastership of interpretation from self-judgment and apart from the Scriptures themselves on the subject, and consequently to assume their rejection through the superimposing of a principle of interpretation from without. Imagine a man of science approaching the study of phenomena with the preconception that he has the right to class natural facts as he and not as Nature pleases, and to determine from himself and to impose on the facts a subjective preconception of their interpretation—finding that principle, not in the facts themselves, where alone it can lie, but in the arbitrary determination of his predilections; as if the place of his intelligence could possibly be other than that of waiting upon the facts for the disclosure of their own principle of interpretation, and the consequent truth to be revealed through it. Yet this is what the doctrine of the Church has determined shall be done with its Sources. It has found in the preconceptions of the self-intelligence, instead of in the Sources themselves, where alone it can be rationally looked for, the method and consequent results of interpretation. This treatment has issued in the so-called truths or doctrines established in its creeds and formularies. The vice, to repeat it, has lain in not going to the Scriptural Sources alike for method and results in truth which they alone could even professedly contain or reveal. All

facts of whatsoever kind must of necessity contain their own method and principles of interpretation, and any a priori or unconscious imposition of method or principle from the mind itself, secretly or openly, upon facts of any order, is certain in the long run to end in the detection of the unconscious trick or vice of mind, to the confusion of the system, Scientific, Philosophic or Theologic, which has been built upon it.

The use of reason as private judgment does not lie *there*. It lies in the weighing of results and consequent individual acceptance or rejection.

Now this superimposing upon facts of the inclinations and prepossessions of thought is the essential meaning of Natural Rationalism, revealing its parentage in that naturalistic form of mind already revealed in the Church. It does with the truth of nature precisely what orthodoxy has done with the truth of religion—it has made its self-intelligence, instead of the facts themselves, the all-sufficient authority on primary interpretation, although to the Rationalist himself, as to the Theologian, the appearance may be otherwise. Of course it is right for him to say that unless a statement or idea appears to him to be rational he cannot accept it: no mortal can, whatever be his standard of rationality.

But the facts lie deeper. Just as the Christian Theologian has brought certain prepossessions to the study of his Scriptures, so the Rationalist does in regard to universal truth. He is never a genuine agnostic, even where he would like to be thought such. He puts forth instinctively, and conspicuously, as the results show, this self-intelligence and its secret desires as not only dictating the method of disclosure, but as itself being the only valid principle for the interpretation of truth—finding truth not in the facts, *qua* facts, but in what he wishes to find there. True, like the Theologian, he goes to the facts; but also, like him, he takes a prejudgment with him,

dominating all interpretation. As the doctrine of faith-alone has the exercise of intellect with its inclinations as the fore-court of judgment and is itself the result of that self-thought, so natural Rationalism follows suit in making its self-intelligence the measure of truth. Haeckel, for instance, in his treatment of fundamental problems, is a conspicuous example of this. All through, it is not *the fact* that concerns him, but an intellectual preconception, as with other natural Rationalists, that unity can only consist in identity. Hence the unity of the universe can only consist of one order and substance—the material; and, to account for the facts, this matter must be made alive, or as nearly alive as force can make it without being itself a living power. It is a case all through of theory dominating fact—absolutely; just as absolutely as one theologian places his self-hood, or another his Church-hood, above his Scriptures.

It may be said that this charge might be fairly made against humanity itself, and not against the Theologian or the Rationalist specially. That may be so, providing only it be admitted that some may have discovered the vice, and also that there may be the effort to-day, in a New rising power, to discover and check the usurpations of the self-intelligence principle within man by a higher unity of truth disclosed on a more certain principle—of which something may be seen in the following pages.

We must now carry one generation further, the genealogical tree of orthodoxy and her Rationalistic progeny, and examine those singular outbirths—the Higher Criticism, and modern Materialistic Pantheism. For let us consider before the genealogy is rejected, wherein the spirit of these movements lies, and we shall perceive what may not at first appear. That the Higher Criticism and Materialistic Pantheism, little as they seem to have in common, have yet alike rejected all direct revelation of Divine truth, is not only essentially true,

though nominally held otherwise, but is the least significant feature of these two movements, seeing that dogma of whatever kind is never other than nominally crucial, and that the real affinity or contrariety lies in the spirit and life. In the one case, however, the appearance of rejection is saved by supposed Divine truth, victoriously reduced to a minimum, being still presented under the name of Revelation, though a human production. In the other, all gloss is gone, and absolute rejection alone remains.

Putting this on one side, however, we find in the acts of the Higher Critic the same ruling principles as lay hidden in the once omnipotent orthodoxy, viz. that man has a right to decide, from his private judgment and learning alone, what is Revelation and what is not; that is to say, that reason is superior to Revelation, and, as its judge, is therefore capable of producing it; else it would now be incapable of restoring it, by addition or excision, on the authority of MSS. which the critics (for reasons of learning, and with equal claim to authority on that score) elect to be, because judging to contain, the Divine truth itself—to the extent, that is, to which there is any Divine truth conceived in the matter. There is here no realisation that those accepting Revelation as such should hold it supreme and authoritative, as the man of science holds nature, containing its own principles within itself, untouchable by reason and beyond its judgment, except as before said, as the instrument of individual rejection or acceptance; there is no perception that the claim of right to increase or minimize what purports to be Revelation (or is accepted as such) from or by the authority of reason, or from any source but a principle of interpretation within itself, is irrational. The element radical to both Criticism and Pantheism, though having much else in common, is the sub-conscious feeling that, somehow, the essential place of

reason is to make truth true and falsity false. Thus when the contents of their Sacred Books came up for discussion, the Critics adjudged their own intelligence with its knowledge competent to decide what was Revelation and what was not, and in their self-confidence they called this extraordinary method *science*. They ignored the manifest fact that no science acts or could act in such fashion, or by any method but the use of reason in waiting upon the facts of nature to reveal their own principle of interpretation.

In truth, what they were subconsciously seeking was not Revelation but natural knowledge; and like true children of the bad mother-principle of faith-alone derived from self-intelligence, they inherited the unconscious trick of deceiving themselves into imagining they interpret facts by imposing prepossessions and private or outside theories of interpretation. For the whole comes, in effect, to this, that if Revelation be fact, then it *involves, as it stands, and without any manipulation whatever, its own principle of interpretation*, just as does literary criticism or physical science. What is thus true in principle of the Higher Criticism is true also of Natural Rationalism, its legitimate parent.

The step to Monism or Materialistic Pantheism is not long, for we have here a kindred principle, and equally with the Higher Criticism the descendant of naturalistic Rationalism. One aspect of Faith-alone, the outbirth of the principle of self-thought, only touched in passing, was the technical as opposed to the actual, the phenomenal opposed to the real, as exhibited in that scheme of life. This is the special note struck in naturalistic Monism. If a thing appears to be, the appearance or phenomenon becomes at once the sole fact. This is an external, mechanical, technical, phenomenal scheme applied to the material universe as the all of life

and fact, the counterpart of that spiritual mechanism and technical reconstruction for the adjustment of men's souls known as Faith-alone and its method of salvation. Both are essentially, profoundly materialistic and external, touching the inner facts of things not at all, but imposing a theory upon the universe and life without relation whatever to their innermost facts. Both alike are absorbed in the phenomenal, denying any diviner reality than a *scheme* or *theory* can show. Monism completes the work begun by its sensuous ancestry as Rationalism took it over from the Church.

In this Monistic scheme it is the *appearance* that dominates; for is not the appearance the only reality? Is not all phenomenal? Because the appearance is that things come of themselves, and naturally select each other, and themselves bring forth life and are thence made alive, therefore life is creatable, produced originally in and by matter-force, and there is no uncreated power behind and apart from the appearances of matter—no reality of which the appearance is but the expression! The reality *is* the appearance, and nothing is but the phenomenal, Herbert Spencer notwithstanding! This is the very philosophy of Faith-alone removed to the material field—the philosophy whose crown of rejoicing is the obliteration of all actual, spiritual, substantive life-relations, and the substitution of external, mechanical or legal phenomena which are to constitute the sole reality—the righteousness which is created by science adjustments. Because an Infinite Being does not appear, there is, to this monism, no proof of any such being, therefore there is no Infinite Being, immaterial, unseen, Divine. That which appears as matter and force must take the place of the Infinite, else we multiply causes. Because souls do not appear in a material world, there are no substantial spiritual beings existent or possible; and be

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cause a spiritual world cannot be seen with material eyes, there is no spiritual world or living sphere for living, substantial, mental forces. Because the *appearance* is that men die out and there end, there is no hereafter, and immortality is a superstition. Is this not like the completion of the work of that dragon-faith whose power was in its tail, casting down therewith the stars of heaven, and trampling these celestial knowledges under its feet?

Consistency leads to this view of *morals* also—the appearance is all there is of their reality. Universally, in monism, appearance is the only real. Here we have the true child of the Church's technical scheme of life—its outcome and practical embodiment in science and philosophy and actuality, but, in the irony of fate, the reversal of the myth of Saturn—the children devouring their parent.

Such, then, is the relation of naturalistic Rationalism, with its double-brood of Criticism and Monism, to the doctrinal Church which gave them birth. It is the story of the offspring of a perversion or profanation of accepted spiritual realities as supposed to have been given in the Christian Scriptures. Be these Scriptures right or wrong, it is of no consequence here: we are dealing with the genealogy; and be this natural Rationalism right or wrong, its origin is disclosed, and being what it is, and no new beginning as it imagines, its natural place is in the *end* of the age—the lowest round of the ladder of avenging time and thought.

In this New Age two great forces face each other: the one, the offspring of a decadent past starting on a new lease of life; the other, a beginning of powers and principles which stand as a protest against the decadent Old and all its offspring, and constitute the spirit and meaning of the New Age—the heart and life of the New. In this latter fact we have to recognise as emerging into existence to-day a human newness in Consciousness, in Feeling, in Motive, in Thought, in Life, in

Science, in Brotherhood, in Religion: in universal principles that are at once spiritual and natural, rational and Divine. This is the New Age on the human plane, and in the beginning of it we stand, but the Newness itself is not realised for the surrounding clamour of the claimants for the place of the new time-spirit. But whether they recognise each other or not, the two great powers are preparing for the conflict: Natural Rationalism with its naturalistic Monism and materialistic Pantheism; and Spiritual Rationalism, holding by internal realities of which external appearances are but the embodiment and correspondents,—believing absolutely in the Divine and Spiritual entities known as God and man, and in the necessary relations and truths involved. Here are the two great antagonistic forces destined to meet in strenuous opposition and declare their powers and reveal their resources along the extended line of this fight for truth. The end is not yet, but that end, we may be assured, will reveal itself through the triumph of the noblest, wherever found, in the greater and happier time when agitation and upheaval shall have passed.

Once more we crave the reader's assent while we pass to the consideration of another introductory perception and principle, bearing, this time, not on the parties or relations involved, but on the necessary fundamental attitude of the mind to the doctrine of Cause as the basis of the whole discussion of spiritual and natural Rationalism, and essential to any universal doctrine of nature and life.

CHAPTER III

Cause

To any clear view of the contrasted forms of Rationalism or of the depending issue, it is necessary to appre-

hend the import of the question of Cause; and this is above all necessary at the outset before any secondary question arising from either position is considered.

It might almost seem, from the attitude of some, that there are no definite principles involved in the subject of Cause, and that it is consequently just as rational to attribute causal power to one source as to another—to matter and force, for example, as to an infinite God. For, in this view, is not the idea of God, considered causally, as difficult to comprehend as that of Force and Matter? Does it explain anything more than that of Matter-force? Do not those who place a Personal God on the throne of the universe appear to themselves and pretend to others to solve a problem which, deluding themselves with words, they leave as absolutely unsolved in the long run as the believers in matter-force? And does the attempt, setting aside the greater difficulties it introduces, not really show as lamentable an ignorance of the primal facts and order and unity of an infinite universe as of the inevitability of force displayed in law, and a perverse and foolish *a priori* rushing into questions with which they are quite unable to grapple—only revealing the baby-talk of human infancy? For since a Cause we must have, is it not inevitable that we should accept as such what we know necessarily to exist rather than resort to what, after all, is the introduction of a wholly extraneous element—a something that we know nothing whatever about; whose postulation is pure assumption, and but a guess at that?

Such an attitude reveals the need for an inquiry into the nature of Cause and of its profound significance for the human mind,—the place which that answering to its demand for Cause must fill. The question of Cause is no question, for example, of *difficulty*—of its being just as difficult, that is, to conceive of one Cause, God, say, as

of another such as matter-force. It might be as difficult, or even more so to conceive the inevitable Cause as God as to conceive it in the form of force and matter, but that would be a local difficulty dependent on the point of view, and would not touch the question of Cause. For the rational mind does not in the least accept one Primal Cause as more likely, or easier to conceive, or less difficult, than another. The basis of its acceptance or rejection is wholly apart from such considerations being fundamental to the mind itself and its needs and relations to things. The region of these fundamental relations does not touch, is even far removed from, all zones of state but one—that of *inevitability*, of what the mind as such is bound, in the nature of things, and being as it is, to think. For the first or fundamental relation of mind to things is not as to what or how they essentially are, but of what itself is bound of inherent necessity to think that they are. The conclusion that the mind thinks fact will never be far off, seeing that if it does not so think, or find so much of fact as its constitution necessitates, nature is delusive and at variance with herself in her greatest subject.

The demand for Cause is the expression of our deepest intellectual and moral need, only to be satisfied with the perception of Absolute Efficiency. Efficient Cause in the absolute sense brings with it the satisfaction of Sufficient Reason; and these two are inseparable, for the perception of such Efficient Cause IS the sense of Sufficient Reason. This Efficiency we take to be the essential element in Cause as the satisfaction of our deepest demand. The slightest doubt of Efficiency, and the suggested Cause is as good as nothing—is intuitively out of court. Even if that Efficiency has to be argued, the suggested Cause is nought and suspect as a substitute. The perception of efficiency is as direct as the perception of Cause, and one with it—but two ways of expressing

our deepest intellectual and moral need. Sufficient Reason is found in the perception of Efficient Cause, and mental satisfaction at once ensues.

In what, then, does this mental satisfaction consist? What is the element in Absolute Efficiency that creates it? The perception that the Cause can, from itself, without sequential modification, produce the effect and the means of its attainment: that is to say, that it is an *originating power*.

A supposed Cause that could not also be supposed to act thus would entail a contradiction in thought, and could never be admitted into the causal category; hence the exclusion of secondary causes (so-called), of antecedent and consequent, or sequence, as Cause in any essential or fundamental sense—which only means the exclusion of all things which have themselves to be accounted for by Cause, which, therefore, are themselves but effects. As the whole external universe comes into this line, it is a perceived fact that Cause does not lie there—that there is nothing in that universe which is not in the line of things produced, which does not therefore need accounting for by Cause adequate to the fact—a Cause, *i.e.* not itself an effect, which the universe, whether of substance or of form, assuredly is. For a supposed primal substance is no more Cause than anything flowing from it, seeing that its immediate results are self-changes or sequences (changes in itself, though not from itself) and its action sequential, bringing not only its results but itself also into the line of sequence, thereby constituting the supposed substance itself a consequent. Hence the direct human perception of Cause not being in nature, and of nature as not being Cause but merely sequence, or antecedent and consequent. Hence, too, the immediate perception of these inter-related natural objects as relative, thus and therein conditioned, and thence finite, fully ratified as it is

by scientific knowledge, which conclusively shows that the universe we know and the primal atomic forms from which it springs are one and all produced. Thus we shall find no refuge in supposed primeval matter as Cause; for to speak of the substance of that supposed primeval stage of the universe as eternal when we find secure evidence of every atom of it being produced is a proceeding that would, and in calm rationality too, be classed as demented, were it not for the human reverence of the nominally great. But this tremendous assumption, made on the basis of the so-named "primal stuff," which is as little primal as its products, is the foundation of Professor Haeckel's "Riddle." Remove this (which, indeed, most readily removes itself, as soon as, scientific fact apart, it is looked at from the understood idea of Cause), and the theoretical conception based on it, of which the book referred to is the exponent, is seen to be the most monstrous imposition upon intellectual credulity ever revived for human acceptance.

Yet, the atomic element of the *Riddle*, put aside, is it necessary now, and even in face of Haeckel's references, to charge such reasoners with stopping at atomic matter as Cause? May not "the imponderable ether" be itself the Cause or primary being we are in search of? The sole question here is, Will any man venture to sever the ether, or anything physically discoverable prior to atoms, from the line of sequence, outside of which Cause must stand? If not, it hardly seems worth while even to touch a position so foredoomed. Still, is it so sure that Cause must stand out of the line of sequence, or that it means anything else than sequence? The answer is, of course, that when the mind ceases to demand *originating power* it will cease to be itself, and that is the one thing which no line of sequence can show. To affirm an eternal line of sequence, consisting of things relative and therefore con-

ditioned, is to deny Cause, which is distinguished by the element which no fact of sequence possesses—the power of originating. Sequence can transmit: it needs Cause to originate. True Cause, therefore, we perceive to be, for the human mind at least, that which originates but is not itself originated; and the only fact that, for humanity, answers to this demand is not an “imponderable ether” but that of an Uncreated, Infinite and Eternal God.

“Then,” retorts the natural Rationalist, “how do you know that your God can exist without being originated? If you deny to us the right of claiming eternity and infinity for our Cause, viz., matter-force, how have you the right to claim them for your God who is quite imaginary, and may not exist at all? By parity of reasoning He must also be made: who made Him? How far back are you going—through how many gods? Your God, in fact, accounts for no more than our Cause, and has Himself to be accounted for, which our Cause has not, for it has always existed.”

In the first place, the right of infinity and eternity is denied to matter because the trend of science is the other way. “Nothing material is permanent,” says Sir Oliver Lodge.¹ Reason speaks decisively in the same sense, for it sees that nothing in the line of sequence or finity can be infinite and eternal, no matter how far back experience or thought can reach. Neither travelling backward nor forward in the conditioned gets us out of it, and the conditioned, even were it eternal and infinite, would still never rise out of the nature of an effect—could never be Cause. An infinite conditioned could only mean an infinite series of effects, with the residuum of a Cause unknown and unexplained. For it is a true originating Source of this very relative and conditioned the Rationalist makes out to be eternal which the mind persistently seeks in seeking

¹ Radium and its meaning.

Cause: it seeks an absolutely efficient account of the physical universe and all that's in it, and no account can be efficient in the light of Cause that does not tell how it came to be. Let the natural Rationalist theorise as he may, that is not a Cause for the human mind that is in the line of historic sequence, or unable to *originate* sequence. Men of all times and nations have found such Cause in God—the embodied conception of the infinite and eternal because beyond or within the physical Universe, and the true synonym of Cause because the true idea of originating power.

Starting, then, with the profound, instinctive and also rational and moral need of such originating or true Cause, and finding it in the conception of an Infinite and Eternal Being in such causal relation to the conditioned or material, why should the human mind go further and ask for the cause of the only Cause it needs? Has it not found what it set out to seek? And having found it, what reason or need is there for going beyond? Men sought a true originating Cause, and finding it, why should they not rest in what they found? And if men could be guilty of the folly of imagining a series of Infinites and Eternals, of what use or advantage would it be to them, having found in God, the Cause of the universe, that which they set out to seek? The human mind has been guilty of folly enough; but of nothing so transcendent in that order as this would be. Now, as the human mind repudiates all such fiction—repudiates it by *its very nature and constitution*—as that of a Cause *originated*, it follows that the demand for Cause or originating Power is not the demand of this or that class of persons in humanity, but the fundamental claim of the human mind itself. In other words, an instinctive perception in humanity of an originating power is proved true by a reasoned statement of the facts and relations to be explained, and of the inevitability

of such Cause in the light of these facts. The non-origination of an originating Cause is the primary gospel of human reason on the origin of the universe. How, then, will parity of reasoning show that God to be "made," the one condition of whose conception is that He is not made? Or, in the name of reason, how far back in God-creation must those go who begin with non-origination, and whose conception of God as non-originated is bound up with their idea of an infinite Cause? In short, the whole question is confused to the mind which can so object. The question is solely one of what man is bound to think in view of his own nature with its perceptions and needs, in view of the external facts and their implications, and above all, in view of Cause—the adequacy, efficiency and sufficient reason involved for him in that Cause as distinct from the conditioned and as capable of producing it *ab initio*. In brief, it is a question of fact and reason proving the correctness of instinctive perception. This perception gives question to man, and he wonders; the facts give satisfaction to the moral and intellectual instincts, and he believes; but as instincts can be killed and facts mis-set by theory, the human perception of Cause is easily compatible with individual obliquity. This standing-off on the part of minds, many or few, no more disproves the perception of Originating Cause as normal to humanity than disease disproves the normality of health.

What, then, is the nature of this Absolute or Efficient Cause, originating from itself the finite universe, its matter-force and life? For man, judgment as to that Cause must be according to the highest powers that the universe exhibits, those, to wit, of life and feeling and thought and energy, and therefore of man himself. With these powers, physical extension is not to be named in the same breath, nor is it a question of how these highest powers emerge from that Cause, since

physical method there must be for physical development. Nor should it be a question of substituting the physical method for the inner fact—whatever it may be; nor of returning to the lowest or vapour-matter in order to find the impossible, viz. a beginning—the most unscientific of all procedures until it can be shown us just what was *in* that assumed beginning, Cause or no Cause; nor of fact and sense foregoing themselves in the idea of the approximation of animals to man, knowing, as we do, both what he is and what they are. Life in the world about us is a manifest development from Cause, through increasing forms of life, to man; and he is nature's crown. What that Cause is, therefore, can only be judged by what it can do; and therefore, actually, by what it *has* done, not by assumed beginnings, nor by substituting physical method for the causal substance produced or developed by that method. Given a basis of physical extension of such indefinite immensity, and the production thereon of life from lowest through increasing forms up to the being who apprehends all and understands and divines it, "looking before and after," by what is its Cause to be approximately judged but by the highest manifestation of nature's order? That highest will be the fullest unfolding of itself, exhibiting relatively, and in correspondent physical expression, the more interior forms of its life, and indicating finitely more of its true nature than lower forms could possibly exhibit. This conclusion seems to us as instinct with sanity as it is inevitable in view of Cause considered solely as originating force. If, then, it be necessary that the Cause contain the effect within Itself (and this must be the case in potency with even undifferentiated "primal stuff") and be able to produce it in original form, manifestly the powers exhibited in man must be a finite representation of and approach to, the powers of the Cause. It cannot at least be said that the Cause has less in It than the effects

have, how much more soever it may possess or be. Nor must we overlook the fact that all nature is the effect of the Cause, and, therefore, that all forms of matter and powers of force and degrees of life are originally and necessarily from and in the Cause as *primal substance*, though defined and concreted and conditioned into the forms known to us, but unknown as such in the Cause. It is equally manifest that the highest forms toward which all tend must be the fullest and clearest expression of the Cause because, plainly, they are that which it has been on the way to exhibit from the first—the deliberate *end*, in other words, which it had in view—if we are dealing with a veritable Cause such as human nature has, in all ages and conditions, instinctively demanded and intellectually posited. To conceive that a true Cause could produce that which is not potentially within Itself, or that what it produced is not in some way or sense a manifestation of Itself, is to think (if thinking it be) in contradictions. Plainly, no circumstances can arise or effects be produced in which that Absolute Power is not always the creative and sustaining life, whatever appearances of contrariety may spring from the action of a secondary cause voluntarily endowed.

While man is thus the highest expression of the Cause, he is yet one with nature, and whatever is in him, is in him as part of nature—an effect revealing Cause, and revealing it in quality and character through his essential endowments therefrom. But man's central characteristic is that of a mental and moral being, with affection, thought and energy as the bases of his personal life; and it follows that the human forms thus created, being from the Cause, are evidence, as unquestionable as effects can be, of that

Cause from which they sprang. The inference that the Cause is Mind, and that Mind is everywhere and always Love, Wisdom, and Energy united as a trine in Personality, whether human or Divine, is the palpable truth of the highest effect that nature exhibits.

Thus the instinct that God is Cause is carried forward into the direct perception in man's nature of God as Personal, and rationally proved to be true, as effects reveal causes. And a little reflection will show that, for man at least, no Efficient or Absolute Cause is possible except as a Divine Humanity in whom Love, Wisdom, and Energy are one, and the very essentials of His Personal Divine-Human Oneness. Nor is there anything fundamental to the established order of nature that is in conflict with this rational approval of human instinct; for it is not *there* that order and humanity are transgressed. The voice of these natural fundamental facts is the voice of order, and order in the universe—its very law—is physical and moral righteousness, which are again, effects and embodiments of that Mind which God is. Thus a distinction must be drawn between the fundamental sphere and facts of nature where order and righteousness reign, and certain subsidiary facts dependent not directly on essential Cause but on the voluntary activities of certain secondary effects. This is a distinction, often overlooked, but vital to true comprehension; nor are these fundamental facts of order and law, as righteousness and as making for it, to be confounded with any voluntary disorderly facts, or for a moment disputable, or dissociable from the Cause as its instruments.¹

¹ For the development of the idea of Cause as personal, here only theoretically suggested, see Chapter X.

Part I

FUNDAMENTAL PRINCIPLES

CHAPTER IV

The Enigmas to be Solved

ON this subject Professor Haeckel writes thus:¹ "The uneducated member of a civilised community is surrounded with countless enigmas at every step, just as truly as the savage. Their number, however, decreases with every stride of civilisation and of science; and the monistic philosophy is ultimately confronted with one simple and comprehensive enigma—the problem of substance. Still, we may find it useful to include a certain number of problems under that title. In the famous speech which Emil du Bois-Raymond delivered in 1880, in the Leibnitz session of the Berlin Academy of Sciences, he distinguished seven world-enigmas, which he enumerated as follows (1) The nature of matter and force. (2) The origin of motion. (3) The origin of life. (4) The (apparently pre-ordained) orderly arrangement of nature. (5) The origin of simple sensation and consciousness. (6) Rational thought, and the origin of the cognate faculty, speech. (7) The question of the freedom of the will. Three of these seven enigmas are considered by the orator of the Berlin Academy to be entirely transcendental and insoluble—they are the first, second and fifth; three others (the third, fourth and sixth) he considers to be capable of solution, though extremely difficult; as to the seventh and last world-enigma, the freedom of the will, which is one of the greatest practical importance, he remains undecided.

"As my monism differs materially from that of the Berlin orator, and as his idea of the 'seven great enigmas' has been very widely accepted, it may

¹ *Riddle*, p. 6.

be useful to indicate their true position at once. In my opinion the three transcendental problems (1, 2, and 5) are settled by our conception of substance (*vide* ch. xii); the three which he considers difficult, though soluble (3, 4 and 6), are decisively answered by our modern theory of evolution; the seventh and last, the freedom of the will, is not an object for critical, scientific inquiry at all, for it is a pure dogma, based on an illusion, and has no real existence."

The difficulties have vanished: Haeckel has none; and in this superior fashion he treats not merely the subjects involved but a great man of science! "To indicate their true position at once" is good. Of course that "settles" them, and equally "settles" the Berlin orator. We "at once" discover that three of the enigmas are settled by "our conception of substance," three of them "decisively answered" by "our modern theory of evolution," and the odd one dismissed to the limbo of the non-existent. But suppose that "our law of substance" really settled nothing attributed to it, and left the nature of matter, and force, and the origin of motion and consciousness, just where they were—as enigmatic as ever, should we not feel that Haeckel's method had something of the braggart style? Such are the serious convictions the book has brought to some, both as to its positions and its methods. The "law of substance," and the "theory of evolution," have dogmatic applications made for them which we hope to show cannot be sustained.

In these enigmas we have funda-

mental questions raised, and cannot therefore rightly proceed till the doctrines supposed to solve them are considered. It appears that of these seven enigmas one is thrown out as hopeless: we may leave it there to be taken up later on. Of the remaining six, three are settled by the law of substance, it would appear, viz.: the nature of matter and force, the origin of motion, and the origin of simple sensation and consciousness. In order to reach these questions, we need to inquire into the law of substance. The other three enigmas, the origin of life, the arrangement of nature, and rational thought and speech, are, as we learn, decisively answered by the theory of evolution. Here again, such questions can only be reached through the evolutionary theory. If we would therefore touch any of these enigmas, it can only be through a discussion of these doctrines first, in fairness either to Haeckel or to ourselves.

The one of these theories which chiefly stops the way is that of *substance*. What is this law of substance which meets us everywhere, bars progress, summarily disposes of positions and problems, and is so incontrovertible that practically all nature is at its mercy, and monism established by it? Constantly we meet with this barrier on the path and find it made to do duty for all and every proof of positions eagerly expected. Is it really proved? What is the proof? Is there by chance another possible interpretation of the facts on which it is professedly based, so that the "law" might turn out to be not even a correct reading, let alone an established fact? These are questions which must be faced and answered in order to any distinct apprehension of the problem behind this "law," or we run the risk of this terrible sphinx devouring us. This at least is certain, that we cannot even discuss any of the world enigmas above presented, nor, therefore, any fundamental position in the "Riddle," without first

encountering this law of monistic substance.

As preparatory to its future discussion, let us hear Haeckel explain it.¹ "The supreme and all pervading law of nature, the true and only cosmological law, is, in my opinion, *the law of substance*; its discovery and establishment is the greatest intellectual triumph of the nineteenth century, in the sense that all other known laws of nature are subordinate to it. Under the name of 'law of substance' we embrace two supreme laws of different origin and age—the older is the 'conservation of matter,' and the younger is the physical law of the 'conservation of energy.' It will be self-evident to many readers, and it is acknowledged by most of the scientific men of the day, that these two great laws are essentially inseparable. This fundamental thesis, however, is still much contested in some quarters, and we must proceed to furnish the proof of it. But we must first devote a few words to each of the two laws."

Having explained the laws of "the persistence or indestructibility of matter," and of "the persistence of force" or "conservation of energy," we read on expecting proof that these two laws are really one, in the sense of being not only materially inseparable, but also in the one sense the occasion demanded, of being the only combination into which force can enter. For if force can enter into any combinations other than with matter, what becomes of the claim underlying the law of substance, which gives it any validity, viz. that it consecrates the union of the only infinite and eternal powers in existence—force and matter?

What we find in the way of proof of the basis of monism is this: "the two theories are just as intimately united as the objects—matter and force or energy"; that the latter are always together under material conditions; that "the force of the universe is

¹ *Riddle*, p. 75.

divided into two parts [the potential energy of matter and the actual (kinetic) energy of force] which may be mutually converted, according to a fixed relation of value"; and that "all the vital activities of the organism—without exception—are based on a constant reciprocity of force and a correlative change of material." All this will be considered later on, and we pass it now with the remark that these statements neither show us that there is no conceivable form of substance other than matter with which force may be allied, nor that force is not antecedent to all matter; both of which positions are required to make good the claim of monism that force and matter are the only substance, and are uncombinable in any other than material form. But is it not unreasonable to expect science to hold aloof from proved facts on account of theoretical possibilities? Certainly, if what is miscalled science did not go out of its way to assume that there neither are nor can be other combinations than appear to the physical eyes; but this is precisely what the scientist does who concludes from physical sight to the all of things, and contends from his partial observation that force and matter are the one and only substance. Yet what if development under the law of substance shows spiritual facts as included in material! The inevitable completeness of the physical side within itself can never, by other than illegitimate inference out of its own sphere, conclude that correspondence is identity. The necessary self-containment of the material on its own plane can never prove the assumed negative of the non-existence of the immaterial on another plane. And mark the circle: the inseparability of matter and force proves the law of the one only substance, and the law of the one only substance proves the inseparability of matter and force! This shows plainly the scientific impertinence of the claim of Haeckelian monism, lying as it does wholly out of the bounds of legitimate science.

But more of this hereafter: at present we only wish to show something of the immediate ground to be covered and to give an outline of our course. The questions involved in this First Part will lead towards a solution of the relation of matter and force; for it will be necessary in discussing this law of substance to unfold the elements involved in it. These are the persistence of matter; the conservation of energy; whether matter and force be one substance; whether they involve a law of substance; whether force be the cause of matter; and the nature and origin of force. The six chapters containing these points will cover the Fundamental Principles to be discussed.

After the discussion of such principles in this First Part, and before proceeding to the Second Part containing the discussion of more General Results, we will pause for a moment's breathing space in order to give attention to Prof. Haeckel's Definitions, in the way of detailed analysis of them, for the sake of those who care for such matters. Those who are not interested in following this track may pass over these two intermediary chapters, to the consideration of the General Results presented in Part II.

CHAPTER V

The Persistence or Indestructibility of Matter

As the law of substance is supposed to prove practically everything else in monism, and everything else as expressed by the relations of matter and force is supposed to prove the law of substance, it would seem to matter very little whether, in discussing some of the above enigmas, we begin with the law of substance itself or with the component parts which go to make up that substance. But as Haeckel, in reach-

ing his law of substance, lays the foundation in the particulars of matter and force, it may be best to follow his lead and to begin with the question of matter and its persistence.

This law of the persistence or indestructibility of matter, says Dr Haeckel,¹ "may be formulated thus:—The sum of matter, which fills infinite space, is unchangeable." Disappearance of body is change of form: coal burns, sugar melts, moisture becomes rain, iron-rust is metal combined with water and oxygen; but nowhere is there production or creation of new matter or the passing away of the old. This truth is the basis of chemistry, he says: its contrary cannot be imagined. Such is Dr Haeckel's "proof" of the indestructibility of matter.

Observe that by matter "filling infinite space," he merely means (*i.e.*, he can only in accordance with exact knowledge mean) the universe in its appearance of indefinite extent. Beyond this, all is assumed, infinity among the rest. Further observe that that does not prevent him from repeating and re-repeating the tremendous assumption and fallacy, founded on indefinite appearance merely, that the universe is infinite.

Putting this assumption aside, the first fact to face here is that Dr Haeckel takes that which is in the sphere he knows for that which is everywhere and always—assuming, as usual with him, that the sphere of matter is the only one: that the matter of the universe, being all there is of fact in the universe, *with nothing either above it or before it*, and being complete and unchangeable in quantity, is *per se* indestructible. It is hardly necessary to say that, even leaving out the silent assumption italicised, the logic will bear amendment. When a sphere such as that which surrounds us is definitely formed, it is essential to its constitution that its laws, and, therefore, its substance, should be stable. To argue that because it is so under its present

¹ *Riddle*, p. 75.

conditions, when once, *i.e.*, these conditions are effected and from whatever conceivable state, and because we cannot, these remaining permanent, destroy that matter as we know it and as so conditioned, that therefore it has *always* been just what it is, had never merged from conditions absolutely different, was never itself quite other than we know it, has not, *qua* matter, been produced from, say, that which is non-material, and therefore cannot through the operation of the agencies producing it, perhaps even by man, be again broken up as matter and returned to its primal state—*this* is the sort of logic and argument that runs through the *Riddle*, blindly assuming the point to be proved, and being about as logically worthless as foregone conclusions generally. When Dr Haeckel and his co-monists can show us that matter is *not* produced, had no antecedent conditions, that themselves know all conditions possible; it will be time enough to extend their conditioned science into the unconditioned, and lift into absoluteness the indefinite notion of matter's infinity, eternity and indestructibility *per se*. *Practically* indestructible and *practically* infinite means, in scientific fact, neither indestructible nor infinite, though useful provisional terms covering useful provisional assumptions in a relatively stable sphere. Materially conditioned science need have no fear of a beyond, but if true to itself will dogmatise nothing as to its non-existence by speaking of the conditioned under terms properly belonging to the unconditioned, and assuming the absolute application of relative modes.

But perhaps all substance is matter, whatever the pre-conditions? Then, of course, the indestructibility of matter would mean the impossibility of the annihilation of substance. Agreed at last! substance is not annihilable; but then that brings us down out of the air of abstractions to the level ground of practical proofs. Pray, however, keep your law of substance and your

ideations out of it until you have practically demonstrated that all pre-conditions are material, for it is *there* that the rocks lie ahead.

If the Haeckelian abstract position fails, how does its concrete argument meet the case? "The sum of matter is unchangeable." Again we agree. Who could imagine it otherwise when and while that sum of matter constitutes the working material universe? Would it be imagined that what had been produced and kept in place should naturally change from itself into something else; or cease to be what it was, and so cease to fill its defined place and use? Why should it? And how does the fact that it does not, prove it *per se* indestructible? Is there no difference between matter remaining undestroyed while keeping its natural sphere, and being destructible under other conditions? And how know you that even immense portions of it all the universe through are not continually passing back into non-atomic matter? What is the use of prophesying, and in the name of science too, before you know? The whole attitude of Haeckel and his monism, merely means unwillingness to wait upon facts, and a vicious endeavour to thrust foregone conclusions between man and nature.

All that the unchangeableness of matter can possibly mean is that while it constitutes a working material universe it remains unchanged, and cannot change. In other words, in its accustomed place and work it is itself and nothing else; and why in the world should it not be, without being challenged as unchangeable? But who shall say that by no conceivable power could it be withdrawn from that place and use, and so from under its present conditions, *in the very fulfilment of* that place and use, and by disintegration even of the elements constituting it material? Plain therefore is it that the conditional permanence of the substance of matter under change of form in Haeckel's illustrations of coal

burning, sugar melting, moisture becoming rain, or the changes of metal, or a thousand other such changes, does not approach the question of its destructibility.

The question of the nature and destructibility of matter has changed its front of late. The indestructibility of the atoms of which gravitative matter is composed can no longer be maintained; ocular demonstration proves the contrary, and matter is disintegrated before the eyes of the observer. Gravitative matter, matter, *i.e.*, as we have always known it, has ceased to exist before the experimenter, by being broken up into the elements which go to compose it. And these elements? They belong to another sphere: they are not gravitative matter, but dynamic particles—forms of electricity derived from the etheric sphere. Thus matter is traced a step further back—so much further back that its immediate origin is now disclosed. And that origin? It is not gravitative but etheric. Still it is matter? Not at all, in the sense in which we have hitherto understood it. If it is still matter (which we are free to admit, in general) it is yet matter denuded of some of its most distinctive qualities—its gravity, its inertia, its directly chemical affinities. Mass, in a certain sense—a much attenuated sense, it still seems to retain (that being Sir Oliver Lodge's opinion), but even that postulation is only speculative as the case stands. In short, we have to face the fact that if we are still in presence of matter, it is matter so changed in degree, in quality, in laws and in interior and dynamic powers, that we must either find for it another name or completely change our conception of what matter is and means. Before such facts, what becomes of its indestructibility? The matter we were discussing, the atomic, to wit—this *has* been destroyed, reduced back to the powers of an interior sphere; and if this new form is matter, there is for ever an end of the term as applied to what we have known.

We willingly grant that this disclosure does not finish the question, but it takes us back a very long and a very decided step. If we have reached a form of matter in which gravitation, inertia and chemical affinity have ceased, we are in presence of a matter which has only the remnant of attenuated mass (which, with all deference, may be only a form of impact of force) to boast of; but on the other hand, with powers raised dynamically far into an interior sphere and transcendently above the ultimate physical that we know. We are, in fact, before the immediate or secondary cause of matter from which we see it produced and exhibited in the sphere of effects—a *manufactured article*; and we at once recognise that what can be manufactured can be destroyed.

This, however, does not end the story. Can matter *per se* be annihilated, that is to say, reduced back to its immaterial cause? Far from being ashamed of putting the blunt question, Why not? we hold that in face of what we now know the only rational answer is an affirmative. For suppose that the scientific analysis of electrons were to reveal a correspondingly interior degree from which electrons, as effects, in turn emerged? Is not the supposition, in the circumstances, a perfectly fair one? Truly. For the barrier of atomic particles once broken down, we are scientifically bound to conceive a further inward reach or more interior sphere of secondary cause. If by the first remove from atomic matter, we have stepped right into a dynamic sphere in which the substance of matter has gone with the departure of gravitation, and only the shadow of it, so to say, remains, with a powerful and active element as its substitute and creative force, may we not, at the next interior remove, fairly look for another equally new revelation in which power or energy alone is present as, in turn, the effect of some even more physically undiscernible and inscrutable substance? That sub-

stance would not be matter, for if it were it would show itself and be analysable and therefore not inscrutable. But on the supposition of energy alone exhibiting itself in this remove, that energy would not be from matter; because matter would be *beneath* it, in the sphere of the ether, and indiscernible in this interior aura. Then from what is that Energy? Delaying the answer for a moment, these questions may be put meanwhile. Has matter ceased to be? On the supposition, yes. And is not the supposition legitimate? Perfectly. Why? Because entirely in accord with facts so far as we know them: that is to say, to quote the ground on which Mr M'Cabe justifies Haeckel, scientific "indications" are in that direction, and the facts "point" that way. "I thank thee, Jew, for teaching me that word."

Is there any such sphere as we have here supposed? Beyond question. It is customary to speak of the Magnetic sphere as a sort of coating to the Etheric, but a little thought will reveal the difference. The characteristic of the Etheric sphere is the dynamic *plus* a phase of the material, or extension, hence, in a sense, mass, locally perceived like the air round the earth: that of the Magnetic is pure force, universal and non-material—universal, because together with its interior powers, it holds all worlds in its grasp, and non-material because it adds no weight to the substance to which it is, even in excess, attached.¹

Now, as the Etheric stands to the Physical, so the Magnetic stands to

¹ Why is it that a powerful magnet rotating at utmost speed does not carry round with it any sphere of ether? The answer would seem to be that the Magnetic Sphere is independent of the Etheric and interior to it. If it is urged that the speed of magnetic and of light rays is identical, indicating that both kinds of rays are phenomena of the same medium; the answer, of course, is that as speed is determined by friction, and as the planes above the atomic are frictionless, the speed of the Magnetic and of the Etheric Spheres must necessarily be the same.

the Etheric. In the Magnetic sphere as such, we have force without cognisable matter, absolutely. This force is the cause and controller of gravitation, by which the first meets in the last, as the Ether is of light and sight and the internals of the body. Only, in the case of the Ether, the control is from the Magnetic sphere, into and through the Etheric; but the Magnetic sphere is gravitation. In the Magnetic sphere or Aura, therefore, we have got rid of discernible matter. It has simply vanished as if it had never existed, for here extension and its consequent mass have ceased. The Aura is as much the cause of the Ether as the Ether is the cause of the Aerial or atomic matter. Thus the gradual production of matter is traced from pure force, through dynamic extension, into the distinctively concrete gravitative form of atomic matter. In other words, the cause of atomic matter is the Aura or universal magnetic force, with all internal to it. The instrument of its production is the Ether, or Magnetic force combined and condensed into dynamic extension and revealed locally. And the effect produced by etheric recombinations in the sphere below is the atom. The pedigree of atoms is thus complete. But how should that be infinite and eternal, or even indestructible, that is a proved product, a manufactured article? If put together, how shall it not be taken asunder, yes, and even by man—when nature has shown him the way?

The phrase "indestructibility of matter" is merely relative to matters conditioned and as remaining atomically combined; taken absolutely or as applicable to matter *per se*, it is pure fiction. What bearing has this doctrine then, upon the law of substance? Before we reply, we must consider the Conservation of Energy.

CHAPTER VI

The Conservation of Energy

HAECKEL'S treatment of this principle is similar to that adopted as to the indestructibility of matter. "The sum of force, which is at work in infinite space and produces all phenomena, is unchangeable."¹ That there is a unit of force in the physical universe, and that it necessarily remains unchanged under such conditions, we agree. But as we have seen in regard to matter, this mode of reasoning constitutes no proof whatever of the ideas assumed throughout, that the sum of all force is in the material universe, that force is necessarily physical only, or that force is with equal necessity unchangeable. The most that we have a right to say is that it exists in the physical universe as *one*—one force, and that that one force remains unchanged. The amount of force employed to produce all phenomena is necessarily unchanged while that work is being done, but that proves nothing as to its unchangeableness.

One force, then, exists in the physical universe, and exists unchanged in amount; but even that is only strictly true with the qualification—*according to, and keeping pace with, the states of the matter of the universe*. The reason of this of course is that we have seen occasion to think that changes of the kind indicated do take place in that matter—by reversion at least. Why not, also, by new increments? But the one force, Haeckel, like many others, goes on to tell us, is convertible into different forms under various subordinate forces. "Heat may be changed into molar movement, or movement of mass; this in turn into light or sound, and then into elasticity and so forth"; all of which goes on under the general law, indicating really the only change involved (though Haeckel does not here tell us so) *i.e.*, the convertibility of natural forces solely

¹ *Riddle*, p. 75.

by transformations of potential into dynamic and of dynamic into potential energy. Then as potential and dynamic energy express together the sum of all force, and as no loss takes place by the change of either into the other, energy is thus *conserved*, hence the doctrine of "The Conservation of Energy." All changes therefore of heat into molar movement or *vice versa*, or of light into sound, etc., are really cases of conversion of dynamic and potential energy. When a bullet strikes a target, or a stone the earth, or one atom another, the dynamic power or rush is converted into heat *plus* the potential energy imparted to the objects concussed by separation of their particles.

From this it appears that the universal force acts in nature as many forces, and that these are mutually convertible. Granting the many forms in which that one force shows itself, is it a true description to say that any change of one force into another ever takes place?

Is force, in fact, convertible? If not, what is the actual meaning of the fact about which such language is used? And why should conversion happen if the force is really *one*? How can the one force be changed into itself? But, if not, and there is no need to conserve what was never threatened with dissipation nor the possibility of change, why the doctrine of "the Conservation of Energy?" Hæckel, no doubt with an eye to the popular mind, states things with less than accuracy and therefore with possible misleading, and one unaware of the nature of the facts would receive an erroneous impression. He is much more alive (and this may be the root of the matter) to the need of impressing the reader with the idea of the change of one force into another (though he must be aware that no such change occurs), with the constancy of the sum-total of energy, and its infinity and eternity, than with the indications which reveal that force, like matter, has distinctly traceable antecedents. We

do not profess to say that scientific men have always been careful in the use of these terms; what we do say is that Hæckel makes no attempt to approach accuracy and uses the familiar terms in the crudest, least scientific way. This way, indeed, is not within the real meaning of science, and it can only lead to the popular belief that force itself is actually "changed," "transformed" and in that sense "converted," but always and eventually "conserved." The reader cannot be too certain, then, that force or energy is *never* converted, transformed, transmuted or changed into anything whatever, much less into itself. We will try to straighten the business out.

Let us imagine two bodies whether molecules or masses, meeting in collision, and ask what happens. They are driven together by dynamic force, arrested by the collision, recoil by the force of the blow, vibrate, and generate heat—their particles tending asunder, dash against each other again by the recovery of the original force from the check received by the impact, again separate, etc., the process being repeated until they finally come together in rest—where the dynamic force holds them in unison. What has happened? Is the original force "converted" into anything? Not in the least. The force is as active, and in the same direction, towards the same end, at the close of the operation as at the beginning and all through. It has never varied from its purpose (if we may speak of purpose), as is shown by its overcoming the difficulties and finally uniting the atoms. All through, that purpose has never varied, nor has the force left the bodies or been changed, transformed, or in any way touched. What then has happened? If we follow we shall see. When the bodies strike, the dynamic force causing the impact is still active, but is momentarily checked by the concussion and consequent recoil. Yet, retaining its grip, that force throws the bodies together again, when, the second blow

and recoil being somewhat weakened by the continued activity of the force, they are once more brought together, till, the blow and recoil finally ceasing before the pressure of the dynamic force, it accomplishes its purpose in the union of the bodies, and remains the victor. There is here not the slightest conversion of force, or approach to it.

So far good; but why is this called a case of "conversion" of dynamic force? It is an unfortunate and misleading term, but when we have reconsidered the case the reader may perhaps find a better for himself. With the first impact and recoil, a change has taken place in each of the bodies—its particles have been set quivering by the blow, the body has developed heat in the vibration, and its particles have drawn away from each other by expansion through the heat. Now, is the heat thus generated the equivalent of the arrested dynamic force? Not quite, because the *work* done by this heat has also to be taken into account, viz., the separation or drawing apart of the molecules or atoms of each body, by which separation potential energy is conferred upon the bodies. The case stands thus then; the heat and potential energy equal the dynamic force arrested by the impact. How are this heat and greater distance between the particles produced? Did the dynamic force change into them? The answer is that the force was active all the time, even during the recoil, trying to push each body together, only the momentarily stronger force of the impact prevailed during that moment. Had the force not continued active even in the recoil, the colliding bodies would have been sent far into space and never met again. The dynamic force, therefore, remained itself throughout, was all the time steadily attending to its work of uniting the bodies, in which it finally succeeded, and was neither changed, transformed, nor converted into anything whatever. Then, if the

force did not change, did anything else do so? Certainly; *the matter of the bodies*: they became hot and their particles drew asunder. What produced this state? The concussion, and the concussion alone, which caused the atoms to vibrate and so produce heat, which in turn produced the expansion or drawing apart. Then why is it said that the arrested dynamic force is converted into the two kinds of energy—the new dynamic (heat) and the potential (creation of greater distance between the particles of the individual bodies)? Reflect for a moment that while the work of union between the bodies is being accomplished, the heat and separation of particles (the new dynamic and the potential energy) are *the same in amount* as the original arrested dynamic force, and you will begin to understand. It is this equivalence in *the amount of force on each side after the blow* that is called change, transformation, or conversion, in which the arrested force appears to change or be converted into heat and expansion of parts. And it is the final equivalence in the union of the bodies, the original force intact, that is called the Conservation of Energy; because all expenditure of force during collision is accounted for; nothing is lost.

This equivalence, the reader will say, goes on all along the myriad-fold lines of activities in the universe, for the simple reason that action and reaction are equal and opposite; but that does not prevent the wasting of force. For what becomes of the heat and expansion generated in the concussion? Here is a secondary form or incidental effect of force occurring during the activity of the primary forces, and since that force evaporates as the bodies cool from their momentary conflict, it would appear to be lost, and, therefore, not conserved. Moreover, as the heat evaporating in this way must be enormous, the conservation of Energy looks a doubtful doctrine at the best. Let those reply who

pretend to deal in sum totals of force in the universe, as if it were an eternally fixed quantity for which they must account at the peril of their assumption: we know nothing about such things, nor does anyone else. It is all mere theory, like its explanation of the above, which is that the evaporated heat reconverted into motion is taken up by the ether and diffused through space—a pretty effectual method of dissipation, one would think, unless such motion can be shown to return to the earth as heat. Yet, after all, what signifies it what becomes of the incidental effects of force so long as Energy itself continues to operate? The principle of Conservation would still be as true as it has always been—true as a working theory of equivalents on the basis of the constancy of the working force—all that it was ever intended to be by the wise in their science. Those who deal in the verification of absolutes in this region have more on their hands than they have yet mastered. We may return to this later.

All that is true in Conservation is thus clear: Convertibility only does it disservice. The case would surely be better met, with less risk of misunderstanding, if the word *equivalence* were used instead of conversion; for that is really what it amounts to. The arrested force finding its equivalent in the heat and expansion created, we have in that fact a law applicable to every change-producing impact of energy, and a measure of the arrested force. To find this equivalence or equilibrium is the whole end of the observed relations between dynamic and potential energy. The reader must be warned also against the statement made by authorities that "heat is vibration." Vibration is an abstract idea, like Huxley's "aquosity," and can of itself have no existence. Vibration means *something vibrating*; and it is the vibration of substance, not that is, but that produces, heat.

If there is no change in the force

by which a change is effected, wherein does it lie? *In the matter through which the force acts.* In the case considered, the heat produced is the result of the mechanical vibration caused in the matter by the blow.

Taking a wider outlook, we shall find that the general determinant in the action of force is the state of the matter as to temperature. The changes of this character produced in matter, and however produced, seem to determine the activities of force, except in the case of gravitation. The changes therefore are the *effects* of force acting in matter according to its conditions—a different thing from a change in the force itself.

When, therefore, Haeckel tells us that "heat may be changed into mass-movement, and thence into light or sound, and then into electricity," and so forth, he states what is absolutely incorrect. Heat is not changed into mass-movement; but mass-movement is the effect of heat by mechanical action. That the heat is so changed is, as we have observed, the appearance, as a stick appears bent in water or the sun to go round the earth; which is the secret, we take it, of our scientists being led to use such terms; while the fact as distinct from the appearance is that the change of temperature and hence of pressure in the heated substance, steam, say, produces a mechanical pressure on the mass, and movement is the result—an account of things which reduces Haeckel's description of the railway-train "speeding along" and of the "whole marvellous panorama of life" as the result of heat changed into mass-movement, to a piece of pre-Copernican rhetoric.

There is no transformation in the case. But how then is it that "accurate measurement of the quantity of force used in this metamorphosis has shown that it is constant or unchanged?"¹ It would be strange indeed if there were not a fixed relation

¹ Riddle, pp. 75, 76.

between the force expended and the effect, whether of heat or of motion, mechanically produced, or that the force producing heat and consequent motion, or *vice versa*, should not be the *same* force in the end as in the beginning—a “constant” factor, but without “conversion,” and therefore with no need of “conservation” in the unscientific sense represented by Haeckel. It is not the force that is “transformed” but the matter.

At least, “potential force is changed into kinetic or actual”? Nor is this true. There is here only a manifestation of more or less; and that according to some prior change, of distance say, in the matter. Of course the phrases potential and actual (dynamic) are convenient as describing what under other circumstances a substance *might* do and what it actually does; but they mean nothing else. Influx, whether material or spiritual, is according to capacity of reception; and matter is capable of receiving more or less of force—being the medium of more or less activity according to its exaltation or depression of temperature. Again is the whole question one of change in the *matter*, therefore, with only a movement on a higher or lower sphere of force, as well as with more or less of activity, according to the state of the recipient subject.

While men with special ideas to inculcate use scientific facts in this way, what do the teachers of science for its own sake have to say on the question? Balfour Stewart says, “In the case of a meteor or cannon ball passing through the air with great velocity, we have the loss of energy of the meteor or cannon ball *through its contact with the air* and at the same time the production of heat *on account of this resistance.*”¹ Again, “Thus there is in all such cases an apparent loss of visible energy, while at the same time there is the production of heat *on account of the blow* which takes place. If, however, the substances which come together be

perfectly elastic (which no substance is) *the visible energy after the impact will be the same as that before*; and in this case there will be *no conversion into heat.*”² On which the natural comment is that if it be the force that is transformed or converted, and the force is present under elastic as well as other conditions, the transformation should take place equally under all conditions, so far as the force is concerned. But if it be the *matter* that is transformed, and no such transformation can take place under elastic conditions, a sufficient reason is given for there being “no conversion into heat” and for “the visible energy after impact being the same as that before”—a reason based on the fact that with elastic substances there is no physical resistance. No one ever dreamt they were not subject to force. Tyndall puts the matter in a sentence, “In no case is the (particular) *force* which produces the motion annihilated or *changed into anything else.*”³ Here Tyndall bluntly states the fact; but, if so, many misleading statements are made on the subject in the name of science, and some of the not least crude by Haeckel himself.

Yet Tyndall goes further and forestalls what would have been his repudiation of the *Riddle's* teaching on this head. We read,⁴ “Chemical affinity, it is said, can be converted into heat and light, and these again into magnetism and electricity . . . but the law which affirms the convertibility of natural forces was never meant, in the minds of those who understood it, to affirm that such a conversion as that here implied occurs in any case whatever.” How scathing! and none the less so, as in application to Haeckel, for being written long before the *Riddle* was published, yet possibly with similar statements in mind from others of his books. Tyndall goes on to explain why force cannot be converted in the

² *Ibid.* p. 91.

³ *Convertibility of natural forces in Heat*, p. 544; also *Fragments of Science*, First Article.

⁴ *Ibid.* p. 11.

¹ *Conservation of Energy*, p. 88.

way "it is said" to be. "When the atoms strike and recoil . . . the vibration, so far from causing the extinction of the original attraction (the dynamic force) *is in part carried on by that attraction*. . . . The original attraction triumphs over the force of the recoil and urges the atoms once more together."

We have come down thus, borne by the weight of evidence, from our transcendental, castle-building science to the actual facts of the case in regard to these two fundamentals—the Indestructibility of matter and the Conservation of energy. Matter is broken up and therefore produced and therefore producible and probably therefore (so far as at present seen) continuously produced: energy has interior sources of production, and (again so far) comes, in all probability, under the same law of continuous production. The infinite and eternal "sum total" theory is losing its appearance of validity and coming into sight as an air-castle. But there will be further consequences. We must next consider whether matter and force are one substance.

CHAPTER VII

Are Matter and Force one Substance?

HAECKEL, at least, if held to the book, should and would be found the last man entitled to make such a claim as that matter and force are one substance, seeing that he, even in his definitions themselves, affirms the contrary. He tells us that matter is "extended substance," and that force is also substance but so discretely different from matter as to be *unextended* or "sensitive and thinking substance."¹ If words can make an idea clear, two substances are here taught, and without qualification. We are bound soberly to take him as meaning something explicit by them,

¹ *Riddle*, p. 8.

and to discuss that meaning accordingly, though given by the man who never ceases railing against the poor, unfortunate dualist who believes in substance as both material and immaterial. Nevertheless, here we have Haeckel's own system presented as dualistic, for the substance defined as extended is the matter of the dualist, and the substance defined as unextended or "sensitive and thinking substance" is the immaterial or mental substance of the dualist. We lay no stress on the fact that Haeckel calls this unextended substance "Spirit" or "Soul" or "God," except to point out that if it really "thinks," and is "sensitive" it *must* be substance actual, and not merely imaginary. His very definition of it, therefore, goes to bind him to the conception of this Energy or Spirit, as actual substance; though we would also point out that it is not energy that is defined as substance, but Spirit that is defined as Energy. This makes no difference in the definition of the substances, but it makes a difference in the subject defined—even if, in charity, there can be said to be definition where verbal confusion prevails!²

Still, we are bound by his definitions to return to Spirit or force as *substance*; we are then faced by the fact that matter and force are two substances, not one; and that we are expected to believe that it is these two discretely different substances which make that one substance which is the subject of the "law" in question. Can two substances together constitute one substance? Not unless they are either mechanically or chemically compounded, which matter and force certainly are not. Haeckel, therefore, must either discard his definitions (in which, we are told, monism is "so clearly defined"),³ or, if he retains them, he will have to choose between his two substances and his monism. For however it may be in his own mind, however comfortably the incom-

² See chapters xi. and xii.

³ *Haeckel's Critics Answered*, p. 19.

patible ideas may lie there together, they would find themselves in less comfortable quarters in any mind a little more logical than his.

Yes, but Haeckel cannot mean that these substances are distinctly two, but only that they are two "modes" or "aspects" of one substance. Then, in the first place, why does he found his definitions on this explicit difference? But explanations may be as dangerous as admissions! If Haeckel may say this, why may not the dualist claim difference of "form" between spiritual and physical substance and save himself the reproach that smites? If matter and force are, for Haeckel, not two substances (although he so defines them) but only two modes of one substance, why should the spiritual and physical be held two substances for the dualist instead of two forms of one substance, while spiritual and physical remain intact? The stigma fails to hurt, and spiritual and physical stand admitted by Haeckel and his followers in every real sense claimed for them by the so-called dualist.

But, again, at what point shall we limit these forms of substance? If, without discredit, the genuine believer in unextended or spiritual substance may reply that he is no dualist as between spiritual and material substance, why may he not carry up this conception to the God (which Energy is, by Haeckel, supposed to be), but whom he does not ignorantly worship as such? In that case, both dualism and pluralism have vanished, and the one supreme substance may, for all we yet see to the contrary, have the three-fold form of the Divine, the Spiritual, and the Physical. Haeckel is here in this position: if he claims to speak of two substances and means only two modes of one substance, his impeachment of dualism goes to the wall, and the way is open to human thought, without aspersion from Pantheism, to declare also for forms of substance. He has cut the ground, in short, from beneath his own feet; for if he goes back from "modes" of

substance, what will his monism say to him? And if, as a monist, he cannot, "what advantageth it" him that he has fought for monism when he cannot now under "modes" of substance deny either the name of monist, or the fact of monism, to others, but must admit, himself being witness and as far as he can now say to the contrary, there *may* be a monism of a higher, even nobler, quality lying perdu in that very spiritualism which he has never ceased to describe as the veriest superstition? Extended and non-extended substance, as held both by Haeckel and his opponents, may now, like the wolf and the lamb, quietly lie down together: and how shall Haeckel, at least, gainsay the companionship?

Yet are matter and force two substances even in the sense of being two modes of one substance? Since the mode of substance must still be substance, to prove that matter and force are two substances even in this sense, Haeckel must show not that spirit is force (which we all know) but that force as spirit (in the spiritualistic sense) is substance. Force must be veritable substance to be a mode of substance, and since Haeckel believes that force is a mode of substance, he must in this sense take one further step and come over to the spiritualistic camp if he would sustain the position. Not that a true or spiritualistic monist believes for a moment that force is a form of substance. But Haeckel, professing belief in force as such a mode, is shut up to the spiritualistic position that spirit is a mode of substance, since he holds that force and spirit are one. Is force a substance, or any form, mode or kind of substance? The question is its own answer, so absurd is its formulation. Of course, in no sense whatever is force substance, but an abstraction by which to describe the effect of motion, which in turn is the effect of endeavour, which, again, is the effect of a substance endeavouring through motion to produce that effect which we describe as force.

Relatively, therefore, to the substance from which it acts, force is efflux; relatively to the recipient substance or matter, it is influx. In brief, force is the effect of the action of substance by influx and in no sense itself a substance either "sensitive" or "thinking" or otherwise. Here, then, is all the answer necessary to the question, whether matter and force are two substances, understood as modes of substance. They are not two modes of substances, seeing that force is not itself a substance, but only the effect of the action of substance above or interior to the force.

This brings us to the more critical question. Do matter and force thus defined constitute one substance?

We shall first hear Haeckel, and then his exponent, Mr M'Cabe, Haeckel assenting. In the definitions above referred to, Haeckel writes that the two substances, extended and unextended, "are the two fundamental attributes, or principal properties, of the all-embracing Divine essence of the world, the universal substance." This on p. 8. In the "Conclusion" p. 134, we find this:—"Only one comprehensive riddle of the universe now remains—the problem of substance. . . . Can we affirm to-day that the marvellous progress of modern cosmology has solved this 'problem of substance'? . . . We must even grant that this essence of substance becomes more mysterious and enigmatic the deeper we penetrate into the knowledge of its attributes, matter and energy, and the more thoroughly we study its countless phenomenal forms and their evolution. We do not know the 'thing in itself' that lies behind these knowable phenomena. But why trouble about this enigmatic 'thing in itself' when we have no means of investigating it, when we do not even clearly know whether it exists or not?" Haeckel here still maintains "the divine essence, the universal substance" of the definitions, lying behind "its attributes, matter and force." Observe,

however, that while still speaking of the "attributes" of this substance as matter and force, he says in effect that we know nothing about itself, do not even know "whether it exists or not." But "our" wonderful "monistic philosophy," though in profound ignorance of the "thing," yet knows, strangely enough, that this unknown to the extent of possible non-existence, yet has "attributes," and why should "our monistic philosophy," having done such great things, stop at bestowing "attributes" on a possibly non-existent subject; and these not problematic either, but real? Why not, indeed, when we can "do" a thing by only "saying" it?¹ At least, we maintain the two substances, and we maintain them as attributes, whether we know of what or not.

Now turn to Mr M'Cabe, p. 27. Naming the philosophy of the "Greeks" by Kant, he says, "In both cases there is the veil of phenomena or properties (colour, sound, shape, etc.), and the veiled and inaccessible substance, or essence, or noumenon. Now, many of us deny to-day that there is any solid ground for the distinction at all, and *that is what Haeckel means*. You say, he argues, that matter and force are only phenomena, and that there is an underlying 'thing in itself.' If there is, he says, it is as mysterious as ever; but I see no good reason at all for thinking that matter and force *are* a screen or veil hiding something else. They *are* the one eternal substance or reality. It is a pure fallacy to say that in ordinary experience we are dealing with a shell of properties or phenomena, and not with the realities themselves. Therefore—logic sternly enjoining us never to multiply entities without necessity—I take it that matter and force are the world-substance breaking upon our perception in two different ways." Then in a note, "Prof. Haeckel readily endorses my explanation of his position."

Where are we now? and how stand

¹ Haeckel's Critics Answered, p. 24.

our definitions and our philosophy? The two "substances" of our definitions have gone, the two "attributes or properties" (we are not dealing with "a shell of properties") have followed suit, and our philosophy shows us now but one "world-substance breaking upon our perception in two different ways." Could we not, then, have thought out all this from the beginning and saved our readers and ourselves a world of trouble and contradiction? And we are to have this inconsistent stuff, which has not coherence enough to hold together, palmed upon us as the latest and most brilliant effort of scientific philosophy! Such a weight on the shoulders of science is really too ponderous an incubus for it to carry: the sooner the voice of genuine science speaks out and disposes of our portentous philosophy the better for itself. But patience, and the endeavour to understand.

What do these men teach? In the first place, there is no underlying substance—"the all-embracing, divine essence of the world, the universal substance," has gone, therefore, matter and force are not, as Haeckel says they are, properties or attributes, seeing they cannot be properties of the non-existent. They are themselves the one substance; therefore again, Haeckel was wrong in calling them two substances, even as modes. This perception of them as somehow two, however, arises from a glimpse of the fact: they *are* two somethings, however defined or declared as one—a position paralleled by the received doctrine of the Trinity, that these substances are not three but one, while yet plainly perceived to be three. Haeckel's agreement with Mr M'Cabe clearly puts him in the wrong, therefore, both in declaring matter and force two substances and in declaring them two attributes. The result is, thus, that they are the one world-substance "breaking upon our perception in two different ways." That is, we ask bread to get—metaphors! How may

"breaking upon our perception" differ from *seeing*? Putting aside the conveniently stern injunctions of logic as to multiplying entities, we reach the idea that we *see* matter and force to be one substance. To which, of course, the reply is that we do no such thing; for while matter "breaks upon our perception," force does not appeal to perception at all, but to thought—a wholly other and different business, all we know of force from "perception" being as resisted motion of matter.

At length, then, we are able to come into closer quarters with this new doctrine itself—that force and matter are one substance. If spirit (force) and matter are one substance, both must share in the qualities of substance; but as we are told that these qualities are, in matter and spirit respectively, the extended and the unextended, and these are essentially different (not to say opposite), it follows that we are brought sharply back again to Haeckel's original doctrine of *two* substances.

In what way, then, are these two quite different substances one? Logically, these are both substance if they are both of the nature of substance. But *are* they both of the nature of substance? Is matter substance? Yes. Is force substance? No. Is force from matter? No. Is force matter thinking? No, else it would be *from* matter—which it is not. But if force is neither from matter, nor itself substance, what is it? It is simply an endeavour of motion. Then force is not primary? No, but an effect of a prior moving substance. *Other* than matter? Certainly. Allied with matter, but yet not one with it? Quite so. Then force is simply the effect of prior activity? Yes. And can form no part of substance, not possessing any of its qualities? Just so.

The only substance or form of substance in the case being matter, and force forming no part whatever of substance, but being the effect of

its movement—a mere abstraction or name for the effect of activity—it follows that there is no unity into another substance either actual or possible between force and matter. The only substance in the two elements thus adjoined but not a unit, remains itself absolutely and always, does not become another substance with force, and is not changed into any other form or adjoined with force into a higher unity in which each disappears—remains the substance it was, unchanged as such, though acted upon throughout by force.

And if matter is acted upon by force, how can force form one substance with it? Does the substance act upon itself? On the other hand, force in itself also remains unchanged, and enters as a component element into no higher unit or unity with matter. That can be no part of substance which is not itself substance, nor an effect, nor property of the substance with which it is united; therefore, since force is not matter, nor any property, nor form of matter, it cannot constitute one substance with matter.

In short, force and matter remain themselves distinctly, absolutely. While acting in partnership, they never even merge towards blending, but each remains itself. There is no case of either losing its distinctive quality, or blending into a third; no approach to either becoming the other, or to any manner of fusion. To speak, therefore, of two such elements as forming one substance is misleading: they are two, each in its nature distinct and remaining so, and only one in their activities towards a common end, but never towards producing a common substance. That is a clear enough distinction, and one accurately consonant with fact.

But it is easy to pervert science through a weak philosophy; to muddle the actual by imaginative preconceptions. Matter and force adjoin completely, but in themselves remain

distinct. To speak of such adjunction as forming one substance, when the two are distinct in nature, in quality, in powers, in range, in sphere, in action, in products, and in end, and never by any chance blend into one, is a perversion of fact and an abuse of language.

Whether that adjunctive action can evoke for us a law by which the united results in the sphere of practical work can be interpreted is quite a different question, presenting a clear issue, and not necessitating a moment's confusion with the entanglement which metaphysical and transcendental ideas present in place of accurate science. With this we go straight to the consideration of whether such a law—a law of substance, so-called—exists, and what may be its meaning and value.

CHAPTER VIII

Do Matter and Force Involve a Monistic Law of Substance?

WE have seen that matter is not to be conceived as indestructible *per se*, being only relatively so, and therefore, relatively permanent; that force is not convertible, transformable, or interchangeable, but being one and permanent without transmutation is not in this sense to be thought of as expressing any law of Conservation—that which is always itself being neither convertible nor conserved, in any legitimate sense; and that these two elements, matter and force, do not constitute one substance, having nothing in common but that adjunction which comes from force as the driving power in matter, and being so dissimilar in nature as to make a unit of substance impossible. Of what use, then, is the separate discussion of the points of indestructibility of matter and conservation of force by Haeckel? Of none whatever to his purpose of

showing their true unity as one substance, much less as helping to reveal any Law of Substance.

Turning now to this law of substance, what is it supposed to accomplish? We summarise Haeckel on the subject thus:¹ "The sum-total of force remains constant and is eternal and infinite, like matter. The whole drama of nature is an alternate movement and repose, under force actual or potential. These two forms of force are mutually convertible, force being constantly transformed from one condition to the other. Every fact in the universe is the subject of this transformation, the organic and living world, with consciousness and mind, equally with inorganic matter. All the vital activities of body and mind are the subjects of this interchange or transformation of force from actual to potential or *vice versa*, as are the whole of plant and animal life—the sense action and psychic life of all being dependent alike on that conversion, and the nervous system and the action of the mind in man no less than the rest. Our monistic view, that the great cosmic law applies throughout the whole of nature, is thus of the highest moment, involving the causal connection of all phenomena, and marking intellectual progress by definitely ruling out the dogmas of God, freedom, and immortality, and assigning mechanical causes to phenomena everywhere."

A principle so sweeping should be well grounded, and proved up to the hilt. Deliberately, in cool judgment, we say that it is a huge fiction resting on no adequate evidence, but founded, as so many false dogmas have been founded, upon certain *appearances* of truth that seem to make for it. We will briefly review, first, the principle which has been perverted; and second, the application of that principle to spiritual and physical relations.

1. What is the principle or fact in

¹ P. 82.

nature which the theory of the monistic law of substance has perverted?

To begin with, it is absolutely untrue, as we have shown, that any interchange or conversion of force ever takes place; and as the theory, from the monistic point of view, is built upon this demonstrably unscientific reading of the facts, it follows that its whole framework as elaborately set up by Haeckel collapses. The reader will observe the theory's need of this false idea of the actual conversion of forces. By that means, of course, it is as easy to convert mechanical force into *living* force, and hence bodily into mental, as to imagine chemical forces becoming electrical, or gravity changing into heat. No such conversion of any force ever happens, and the whole claim for such transformation is a monstrous imposition upon the facts of science, and a palming off upon ignorance and credulity of a supposed fundamental fact of which nature knows nothing. We will not resume the evidence for this non-conversion; but, to centre the reader's mind, take only one case mentioned, that of chemical force being converted into electrical.

When metal plates, say, are put into acid, the result is the production of electric force. Does this mean that the chemical force by which decomposition is secured actually becomes electric force? Of course not; what happens is that *the necessary condition* for the manifestation of electric power being given, that force, latent in the surrounding ether, exhibits itself accordingly. The whole question of this so-called conversion or interchange is simply one of *given conditions* and *equivalence of force*: of given conditions, or, in other words, when the conditions for the manifestation of any force are present, that force reveals itself. This statement is the whole truth of the question of force-production. Then, following production, the results of a force produced under its proper conditions, will be strictly

equivalent to the dynamic power employed. It was this aspect of free activity that we before discussed; and now we have the whole principle in this simple formula: *with the given conditions the force will appear and the work done will be the equivalent of its dynamic power.* This statement covers all cases whatsoever of the so-called transformation of dynamic and potential energy. There is not a vestige of conversion or of interchange in the matter.

Consider the monistic claim more closely: *all force eternally convertible, and therefore all effects the result of mechanical causes*—there we have the whole business, bad facts and bad logic, in a nutshell. Let us turn it round a little for inspection.

First, suppose force convertible: how should there be only mechanical results produced? Force, with Haeckel, is spirit and spirit is spiritual substance and cause: yet all phenomena must proceed from *mechanical* causes! Why? Nay, why should there be mechanical causes at all? Where do they, or can they, come from, seeing that the only force known is *spirit*, and nothing else? This is curious and very suggestive. Has he changed spirit into physical force in interpreting phenomena, and physical force into spirit in defining monism? It looks so; but surely, amid this very legerdemain of convertibility, spiritual causes have a right to a little spiritual work; and yet it is not force as *spirit* that is allowed to act, but only spirit as mechanical force. Haeckel claims convertibility where it does not exist, and where it should exist he ignores it, treating spirit as wholly mechanical. In fact, the pretended difference between spirit and the mechanism of force is meaningless, and in revealing the real nature of Haeckel's notion of spirit and spiritual substance, discloses a foregone conclusion, the effort to make an illogical scheme presentable, and the testimony of a suborned witness.

Next, let us revert to the fact. Force is not convertible; then why are all effects the result of mechanical causes? The action of force not being determined by any conversion, but being solely dependent *on the nature and state of the matter through which it acts*, why should not force be as the matter is, according to its degree and class of substance—spiritual force for spiritual substance, mechanical force for mechanical? This would set even Haeckel's doctrine right, and prevent the confusion of starting with spiritual causes only and then of reducing all phenomena to the level of the mechanical. Yes, says Haeckel in effect, in my system that is what happens—spiritual force for spiritual substance, and spiritual force acting as mechanical force for mechanical; and explains why the force that produces light produces mind. That is to say, he assumes at convenience that purely physical and mechanical phenomena, like light, are purely spiritual, and that purely spiritual phenomena, like mind, are purely mechanical; and by consequence we need no magician to tell us why mechanical causes are assigned to all phenomena and leave them merely physical. "What do you read, my lord? Words, words, words."

Again, here is a system which, instead of proceeding on the facts of nature, proceeds on theory. It sets out with the abstract assumption of *force* being this or that, and acting accordingly in the universe; and thus manipulates facts according to its preconception of force, instead of by the *fixed relations* of force and matter. We have force asserted as infinite, eternal, spiritual, substantial, convertible, etc.,—not an adjective of which is true as applied. Force, *per se*, is not spirit nor spiritual; neither is it substance, whatever its origin may be. It is simple nonsense to say such things. Nor is force infinite and eternal as appearing in a physical universe; and we know all about its convertibility. Then the

theory proceeds to apply these random assumptions. It shows an infinite universe of such force transforming itself eternally and evolving from itself "all phenomena," etc., etc.,—the merest fabrication imaginable, built out of the thinnest air of theoretical preconception. But whether true or false as a conception, the whole method and process are unscientific, and the "facts" are mere imaginations.

The naturalistic monist does not seem to be aware how much theory he starts with. Let it be put to the proof. Let him begin now with these alleged facts about force—that it is infinite, eternal, spiritual, substantial, convertible, etc., and before he sets about rebuilding his system, let him definitely prove them. We challenge the proof. But as we know that he cannot prove them, and that without such proof his monism is a house of cards, we leave him to his meditations while we pass on to consider the true method which a genuine man of science would pursue—he would place his dependence and pursue his inquiries on the basis of *the fixed relations* of force and matter, and not on transcendental inquiries into the nature of either.

This leads us to the principle which monism has perverted in endeavouring to frame its Law of Substance out of such abstractions. And that Law of Substance? It is *the eternal conversion of forces, through the instrumentality of matter, by which all phenomena are mechanically produced*. Is there a single proved fact at the basis of this law as thus stated by monism? Not one. Forces are not convertible; phenomena cannot be produced by a non-existent process; and the mechanical production of all phenomena is an assumption. Thus collapses the monistic law of substance.

Of what principle, then, is this supposititious law a caricature and perversion? The principle of the *balance of dynamic and potential energy*, by which, through the fixed relations of matter and force, the results are equivalent to

the energy exhibited, and the sum of both is constant. With that principle, eternity and infinity have nothing to do, nor does conversion touch it, nor does it show that force acts, or is, except as is the matter through which it acts (the given conditions and fixed relations) nor that other than mechanical effects follow mechanical causes.

Here is a true "law," indeed, but it is no abstract law of relations of which we know nothing, but a concrete and practical "*working power*" (as Tyndall calls it), throwing to the winds the myth, among others, of the conversion of forces into each other, but standing firmly on the fact of the conditions of substance determining the activity and quality of force.

How can that be a law of substance which knows nothing of substance? Certainly no law in the case can touch the nature either of force or matter, but the practical relations of these to each other. We know them as acting together, as relatively permanent in that action, and the only question science can raise is the character and results of that relation. It is, therefore, a practical question of the relationship between two facts known in permanence that faces science; and no theoretical or abstract speculations on the occult and transcendental qualities of either which by eternal legerdemain can convert them into God or spirit.

There can be no objection to any man rendering opinions even on such things, well or ill founded; but when they are passed off as science, and placed deliberately among the organised knowledge of the world, their condemnation comes swift and sure—or ought to come.

But when we turn to the *Riddle* for guidance in these working relations of force and matter which are the basis of science, what help does Haeckel's monism render us? The reverse of help: nothing but confusion. At one time we are told that the relation between force and matter is that one

is an attribute or property of the other, or that both are properties either of some unknown substance, or of themselves. At another time we learn that they make a common substance between them, as two elements might. At a third, we are told that they constitute two different substances which yet act together as one. At yet a fourth, we are sagely instructed that force "produces all the phenomena"¹ of matter, while informed that force does not come from matter—the only possible inference from these two facts never being suggested, viz., that since the idea of force as pre-existent remains, *even should the bourne of matter be conceived as reached*, the power capable of producing its phenomena may also be capable, from a higher plane, of producing matter itself. And if we turn to the enigmas arising out of that relation which this monism professes to solve, we are no better off; for here is a philosophy, passing as the last word of science, in which the solutions amount to this that—the *physical nature* of matter and force "settles" their *relations*, the *origin* of motion is "settled" by the manifestations of matter and force, and the origin of sensation and consciousness by their existence in a material sphere. We would respectfully suggest to Haeckel's adherents that it would really be wiser to wait till we get to the back of our present "beyont" before venturing on such sweeping regeneration of scientific ignorance.

Thus is the principle of the balance and sum of dynamic and potential force in the universe perverted into an impossible application of the convertibility of force, in the interest of a mechanical theory.

2. We turn now to the application of that perverted principle to the relations of the spiritual and physical.

Haeckel asserts that physiology "proves" the application of the law of substance or mechanical conversion of force to the entire province of the

organic world, sense-action, psychic life, and the action of the mind. The proof is supposed to lie in the organic and mental activities being based on a constant "reciprocity of force" and correlative change of material. From which we perceive that the sole proof offered of the mechanical nature of life and mind is this impossible conversion of force with the corresponding change in matter. Haeckel's foolhardiness of statement, or shall we say ignorance? may be tested by the following: "We can, by a certain apparatus, convert any one of these forces into another (heat, sound, light, chemical action, electricity, and magnetism), and prove by an accurate measurement that not a single particle of energy is lost in the process. . . . Physiology proved the application of the law of substance to the entire province of the organic world. . . . Not only the growth and nutrition of plants and animals, but even their functions of sensation and movement, their sense-action and psychic life, depend on the conversion of potential into kinetic energy, and *vice versa*."²

What he means, or at least ought to mean, is that the *result of the action* of a force, which *appears* thus to develop another and as if it had changed into it, is the exact equivalent of the original force, so that not a particle of energy is lost in the process. Here is the true statement of the case as against Haeckel's erroneous one; but what about its application to movement, sensation, consciousness, psychic life? What happens in the instance, say, of the mind and body? The action of force upon the nervous system through any of the senses is reproduced in certain impressions of the brain which appear in consciousness as a visible object, or sound, or smell, or taste, or touch. The argument is that, as the conversion of force is presumed as a fact, the force striking the brain is *converted* into the corresponding mental impression. Of course, with

¹ P. 75.

² P. 82.

the disproof of conversion, the theory falls.

What actually happens? The physical impact on the sense is conveyed as tremulation of nerve, enters the brain so, and there excites certain cell-action, and consciousness of the impact emerges. Has the impact *created* consciousness by *converting* itself into it? It did not create consciousness, since consciousness was a pre-existent fact, and in any case could not create it because its pre-existence is necessary to any knowledge of the impact. What then? Simply that the pre-existent consciousness is turned at the moment of impact in the direction of the object; that is to say, the pre-existent subject of consciousness (whatever that is) is made aware of what is going on in the physical region, and is impressed and acts accordingly, or does not act, the impression being the equivalent of the impact. That is the whole fact.

The physical impact explains nothing as to the production of consciousness; except that it pre-existed, since itself has been the means of revealing its action in a particular direction. It would certainly be strange if two such subjects, consciousness and brain, reciprocally acting and reacting as they do, were not in absolute correspondence with each other. But not a glimpse of origin does such mutual relation exhibit, barring always the *fact* of pre-existence, and of its *necessity to the perception of the impact*. One thing, however, we do know: that the mere examination of the fact discloses the weakness of the claim of monism to having "proved" anything.

Take up now the case of "conversion," and this truth stands out—that at *no point* along the course of the connection of consciousness and brain is there any conversion either of physical force into consciousness or of consciousness into physical force. There is not only no such fact in nature, but like force and matter, they are in themselves inconvertible, for they have in

themselves nothing whatever in common any more than force and matter. Does any sane man really suppose, putting aside Tyndall's flat contradiction of the conversion of forces into each other, that, when he acts as the result of thinking, his *act is a piece of his consciousness itself* changed over into act? The idea would be too absurd for even the strongest theorist. In this case, the consciousness transmits to the muscles the *power* to act without itself leaving the brain, and the act is the *result* of that muscular impulse. Consciousness remains, where alone it can remain, strictly within the cranial limits, just as force remains in bodies striking together, never passing the limits of its source, and concussions are the necessary result of its inconversion. But in both cases alike, the act is in one and the consciousness in another, and the two spheres, spiritual and physical, are in perfect correspondence.

Taking now a last step backward, cannot the beginning of consciousness be found? Nowhere. Already it is a pre-existent fact before the response to impact anywhere can occur, and not even in the lower or lowest organisms is it otherwise. All we can say in strict science is that *given certain conditions* known as "living," a certain form of pre-existing force known as consciousness makes its appearance with them; but that simultaneous appearance tells us nothing direct as to the origin of the consciousness, except that it is, and is necessarily, pre-existent, or the response to impact would be impossible. We may think we can go back of this and produce responsive matter; but that is speculation with which we have nothing to do. We are discussing the facts as they stand; but even the speculation realised would only prove that the given physical conditions through which conscious force could act have been found, and would not advance monism by a hair's breadth.

We know that there *must* be pro-

cesses of formation for all substances and organisms, and a complete mechanical circuit of such on the physical plane, before the right conditions can be given for the full appearance of life, consciousness and mind. But the conditions by no means approve themselves to science and to the rational sense of cause as identical with the powers exhibited through them. He who contends for consciousness as the *result* of the impact of force from without on the brain has neither a clear vision of the facts, nor has learnt the rudiments of scientific distinction, but confounds *post hoc* with *propter hoc*, is probably still in the slough of "conversion," and in any case assumes the point he ought to begin by proving.

A fact of moment must be added. Though the conversion of physical into spiritual force, and *vice versa*, is read into the interpretation, the truth is that the *physical* circuit of force, even in the conscious being, *is complete in itself*, and by no means requires consciousness as a fact, or to that completeness. Instead of being a necessary element in the activities of force whether as cause or as product, consciousness is merely, in relation to the physical force, a correlative by-product produced in a corresponding sphere *during* the circuit of the physical force—another fact which clearly goes in the same direction as that of the pre-existence to brain-protoplasm of the force known as consciousness. Many instances quite familiar to us prove this fact of force completing its dynamic and potential equivalence in the body itself without coming into consciousness at all.

To sum up: if there is a fixed relation between dynamic and potential energy, surely it is possible to frame a "law" of that relationship? Surely. Then why not call this the Law of Substance, seeing that force and matter act together under it *as if* they were one substance, whether they are so or not? Willingly, if that name will fit

the fact; nor have we any objection to the application of the law itself thus framed to matter and force as acting together. What we strenuously object to is the inclusion in it of two supposed facts, neither of which exists for us—one not being a fact at all, and the other not proved to be one—*conversion of force* and *universal mechanism*.

Neither of these elements are contained in the law of relation between force and matter—that of dynamic and potential energy. They are something foisted upon it and made to do duty under it just as if they actually existed, and not only existed but were the essential powers in nature's operations. The one, conversion, is put forward as the actual cause, and the other, universal mechanism, as the proved effect, of a law which has nothing to do with either nor they with it. Our business, therefore, is to put aside these intruders and take the dynamic and potential relation on its merits and follow its teaching—on which all science hitherto has been built up—seeing that it and it alone is the fundamental fact of nature.

Here, at length, is the true law of the Conservation of Energy, freed from the incubi of assumption and theory—the assumption of conversion, and the theory of its action and results. Now, this is not properly a law of *Substance* at all, except in so far as Energy includes matter in its activities, but a law of the relations of Energy under the conditions of matter only. It is limited therefore, in itself considered, to the material sphere, though on one side connected with the psychic and mental, and there acting in strict correspondence with life and consciousness and mind. It requires the existence of these not only for its action upon consciousness, but in order to the experience and interpretation of that action.

In strictness, therefore, this law is not a law of Substance, but the law of the Equivalence of Dynamic and Potential Energy, or in brief, the Law

of Equivalence—a law which exhibits not the unit of substance, but the unit of *working power*, or action, and, therefore, of genuine scientific interpretation, as against the spurious meanings of the so-called law of Substance.

CHAPTER IX

Force the Cause of Matter

WE are in a position now to face the question of the relation of force and matter in its primary or causal aspect, and our solution of the problem is that force is the secondary cause of which matter is the immediate effect. In this view, we may say, that force is the subject of which matter is the form—the inflowing continuous power of which its product is the recipient. The point to establish here is:—

The causal relation of force and matter.

To approach this subject with clear vision, we must restate the results of our study of the Persistence of Matter and Conservation of Energy. In the main, they are five, viz. :—

- a. Matter can be broken up.
- b. Force cannot.
- c. Matter is produced.
- d. Force is not produced from matter.
- e. Force is, in conception and in fact, pre-existent to matter.

Here are the ground facts, and they are testified to from three distinct sides. For observe (1) That it is matter that undergoes change in the active relations between itself and force, but force undergoes no change in itself, only exhibiting energy differing in degree and kind according to the given material conditions of form, temperature, distance, etc.; (2) That recent experiments prove the reversion of atomic matter to the etheric sphere from and by which it was produced; and (3) That there are three physical grades, the external two of which contain matter decreasing inwards, the

internal containing force alone; and that these are the atomic sphere, having extension and gravity; the etheric sphere, having extension without gravity; and the magnetic sphere having neither extension nor gravity, but force—pure physical force alone.

Thus the fact of force as antecedent to matter emerges; and that it is so is also a direct perception of the mind. It is impossible for mind to think of anything material that is unproduced, and produced from and by force. Even Haeckel and the materialists hold that matter, as we know it, was produced *portion by portion* from eternity—a method of clouding over the true mental conception of definite temporal production. But the eternal production of the finite, even of phenomena, is a contradiction in terms—is nonsense, in fact. Yet it is to this that Hæckel and the materialists are shut up.

For there is not a phenomenon of the present universe that has not been produced; and this production, they say, has been eternally going on, seeing that pristine matter is held to be eternal, and change to be involved in the very existence of matter and force. This notion of eternal production reduces to the absurd the whole question of the eternity of matter. Or, if it be held that there must have been a time when phenomena began, what sufficient reason can be shown against the beginning of matter itself at that time? No, the mental perception of matter and all conditioned things as caused, and of force as an element of cause and antecedent to matter, is strong and sure. But the perception is no stronger than the fact.

Can the causal relation of force and matter be made good? How far back soever the experience of material substance carries us—when we have reached its utmost in the sphere of the magnetic in which no single attribute of it perceptibly remains—we still find the *fact* of force standing together with its continued mental demand. We can com-

placently reach the verge of matter: we cannot forego force. The conception of force as existent before matter is, therefore, true to the fact. If force is thus behind the magnetic sphere and must be so conceived, as what does it or can it pre-exist? Plainly, as secondary cause of the universe. If it exists before matter, and is the expression of all then supposably existent, it can only exist as antecedent cause.

Let us begin with the form of force immediately antecedent to atomic matter, where we find it as the etheric sphere, or ether. Is the etheric sphere or plane *within* the distinctively material or mechanical? Quite so. And it is this very fact that constitutes it a causal agent. Yet surely it is not etheric force that is on the mechanical plane, but mechanical force? Just so. And if we were to view this antecedently causal force as on the *same plane* as matter, it would be impossible to think of it as the immediate cause of matter. For it is only that which is on the plane of substance above or within the produced that can stand in a causal relation to that which it produces, viz.: the plane below. We reach the ether, then, as the immediate cause of atomic matter.

Surely this is what Haeckel himself says? Not exactly, because Haeckel, while maintaining the ether and its movement reciprocally with mass as "the ultimate (primary) cause of all phenomena,"¹ in the first place makes no distinction between the mechanical and etheric planes. In this connection he speaks of the ether as on the same plane as matter, when we know that the ether is within matter, and calls it imponderable matter. Secondly, he only affirms of the ether as he did of energy, not that it is the cause of matter, but of the "phenomena" of matter—a distinction we are bound to observe. It makes us wonder moreover whether in reading of energy elsewhere we have not been reading of the ether all the time, between which two he

¹ P. 81.

seems in some confusion as not having thought out their relations. However, the difference of the positions is clear. Haeckel says that force or ether is the cause of phenomena, thus confusing their relation to each other, and even blending them as one. We say that force *as* the ether is *matter's* proximate cause, and is necessarily not on the same plane as matter—a fact proved by its being the sphere of wholly different laws, and necessitating the use of some such distinguishing words as plane or sphere. We know to-day which position is nearer the truth.

This mode of presentation leads to a distinction in the manifestations of force, and saves confusion between force and the ether. Force on the physical plane is necessarily physical; and, as such, is merely the concomitant of matter, not its cause. On the etheric plane it is necessarily etheric. And on the magnetic plane, it is necessarily magnetic. These planes or spheres or degrees of matter and force are by no means to be confounded, though force is common to them all and manifests itself (as it does accurately and specifically on the varying *atomic* plane we know) throughout their full extent according to the state of the subject upon which it acts.

The position, then, generally put, is that as the universal force is the cause of the magnetic sphere, magnetic force is the proximate cause of the etheric sphere, and etheric force the proximate cause of the atomic sphere, but descends into the latter and clothes itself in the matter through which it there energises. It is one force throughout, descending by successive planes or degrees. Thus though there is a concomitant force on each plane for the production of *phenomena* there, that concomitant force, like the substance on the same plane, is the effect of, and derives its power from, the causal plane above it.

We return now from this general digression, to continue the consideration of the ether, which, on broad lines,

we have found to be the cause not of phenomena only, but of atomic matter itself. Recent experience of the behaviour of that atomic matter clinches the proof, apart from synthetic deduction. We all know of its disintegration, but perhaps we have not all sufficiently considered what this means.

It is not merely that atoms of matter have been broken up into finer particles of the same form of substance. Indeed, it is not this at all, and if it were, would prove nothing in regard to origin or cause. We have to deal with a fact of a very different order, which is that this disintegration has carried matter back *into its proximate source* in an interior sphere of wholly different and distinct causal conditions. The sphere is one in which, whatever is, is not atomic but etheric, not gravitative, but dynamic, and from which therefore, the gravitative atomic universe is actually produced. It is a sphere of matter (holding it for such, as we do, though Dolbear and others reject the idea) in such dematerialised condition that it has lost the essential nature of matter by loss of gravity, inertia, and chemical attraction, and is possessed instead of such purely dynamic and merely forceful conditions that its particles appear as bits of electric or etheric substance, to which, as said, some refuse even the name of matter. So much for the etheric stage and the changes there produced.

We must now take one more step backward. It is an interesting and most suggestive circumstance that the history of science has not meant development along a uniform line by mere accretions of knowledge, but a progressive *inward* progress by which more and more interior powers of nature have been revealed; and that these progressive inward stages—from external earth-surface studies, through chemistry, into the electric and magnetic interiors of nature—should have made manifest the fact, not of new activities merely, but of increasingly powerful forms both of substance and of force.

From the point of view of Haeckel and the materialists, it would seem natural to expect an interior development (if at all) to more and more simple and inert forms of substance, even backward to Herbert Spencer's homogeneity of matter. The truth is the precise opposite of such declared opinions. The further we go backward, that is, inward, the more powerful are the forces revealing themselves.

It should have been the splendour of fulfilled atomic conditions in the universal sphere of mass and of organism that should most have impressed both senses and mind with the idea of actual and active *power*. It is not so, it is far otherwise. For the outward development of nature means, in the main, progress towards passivity and inaction. Movement inward discloses, step by step, the brightening spheres of increasing activity and livingness of power, so that we stand in amazement almost prepared to swear that the Inmost Itself must be alive. Recession from atomic conditions seems as the opening vision into life; as if the dawning of the day of interior and living power were upon us, and we were at last marching forward on the highway of nature to the Source of existence. For we see nature, not in the process of being denuded of power, but of being invested with it through being denuded of its materiality—of being raised into a finer, grander form of power, whose only fitting name is *dunamis*, so real is it, so forceful, so living, and yet so immaterial. As matter recedes, force emerges and fills the stage of being, so that we are compelled to say of it that here at length is the power of the Real approaching. Yet materiality has still to shed its last garment, and from becoming visible to become invisible force—force pure and simple—the sphere of the magnetic, the realm in which matter has ceased to perception, and in which force, and force alone, remains for us as the felt, the actual,

the thrilling—the real, yet finite vicergerent of omnipotence in nature, holding the worlds in the hands of its power.

This, to us, primal material force, involving all before within itself, produces itself in visible form in the ether, and from thence brings forth atomic matter by etheric re-combinations. Traced backwards, it is concrete in matter, visibly quick in etheric activities, invisibly all-powerful in the magnetic element; and, when material forms have finally disappeared from sense, remains as the first materialised production of the true proximate cause, lying beyond the inmost verge of matter.

It is a poor account of the magnetic sphere which limits it to the loadstone, the magnet, certain other forms of matter, and the limits of their attractions, when we have in it a universal fact which, while certain metals are its medium for the concrete worlds of space, is yet the first connective link of these spatial conditions themselves with the invisible source of cause. Yet if that sphere is universal, it is universal only as *gravitative cause* for all the worlds and the source of their so-called attraction. The unsolved riddle left by Newton finds its solution here; gravitation is magnetic action.

And what caused the magnetic element? May we venture so far? For, though denuded of matter to any sense we possess, yet seeing it is exhibited in and under conditions, the magnetic element is as much the effect of cause as these conditions or limits themselves. Why, of course it is, says the objector, seeing it is always and only exhibited in connection with matter. But does this objection mean that the magnetic element is the *effect* of certain material properties? Because there you have your master against you, for Haeckel pronounces that force is *not* produced by matter or from it. There can be no return to matter for power unless by reversal of policy or philosophic creed. So, whence is this mysterious

universal element, if we may not look for it in a cause *still further in?*

At any rate, and at present let it suffice that while we, both in fact and in conception, have passed the bounds of matter, here still shines *force* before us, resplendent, triumphant, universal; reigning supreme, yet clamorous by the vast spheres of its quietude for recognition as the spiritual form of the Divine.

In the question of Force lies the solution of all primary problems; but of this hereafter. Meantime, we stand strong in the position that, both in conception and in fact, Force is the cause of matter. But of what is this force itself the effect? The whole position sums itself in this: Force is either the effect of matter, or—of God. Pantheism will discover itself as but the half-way house of call for materialism.

CHAPTER X

The Nature and Origin of Force

FORCE as antecedent to matter is an arresting fact. It behoves us to inquire into its nature and origin as thus pre-existent, or, indeed, whether pre-existent or not. Let us begin, therefore, with the things that we know.

The forms under which force is exhibited in matter depend upon the forms of matter through which it operates. In this we have the essential law of its manifestation, which must, therefore, be true throughout all degrees and spheres. The subjects of force in nature may be a variety of forms whether generally of gravitative or specifically of chemical relations; hence the force is gravitative or chemical, as the case may be. That is to say, it is purely physical, or inorganic. In a word, force having relation to inorganic matter is purely physical whatever the form of its subject.

When we come to higher forms, such as are not inorganic—protoplasm, for example, or any organised living subject—does the force continue to be purely physical or inorganic? Why should it? If it be that the force is adapted to the form of the subject, and necessarily so (whether we conceive it as the cause of that subject or not), why should force adapted to the inorganic subject be supposed to do work which is not inorganic? Why, if force inevitably corresponds to its subject, should living subjects not require a living force? or how can subjects be produced, or even energized, by force which is not living, except on the rather glaring assumption, contradicted by Haeckel himself, that the force is *not* pre-existent to its specific physical forms, but originated by and from the life-creating chemical assimilations? In which case, again, even granting force as produced from matter, we are necessitated to think of it (rather absurdly, indeed) as being the energizing factor of its own parent's activities. So that Haeckel ought to agree with us that if living forms, like non-living, do not produce force, but are acted on by force, that force must of necessity correspond with its subject. It must be living if the subject is living, and non-living if the subject be inert—unless there be no such thing as an inert subject. In either case, however, Haeckel ought to be a believer in vital force. Why? For two reasons, either of which is sufficient: (1) that force must be as its subject; and (2) because he believes that force is "sensitive and thinking" and is, therefore, living or "vital."

His position, then, rather looks like a dilemma, thus: suppose he declares that there is no such thing as an inert subject or force in the universe, he not only denies the essential of the definition of matter, but he of necessity makes gravitation alive! Suppose, on the other hand, that he believes in matter and gravitation as both inert, *i.e.*, as non-living, how will he get away from his own definition of force as

"sensitive and thinking," and of atoms as having "sensation and will"?

Moreover, how curious the spectacle of living force and living matter being able only to produce "mechanical" results. Why not openly acknowledge that since both force and matter are living and vital, the effects we know as life are the results of vital force? We submit that he has not thought out his position.

But if matter and force are both alive, how are inorganic and purely mechanical results produced? *Everything* ought to be alive, if there be an iota of truth in his monism. Yet it is a curious circumstance that the elements that science and common sense teach us to be dead, *viz.*, force and matter, he tells us are alive; and that the living facts of nature, man included, this topsy-turvy philosophy teaches us to be merely mechanical in their processes and results. From which quagmire it appears that the only way out is that force and subject are mutually adapted, and that, therefore, upon inert subjects physical force alone can act, upon living subjects living force must act, and upon those at once physical and living, both physical and living force must act. Thus our fundamental law remains untouched, approved alike by fact and common sense.

How force can be "living" will be seen when we come directly to consider its origin; also, how living force can act physically, or the relation of Will to Mechanism.

Carrying the question of the relation of varying forms of force to corresponding forms of subject up to a higher level, we now observe force as exhibited in mind. Here we encounter the same essential fact of relationship between corresponding forms of force and substance. Mind is inevitably associated with matter in a physical world, but, in itself considered, it is non-material and living; and, since it is related to a form of force, as is every other subject, that force is non-material and living.

We do not now inquire either what mind is, or its origin; but merely wish to know what the nature of the force allied to it must of necessity be. Mind, itself considered, has nothing whatever of the nature of matter. It is not extended, inert, or gravitative, yet it is capable of feeling, thinking, and acting. It is out of place to say that these qualities proceed from the brain, since we know nothing of them either as in the brain or as physical, but we do know them as in mind, and constituting it.

Considering mind, therefore, in itself as a fact, whatever be its source or relations, we realise its immaterial or spiritual character, and since, whatever immaterial or spiritual substance may be, it is *something* and exhibits force (and surely if we may predicate substance of force we may do so of mind), it goes without saying that the force exhibited in and by it must be in its nature also immaterial or spiritual. This is true whether we look upon mind as an effect of brain action or as in some way a separate entity—a question to be discussed later.

The general result of our inquiry here is to show that mind, as an existing fact, being non-material, or spiritual, demands, not a physical but a non-material or spiritual form of force as energizing through it. In short, mind as a fixed determinate fact having a certain place and relations is of necessity the subject of force corresponding to itself. For any materialistic reason, to cut out mind from a positive place in the universe in relation to force, would be like denying to light, because an effect of motion, its place and relations both with matter and force.

Now, since we know that mind is feeling, thought, and energy, it appears inevitable to say that there is a force whose nature reveals itself to us through mind as feeling, thought, and energy, and as adequate to their sustenance. To deny this is to subvert the fundamental relations of substance and energy.

The forms of force so far considered are those which come under immediate observation, and it is plain that these progressively inward forms—the varying physical, the organic, the conscious, the emotional and thinking, or again, the physical, etheric and dynamic—demand a further step or steps; for the reason that we have not in any of them, even the highest or human mind, found the true or Efficient Cause of all. Actual observation of phenomena being arrested at the point of mind, we must seek further light in the *nature* of the phenomena thus exhibited if we would reach a clear conception of force in its origin.

From direct observation of physical force we seemingly gather very little of its nature, but that little will be found sufficient for the sphere in which it is exhibited and for guidance to a higher—which, in turn, will speak for itself. Can we assert anything of such force on the face of it but that it is a kind of *push*?

On analysis, however, this push reveals itself as the cause of resistance to movement; but that movement discloses itself in turn as the movement of something, for where there is movement there must be something moved; but in order to such movement there must be a moving power *in* or connected with that something; it is this moving power to which the name of "force" is given. Are we then directly aware by the senses of this impelling power or force?

Our senses are aware of nothing but pressure or push from movement, through the consciousness, *i.e.*, of movement resisted either passively or actively. The senses can tell us nothing of the nature of that movement, or what produces it. Yet we are aware of a cause behind the movement, producing it by push, and we are aware of this by quite another faculty than the sense—that of conception or thought. We *feel* the movement, but we *think* the cause. The mind, itself a cause in such cases, detects a pushing

cause, analogous to its own activities, behind the facts of pressure and movement; but it also knows that the cause of the push is, in turn, not only an energy similar to its own, but that such push can only be produced by an energizing substance.

In effect, it perceives with a feeling of certainty that behind all matter is force, and that that force is produced by another, or interior substance. The same argument holds of every form of substance cognisable either by the senses or the consciousness. So that, even if we suppose such finite substance left behind on our inward march, not only does force remain as a fact, but the mind would still demand force, even if unconscious of it, as the expression of some interior, incognisable substance, and finally would make the predication of the absolute Efficient Cause from which all force proceeds.

As before seen, the only escape from this position is by turning back into the difficult refuge of matter producing force—veiled, indeed, by the notion of the perpetuity of both. If matter does not produce force (as we well know, and Haeckel maintains) then, manifestly, since “nothing material is permanent,” as says Sir Oliver Lodge, matter that is born, and conditioned by that nativity, cries out at its birth for force as the instrument of the Unconditioned Cause.

The main point, however, is that force in matter means push, and push means antecedent substance, which, in the event, is non-material. We now take the last step in our inquiry as to the nature of force in order to the discovery of its origin.

Push in nature has its mental and hence physical counterpart in man as *endeavour*. Force in man is endeavour. But endeavour is the effect of Will as its cause. Will is the only known or knowable cause of the mental push defined as endeavour. But if endeavour finds its cause in will, that, in turn, is the very essence of personality; from which it follows that

force is the ultimate expression of which the primary substance, the person, is the cause. But this is just as true of nature and its cause as of man's endeavour and its cause. Let us apprehend how.

The issue is—Personal Will as the last word on the nature and origin of Force.

Man is part of nature. In his body he shares with it its substance and its laws. He also is the conscious subject of the one physical force which holds the universe in its might, and is part of it. He is part and parcel of matter and force, and is one with both. The cause of nature is the cause of man, and the same power is operant in both. What is true in either nature or man as the effect is true of that cause itself. What exhibits itself in both in their degrees and ways is *that cause itself* in them. Therefore from them we learn what that cause is, and the secret of the force which operates in both is revealed. What is true of that force in man as to its nature and origin, is true also of that force in nature, seeing it is the one and same force which operates in both.

If in man, therefore, force is the ultimate expression of Personality, so must it be with nature—the force of nature is the ultimate manifestation of Personality. If not, Personality is not the highest form of force, and the force which controls and thinks is not greater than those it controls and uses—which will hardly be said. As, however, this position will be scouted, let us make it the more secure.

Let us strictly bear in mind that the essential question here is primarily one of fact, and not of what anyone pleases to think about either force or cause. Force or endeavour in man is an expression of will, or it is not; will is the essence of personality, or it is not; and the force known as endeavour and will in man is the force acting in nature, or it is not.

Now we know that the positives of

these propositions are all true since man and nature are the products of the causal force, whatever it is; further, that if the force in nature be supposed impersonal, that is also in the causal force. At this point, one of two things follows: Since the personal and the supposed impersonal are both forces in the Cause, the highest power or causal force in the Cause is either the Personal Will, as in man, or the impersonal force as supposed in nature. How are we to judge between these two in attributing either to the Cause as first? Man's intuition in the case would be called anthropomorphism were we to follow it. What says reason?

Reason decides the question by asking another: Supposing both these forces to exist in the Cause, which of them would govern and which would serve—which be causal force, and which instrumental? And, put so, the answer is given with an inevitableness which nothing can gainsay. No man would dream of thinking the personal subservient to the impersonal, knowing as he would, that that is only another way of declaring the personal non-existent. He would with equal clearness perceive that every personal will puts forth an essentially impersonal, *i.e.*, physical, force with every movement to which it subjects matter.

The question is answered therefore; and with the answer the clear perception survives that the force known as will in man is the force in the Cause controlling nature and known as physical there—the personal disguised as the impersonal or instrumental: that the producing, controlling power of the universe is a Personal Will, manifesting its presence as personal in the consciousness of the highest, or human organism.

As to man, then, the result also remains, that he, being a higher form of nature, and component of higher forms of force, is a later, and therefore, clearer, more advanced exhibition of the interior nature and origin of the

Force which produces all grades and degrees of being. To it he himself is bound in natural integrity and rationality to appeal, rather than to lower or rudimentary forms of the manifestations of the Efficient Cause, such as are the impersonal or quasi-impersonal forms of force. And, reciprocally, as to that Cause Itself, the nature and origin of force is revealed in it as the forth-putting energy of an Unconditioned Personal Will. Here is the truly Efficient or Absolute Cause, instinctively apprehended by all races of man as the Divine, or God. For even those races which have not professed a direct belief in the Personal Infinite, restore it, either in their myths (a most note-worthy circumstance) or in the pantheistic conceptions of an Eternal Consciousness and of the Self as God.

It may blindly be said that this is only a way of making God out of man—a grave misreading of the facts. There is no idea here of man's *conceptions*—which we have deliberately kept out: we stand on facts and from them draw legitimate inference. The naturalistic school has taught us, as a primary fact, and altogether apart from beliefs; to identify man with nature, and must take the consequences of its own position. To this identification, in so far as it is proved fact, we agree, throwing up, as it does, only into stronger relief that in which man transcends the physical. It is now too late to seek escape from the consequences either of the identification or of the transcendence. In the long run, at least, it is so that "facts are chieft that winna ding, and daurna be disputit," and on facts throughout we stand. Starting without assumptions, and equally without a shadow of proof that nature, or matter-force, can or does of itself produce life or mind, we are free to accept both the identity and the transcendence of man in natural relations as together exhibiting the true nature of their Cause; and if we may not look to effects known, rather than to the assumed and unproved, for

a knowledge of causes, what hope is there of a future rational philosophy based in science?

Yet there is a truth here that requires elucidation. Man is charged with anthropomorphism in the belief of a personal God. But should he not be anthropomorphic to this extent at least that, fundamentally, for him, his first concernment is not with what *is*, but with his inevitable thought of what *is*? He may not know what *is*—may never know, but he knows what he is bound to think, and that it is this intellectual and moral obligation that, for him at least, lies at the root of truth-seeking. That is truth for man that he is bound to think true; and it is a manifest fact of man's nature that it is impossible for him to rest—for a personal being to rest—in the final conclusion of the impersonal as primary. Hence, the discovery of the Cause revealed in the facts of nature and of man as personal, is a sure bond with what must be reality for him, and one which, though his manform of feeling and thought may not create it, yet rejoices that manhood when discovered.

Here, too, the objection may be met, that the Cause or Infinite, cannot be personal, seeing that the very conception of person is limited, contrary to the infinite nature we predicate of it—an objection quite irrelevant and applicable only to the physical, whereas the subject of which personality is predicated is mental. The differing standards of the two are here confounded, for the standard of the physical is *extent*, and that of the mental is *power*.

It is from the confusion of these two that men come to think of the Infinite as unlimited extent. But as the rational and therefore, true, as distinguished from the sensuous or size-conception of the Infinite or Divine Mental Substance is not physical bigness but Divine Greatness or Power, so the rational, and therefore, true, as distinguished from the sensuous or size-

conception of person is quality or power of mind, consisting of such elements as love, wisdom, and energy: conceptions which touch the reality of which the terms "infinite" and "personality" are but the symbols. For whoever believed that "person" was other than a symbol of the mind within? Or that Mind, whether of Man or God, was to be judged by physical extent?

When, therefore, we thus unite the conceptions "infinite" and "personality," we approach with light the Reality of the Divine Substance as the Cause of the force which constitutes nature and man. Having discovered the inapplicability of physical size to mind, the incongruity of term and thing, we at length realise a rational conception of the Divine Personality as a Being infinite in Love, Wisdom, and Energy, who, having produced all finite substances and matter from Himself, is yet absolutely Mental, Immaterial, or Divine.

Having traced the nature and origin of force to the Divine Personality, it may now be appropriate to conclude this discussion by endeavouring to reverse the process, and tentatively to sketch the descent of these forces from the Divine, so as to complete our conception of their nature, origin, forms and order.

We start, then, from the conception attained of a Divine Person as a Divine Substance—a Substance of pure or essential Love, of pure or essential Wisdom, and of pure or essential Energy. We conceive these Essentials, by finite analogy in the human mind, as being actual and definite, yet infinite realities of mind, capable of evoking at once both worship and love in the finite, calling forth thence the highest human qualities, satisfying the deepest human needs and perpetuating that image and likeness of God in which it may yet again be found eminently rational to believe.

In presence of the true Infinite or Divine Personal Substance creation is

not a difficulty, but a necessity of thought. The only alternative would be a continuity of God, and the impossibility of the finite or conditioned. For that which is continuous with the Infinite is Infinite, and continuity of production would make all things Infinite and God—only, such things could neither be conditioned nor material, and the physical universe would be impossible. We have said, "the only alternative," but indeed there is no alternative; for not only does the conditioned exist, but how could the Infinite evolve, change, or add to, Itself?

Before the Infinite, the only issue is the production of the finite; and for this it is necessary that the Infinite should not produce Itself (which is impossible) but produce that finite from Himself, *i.e.*, should create it.

Creation is origination from Cause of that which did not before exist except in Cause; and such originating Cause is the human mind's primary demand. Therefore, that which is produced and now surrounds man, himself included, is *created*—as man has always said. His difficulty has not lain there, but rather to conceive how creation was possible as a process; and not perceiving that unless the *caused* had come from God, He could not be the Cause, fell back on the absurdity of God commanding things to arise "out of nothing by the word of His power." The inevitable result was reaction, in the denial of creation, and the erection of force and matter into God; and the Church ought to know by this time whom she has to thank. Yet the process of creation is not difficult to conceive, and the material for conception lies near at hand.

If man would but realize his own action, he would get a glimpse of the process of creation. Let him observe, for example, the spheres of mental and physical force known to us now as emanating from the human personality, and producing actual changes, both

physical and mental, in other persons and things. Let him observe his own thought descending into speech; or his action embodying itself into external forms which may still remain under his own control and care—as in the family, for instance, and he will get in reproduction an image of creation; with this difference, that while he manipulates, God originates. And in connection with that striking illustration of thought issuing in speech, the saying may give him pause, "By the *Word* (Logos—Wisdom) all things were made, and without him was not anything made that was made." This process we can perceive to be effected by the creation from the Divine Love and Wisdom of forms or organisms into which can flow the substance, force and life from the Divine, in which these can remain in permanence, and by which, through degrees of radiating force, all things are held in connection with the First; into which, however, the Divine Substance Itself does not enter. In the same way man, in fact, retains his nature and personality while producing forms of life infilled with his own feeling and thought and activity; of which every work of art, again, is an illustration.

Where, then, is the difficulty of conceiving the Divine Being as creating from Himself descending spheres of spiritual substance and force in which finite minds might have their origin and permanent existence? Nor is it, further, difficult to conceive the successive descent and radiation thence of the magnetic, etheric, and aerial spheres, with their corresponding material forms.

Yes, but *how* were these planes of substance, spiritual, and material, produced? The answer is, *By recombination* of the elements constituting each sphere in order to the production of the next below.

We can see how the Magnetic elements could be made by recombination to produce the Etheric sphere; as we see how the Etheric, by recombination of its elements, the electric or

etheric forms of substance, issues forth in the guise of atomic particles or atoms, reconvertible into etheric forms. In the same way we can observe the varying forms of matter by recombinations of atoms. We can divine the flowing, into prepared physical conditions, of those living and spiritual forms of force by which the lowest and successively higher creations of life in matter were produced. And we can perceive the formation of man, as of all other animals, from the single cell by the influx of the one spiritual, living, and ultimately physical force.

Just as we observe these recompositions in regard to descending grades of substance into matter, so we may apprehend the converse modes of descent of force. The influx of force being according to the degree, and hence the nature of the substance, it takes its respective form on each plane, even from the Divine downwards, by *the withholding* of those qualities constituting the plane immediately above that into which it is to fall. This would take place automatically (so to say), since no plane of substance can possibly receive other form of force than that which is absolutely correspondent with itself. Thus, we may rationally perceive how all forms of force are one in the Divine, and how the successive planes, both spiritual and material, are produced.

In such conceptions of the nature and origin of force as the expression of the Divine Will, and of the creation by it of successive spheres of descent from the Divine, through the spiritual, into the material, we find nothing out of keeping with rationality and our modern knowledge. On the contrary, we find the truest interpretation of ever-increasing facts, which will reveal itself in growing light as the interiors of the universe are disclosed.

The fear of the future lies not with spiritual-rationality; and the natural rationalist is doing excellent service to the cause he imagines he is destroying—as, indeed, and beyond all, are the significant discoveries of science itself.

We take it that the unity of the universe in God, the Divine Substance and Being, through both spiritual and physical forms of force and of production, by whatsoever mode effected, is an idea vastly more sane, rational, human, elevating, and adequate to the work to be done and ends to be served, than is any materio-pantheistic notion, whose damning facts throughout are the absence of an absolute Efficient Cause, and of sufficient reason, and the consequent necessity of reading into material origins powers which are not there, and only belong, or could belong, to a Living Mind and Force.

Thus it is, as we said, that in the question of Force lies the solution of all primary problems; and in this chapter we have roughly adduced some results of that conception, especially in seeking to show the essential nature and origin of Force as the expression of a Living Will. But it may not yet be clear to some how Force can be *living*; and above all, how living Force acts with mechanical force after producing it. We will close this chapter with a brief endeavour to bring these points into distinctness.

As to living Force. Mind is the only living thing. But finite mind is derived. The Eternal Mind is, therefore, the only power having life in itself.

When mind acts, it does not merely will that certain things shall be done, and remain at a distance while the acts are being accomplished. It acts and can only act by instrumental means, and the first form of instrumentality is its own life. In order to act, therefore, mind puts forth something of its own life from itself; but that life being living substance, the force acting through it is living. Action, therefore, of any living thing is living action—the efflux of living substance by the living force of will, according to the degree and quality of the life.

That is why mind appears to act upon mind at a distance. Living substance and force flow forth from the acting to the recipient mind.

Such force is thus a radiation from mind, as heat and light radiate from the sun—are effects of its force and substance, yet not itself.

Now all things, dead or living, radiate their substance, yet are sustained from within according to their receptive power. The efflux of the dead things is dead, and in all things derived from the sun *is the substance itself*. The efflux of the living things is living force from substance, continually received.

From the Eternal Mind to lowest physical substance, all things radiate their being in order and degree; but as efflux from the Eternal is persistent and into all forms, these descending degrees of life and matter are continuously renewed, according to reception, both directly from the first and mediately through those above them. But that efflux and influx of substance from the Eternal according to degree is the *force* exhibited in and from that degree—entering as influx from above or within, and going forth as efflux to the degree below or without. Thus the degrees of life or mind emit living force with the substance from them, and inert things in their degree send forth inert or mechanical force with their substance itself.

How, then, does living force act with mechanical force? All manipulations of nature by mind are illustrations of the most external form of this power; and, indeed, precisely upon the extent to which this common ordinance of the relation between man and nature is fulfilled depends all progress.

Again, in the conjunction of the mind and body we observe the same fact under more intimate relations; but the principle of the relationship is the same. As in nature, Will, acting with natural law, can produce indefinite extensions of force far beyond anything which nature left to itself can accomplish, so the action of mind on body involves the remaining intact of natural law here also, in order

to any natural activity in the bodily sphere.

As in nature, so here, the power and range of the physical force is immensely increased in intensity and scope by the direct action of the mental, so conversely is the mental force enlarged and finds its fullest range when it is enabled to act through physical law perfectly obeyed in the body. The more surely the laws of health are observed, for example, and the body kept in proper physical condition, the more readily does it lend itself to the influences and manipulations of the mental force; and the greater will be the ease, freedom, and scope of that mental force in the work peculiar to itself, the more accurately the physical law is sustained. Every movement of the body under direct mental guidance and determination towards mental ends is an illustration of how the mind acts on what in itself is merely mechanism.

What is true of man in himself and with nature is true of the relation between the Primal Life and all living or inert substances derived from it. This is so obvious from the facts adduced as not to need illustration; but the *principle* of this universal action of the mental on the mechanical ought to be distinctly stated. In the language of universal fact more than of explanation, we may first put it that it is a case of *the power of a higher force to act through and to use a lower force* either for its own ends or for the ends of that lower force itself.

So much is simply demonstrated fact, and a universal truth of life. But to come in sight of the mode or how of this action of the living on the non-living, we must remember that living force is living substance, and then the rationale is plain. The living substance animated by living force *enters the interstices of the inert substance*, clothes itself with it, and, therefore, inevitably with the force acting in it, as with a body (for the two are one) and so uses

that body for the ends to be attained. It is a case of Cause and Instrument acting towards Effect. It is the key at once to the Degrees and the Correspondence of the universal forms of substance, from the Divine to the lowest Mechanism, since it shows the power of the higher to use the lower in all degrees in virtue of the correspondence of these degrees from highest to lowest.

One more question: How does mechanical force come into existence from an Infinite Cause? Manifestly, as to the fact in the first place, such force comes into existence through the production of material substance, for the mechanical force is nothing, in effect, but *the accommodation of the Divine* to that substance by action from the Divine. For since force is nothing but Divine endeavour, its accommodation means the adaptation of the Divine through endeavour corresponding to the respective substances produced, whether material or spiritual, inert or living.

How, then, does inert substance arise? By production from the Divine of a medium of motion into and through the spiritual sphere, thus between the Infinite and finite and partaking of the nature of both. Thence by pressure, conformation, and recombinations of

the higher auras, or primary elements of the finite, it forms the successive degrees of the magnetic aura, the ether and the atmosphere.

Again, we say, Force is the key to the production and sustenance and interpretation of the universe. And the object of this cursory sketch is to bring into rational view the conception of that Force as the expression of a Personal Will, with something also of the method of creation and its results in the degrees of life and matter produced.¹

CONCLUSION

This first part has been occupied with the removal from our path of the foundation of monism—the law of substance, so-called; and, with it, of course, go the solutions given by it to the enigmas of the nature of force and matter, the origin of motion, and the origin of sensation and consciousness—another solution of these enigmas being found in the course of putting an entirely different case.

The second great dependence of monism, the theory of Evolution, will open Part 2, in which many questions of practical importance will be discussed.

¹ For Degrees, see chapter xvi.

INTERMEDIARY

CHAPTER XI

Haeckel's Definitions

AMIDST the welter of circumstances in which the *Riddle* has been left by Mr M'Cabe's exposition of its fundamental doctrine of substance, since accepted by Haeckel himself, the explanatory critic is placed in some embarrassment. He would inevitably conclude that since Haeckel has withdrawn the idea of the universal substance on

which the definitions are founded, the definitions themselves have also gone. This would undoubtedly be the case with us, were it not for the interpenetration of the whole book by these definitions, and specifically for Mr M'Cabe's adherence in the name of science and of Haeckel to the "properties" of the definitions and

their identity with the "phenomena" of science.

We have no option, therefore, but to traverse the definitions as if no withdrawals had been made, and to put the whole business before the reader. Should we thus be compelled to comment on positions withdrawn by Haeckel, it is to be remembered that the consequences of these positions are as injuriously active as ever, and that we never know which side of the two-edged weapon may at any moment be turned against us.

"Monism," it tells us (p. 8), "recognizes one sole substance in the universe which is at once 'God and Nature.' As there are cases of confusion of ideas between Monism and other beliefs which are very prejudicial, and give rise to innumerable errors, we shall make the following brief observations *in order to prevent misunderstanding.*"¹ Then, after noting the definition of the difference between monism and the other philosophies, materialism and spiritualism, we read "We hold, with Goethe, that 'matter cannot exist and be operative without spirit, nor spirit without matter.' We adhere firmly to the pure, unequivocal monism of Spinoza: Matter, or infinitely-extended substance, and Spirit (or Energy), or sensitive and thinking substance, are the two fundamental attributes, or principal properties of the all-embracing divine essence of the world, the universal substance" (*cf.* chapter xii.). Such is Monism as "so clearly defined at the very commencement of Haeckel's book (p. 8)."² Here are the positions "so clearly *defined*," which it becomes our duty to examine in detail; and the reader will observe not only how fundamental they are, but Mr M'Cabe's continued adherence to them.³

To state the points in logical order, we find that

1. There is a universal substance.

¹ Italics ours.

² M'Cabe's *Haeckel's Critics Answered*, p.

19.

³ *Cf.* p. 27.

2. This substance has two fundamental attributes, or principal properties.

3. These properties or attributes are matter and spirit (Energy).

4. Matter is defined as infinitely extended substance.

5. Spirit (Energy) is defined as sensitive and thinking substance.

6. These two substances, matter and spirit, are properties of the same substance.

1. *There is a universal substance.* So say the definitions, which speak of it as "the all-embracing divine essence of the world"—a phrase which possibly might not have escaped ridicule at the hands of disciples if any but Haeckel had used it.

According to the definitions, then, there is a universal substance, and that, too, posited as the basis and reason (as the reader will see) of the definitions themselves. Withdraw that, and they collapse.

Yet (on p. 134) we have Haeckel withdrawing it, even before the disciple has the chance of interpreting for him. "Why trouble about it," he says, "when we have no means of investigating it, when we do not even clearly know whether it exists or not? Let us, then, leave the fruitless brooding over this ideal phantom to the 'pure metaphysician,' and let us, instead, as 'real physicists,' rejoice in the immense progress which has been actually made by our monistic philosophy of nature."

This is certainly a striking piece of philosophy! Consider. Haeckel sets out as a philosophic scientist to define Monism for us by grounding it on a "universal substance, an all-embracing divine essence of the world." This universal substance and its properties constitute for him, at the outset, the foundation of his system. For it is about and upon these that the definitions are constructed "in order to prevent misunderstanding" between his system on the one hand, and materialism and spiritualism on the

other. The definitions are now forgotten, the "understanding" may fend for itself, and the universal substance on which all is founded is thrown to the winds. It is an "ideal phantom." Thinking about it is "fruitless brooding." And it is to be left to the "pure metaphysician" by those who are the "real physicists," while they go on their way rejoicing over "the immense progress which our monistic philosophy has made." That "our philosophy" has lost its definitions, those definitions their basis, and that basis its properties, does not signify. We may comfortably leave all such considerations to the "pure metaphysician," for are not we the "real physicists"? But, pray, where was the "real physicist" when the "pure metaphysician" was inventing his definitions about the "ideal phantom" and its properties? Haeckel is too cruel to himself, forgetting that it was he alone who introduced that same "phantom" into his monism. We rejoice with him over his discovery; but then that discovery "has overthrown more than his enemies."

But the Professor's metaphysical ghost speaks much more definitely than the live physicist. For the voice through Mr M'Cabe assures us that the "universal substance" is not what he thought it while writing the *Riddle* in the flesh; that there is no such thing *apart* from what he had called its properties; that they, matter and force, "are the one actual substance or reality." It is a pure fallacy to say that in ordinary experience we are dealing with a "shell of properties." Thus the idea of the substance is now transferred to the properties, and they are all the physical substance that is. The difference this makes to Haeckel's first logical postulate is to change it from "There is a universal substance" into "Matter and force are the universal substance." We are glad to agree with both gentlemen in condemning "the fallacy" that matter and force are not the realities themselves; but

how will this affect the definitions? We must inquire.

2. *This substance has two fundamental attributes, or principal qualities.* Seeing, however, that it is now declared "a fallacy" to suppose said substance to exist, that it is on the basis of that fallacy that the claim for the "two fundamental attributes" is made by Haeckel, that matter and force are themselves now declared to be that substance, and that we cannot deal with attributes of a substance fallaciously postulated, it is plain that definition No. 2 collapses.

3. *These properties or attributes are matter and spirit.* But since the substance of which these properties were predicated no longer exists for the exponents of monism, the properties philosophically cease also. Yet we find "properties" and "aspects" continually spoken of in this connection. Of what can they, then, still be properties? They can be placed in one of two categories. They are either properties of nothing, or else—of themselves. So that the properties have to be discarded also, and go the way of "the all-embracing divine essence of the world, the universal substance."

4. *Matter is infinitely extended substance.* Mr M'Cabe tells us¹ that the point here is "whether Haeckel has misread the evidence of astronomy on this incidental question of limit or no limit." And that evidence? It is simply that, Dr Wallace apart, no limit has been discovered. But does this negative evidence entitle Haeckel to read it as even an "indication" of infinite extension; and is it true that "infinity" is a "negative idea," merely denying "a limit to the scheme of things?" Haeckel misreads that evidence when he declares that to be "infinite" to which merely no limit has been found. Mr M'Cabe practically admits this, though defending Haeckel's term.

Here is a case in which truly "the

¹ *Haeckel's Critics Answered*, pp. 23, 103, and 116.

evidence is slender"; which we are to approach "reasonably"; in which "scientific indications" are to be accepted as facts; in which "astronomy points in the direction of illimitableness." "Points," and only towards "illimitableness," and this justifies Haeckel in the use of such a term as "infinite?" Why, yes; because "it is well to remember that 'infinity' is a negative idea." Mr M'Cabe mistakes: it is the "evidence" adduced that is negative, or rather astronomically non-existent; "infinity" itself is a positive idea.

But is not the term "infinity" negative? Quite so, but the "idea" "infinity" is not, but very positive, indeed the most absolute positive known to man. Mr M'Cabe is misled by the form of the word. Take an analogous case: "invincibility" is a negative term, constructed like "infinity" in a negative linguistic form; but is the "idea" of invincibility negative? The question answers itself, seeing that, like infinity, invincibility, in its own sphere, declares an acme of positive qualities.

Is it, then, "in harmony with the evidence" that a limit has not been found, for Haeckel to describe the material universe as infinite, when neither science, nor he from it, knows anything positive about the matter other than that it appears to be illimitable? Surely rationality would forbear, and thinking "reasonably" would bring us to terms more modest. Both, without hesitation, would declare that the extent of the universe is *indefinite*, and that this is the accurate term to employ, however far from the positive and definite conception of infinity.

Moreover, is it quite ingenuous to say that "the validity of Monism is not at stake in the matter?" It is precisely that validity that is at stake: for to pronounce matter to be infinite is a sure way of putting arrest upon thought, by assuming the human *ne plus ultra*. The infinite in any form being reached, speculation ends, and the subject so

predicable begins to enter the thought as God. If the conception of infinitely extended matter does not deeply affect his position, why does Haeckel go out of the bounds of science to affirm it, and rest in the fact of affirming it? He knows better: if the question were indifferent to him, he would not treat the infinite as an object of science. Truly monism is at stake, for, if matter is not infinite, in what other guise than the universal can his God enter? Nay, as to proof, if the universe *were* infinite, we should never know it. No amount of evidence could ever verify so tremendous an assumption.

The defender of Haeckel goes beyond this, however, and affirms that "the idea of a limit is in fact unthinkable . . . it is so unimaginable that it would never have been suggested but for theological considerations." Well, theological considerations, whatever may be said for some of them, have been long enough in the world to claim at least the right to existence; but, theology apart, Mr M'Cabe should beware of skating on thin ice. When he tells us that a "limit" to the universe is "inconceivable" and "unimaginable," did he ever try to "conceive" or to "imagine" an "infinite" universe? We should then find that whatever is to be said about limits, either pro or con, it is the infinite that is a little the more difficult to conceive of the two. In fact, it is of all things the one "unimaginable," for directly you attach the thought of infinite extent to *matter*, thought itself, to say nothing of imagination, collapses.

You can, strangely enough, attach such conception to power and other like qualities commonly attributable to mind,—and with every imaginable satisfaction. But by no conceivable alchemy can you unite in predication the opposite conceptions of matter and infinite extension. The "idea" of the infinite extension of *matter* "is so unthinkable . . . it is so unimaginable, that it would never have been suggested but for theological considerations," or

why should any man attribute infinity to that which is essentially conditioned, and, therefore, finite? Why again, have we, in the distinction between the finity and infinity of matter, the dividing line between Materialistic and Spiritualistic thought?

On the other hand, is "a limit" to the universe "inconceivable or unimaginable?" By no means. It is a conjunction of thought that arises naturally, spontaneously, to a mind unspoiled by theoretic conceptions. We can "conceive" of the universe, for example, as of an immense globular form, and even "imagine" it with a certain clearness. Nor is the form which science alleged of it not so very long ago, as that of a split disc, any more difficult to conceive or imagine. Nay, we can "an' if we will" conceive and even "imagine" the universe as in the *human* form, nor is there the shadow of a reason against it as arising either from our conceptive power, or from imagination. And is there a single fact or idea which either science, reason, conception or imagination can urge with validity *against any form of limitation whatever?*

Our conception of matter is plastic to any form which fact and truth may eventually impose. And if any such form were demonstrated to-morrow every open-minded man would hail the demonstration with delight. If there be any fact that militates against specific form, certainly mere physical distance is not that fact, and only helps us, carry it as far as we must, to enlarge our conception of limits. To say that we are compelled to think or imagine the universe as infinite is sheer assumptive arbitrariness, conveying the inference of being made in the interests of the monistic conclusion, and hiding within it either the conscious or the unconscious confusion of thought between the true conception of matter and the customary conception of space.

What, then, is the true basis upon which this question rests? Astronomical

study? Not by any means. The infinite comes neither within the scope nor the inference of astronomy. Astronomy will never, if the universe is infinite, be able to answer the question; for, if it were infinite, astronomy could never know it, perhaps not even were it finite. The only hope that way is on the condition of limits.

"A more excellent way" lies in the fact of the production of matter, to which both knowledge and reason testify. Matter, on any or on all planes, is substance produced, but produced substance is finite substance whatever appearance of indefiniteness a universe of it may exhibit to the senses. It is of no consequence how far back we go in the series of such productions; they are still productions, and therefore, defined, conditioned, limited by the fact of production, by the further fact of series, and by the last fact of the relative and conditioned attitude in which they stand to one another. A series of produced things cannot make the unproduced. A series of relative facts cannot make the absolute substance. A series of conditioned elements and products cannot constitute the Unconditioned.

Yet, as we have seen, the "infinite" is a positive affirmation of the human mind—sublimely positive, one with absoluteness, one also with the conception of the Unconditioned; and in none of these characteristics does matter share. At what point, then, does its infinity enter, even if only the one infinity impossible to thought—the infinity of extension? The contention of the *Riddle* on this point is one huge confusion between the infinite and the indefinite.

It may be objected that we have raised the idea of infinity to a wider application than that of extension. If so, is it not inevitable? For is it conceivable that a substance can be infinite in any sense without being infinite in all? The whole discussion of the question by Haeckel and Mr M'Cabe

shows no appreciation of the idea of infinity taken in any sense whatever, much less in that only true sense of it in which it is one with the absolute and unconditioned.

This definition of matter as infinitely extended substance is applied to matter as a property of a universal substance. But as that universal substance is now discarded, matter as a property of anything fails us, and we are now compelled to accept this matter as infinitely extended substance itself. We have discussed and necessarily dismissed it, on the grounds of fact and reason, from any such category.

5. *Spirit is energy or sensitive and thinking substance.* The reader will observe that it is not energy that is defined, but spirit; and not energy that is defined as spirit, but spirit that is defined as energy. This means that the qualities hitherto associated with spirit are, in Haeckel's system, directly associated with energy. That is, it is energy that feels and thinks. Spirit is but a form of that substance (Energy), and is, therefore, to be classed under it as sensitive and thinking, because Energy is so.

There are, therefore, four points in this postulate: 1st, That Energy is substance; 2nd, That Energy as substance is sensitive and thinks; 3rd, That Spirit is Energy and therefore substance; and 4th, That Spirit as Energy is sensitive and thinks.

1st. *That Energy is substance.*

There are few more remarkable instances of unsubstantiated statement than Haeckel's declaration, given without the slightest vestige of proof, that energy is substance. Everyone knows that proof of such a position is impossible. That energy is an effect of motion, and that motion is movement of substance, are statements that need no discussion. Energy is an effect of a moving substance, but is not itself substance. In itself considered, it is simply an abstract quality, that of push, effort, endeavour, *conatus*. As this endeavour is conceded by Haeckel as

not arising from matter, it follows, as we have seen, that its origin is from a substance antecedent to matter while acting with it through this effort known as energy. We need not discuss the question of that origin: the mere definition of energy is quite sufficient answer to Haeckel's assumption.

Yet, if energy was held by him to be substance at the time when he was asserting a universal substance, of which that energy was an attribute one substance, it appears, may be the property or attribute of another. Even now that that world-substance is discarded, we have one substance, energy, declared to be part of another substance, matter-force. It is almost unnecessary to point out that if energy is substance it cannot be part of another substance; since, as substance, it is separate from any other substance, having distinctive qualities. Either, then, Haeckel must make a further concession, and withdraw the statement that energy is substance, or he must retract his new position that matter-force is substance.

Is it possible that neither he nor Mr M'Cabe saw the philosophic difficulties into which this new matter-force substance was entangling them while their "so clearly defined" definitions of Monism stood? It would not be very hazardous to venture the declaration that Monism will be killed by its metaphysics.

2nd. *Energy, as substance, is sensitive and thinks.*

Here again come difficulties. If energy is substance, we know where that road leads. If it is not substance, how has it sensation and thought? Since, however, it is the effect of substance, and accepting Haeckel's universal substance against himself, it follows that it is that universal substance (discarded as useless) that is sensitive and thinks—that, and not the energy put forth by it. Here, then, Haeckel must either take back his universal substance if he would save the sensitiveness and thought of his

universe, or if he maintains his definitions the sensitiveness and thought must go. But as that sensitiveness and thought is of the very essence of his monism, the monism itself stands in peril by the discarding of the universal substance and the retention of energy apart from it. The whole crux of the question, for Haeckel, lies in the fact that he has no glimpse of the place of energy in the universe. Having evoked it, he does not know what to do with it. Do we not say rightly that Monism will be killed by its metaphysics?

3rd. *That spirit is energy and therefore substance.*

Since energy is not substance, it follows that if spirit is substance it is not energy. Now, Haeckel tells us that spirit is substance, and we are glad to agree with him; but he would like us also to say that spirit, as energy, is substance. Here we fail him, seeing that it is just as energy that it is not substance, and as spirit that it is. Haeckel's aim here seems to be to reduce spirit to the level of physical energy; and to raise physical energy to the level of spirit, through the medium of a common factor of sensitive and thinking substance that shall be either spiritual or physical at convenience.

Thus, if energy be sensitive and thinking physical substance, and spirit is energy, it follows that spirit is sensitive and thinking physical substance. Or, if spirit is sensitive and thinking spiritual substance, and energy is spirit, it follows that energy is sensitive and thinking spiritual substance. Hence spirit is used at convenience as physical energy in virtue of energy being physical; and energy is used at convenience as spirit in virtue of spirit being spiritual. Thus spirit and energy may be interchanged without detection of the fallacy of using sensitive and thinking substance as either physical or spiritual.

Part of this postulation is true, therefore, viz., that *spirit is substance*, but it is so as spirit and not as energy

—thus we rid ourselves of this labyrinth of confusions. This conception may be confirmed; though in a way that Haeckel would hardly appreciate even as the outcome of his own definition. For if spirit or mind is a series of psychic, hence immaterial properties (since no form of energy is the effect of matter) and, as both he and Mr McCabe now hold, properties constitute substance, who shall prevent us affirming the logical conclusion that spirit or mind is *immaterial substance*?¹ These few words make a tremendous difference in the issue, yet it would be interesting to see how, on their premisses, these gentlemen can make that issue void.

4th. *That spirit, as energy, is sensitive and thinks.*

Since physical energy is not sensitive, and is innocent of thought, it follows that if spirit is sensitive and thinks, it is not energy in the sense intended. Yet it may be sensitive and think for itself without the cumbrous alliance of physical energy. That is certainly what men for all ages have supposed it both to be and to be capable of doing.

If spirit is immaterial, sensitive, and thinking substance, this is simply a return to Dualism! Suppose it were, have we not as much right to affirm, as a logical conclusion from legitimate premisses, that spirit is sensitive and thinking substance, as a non-substantial, non-feeling, non-thinking energy can give to Haeckel? Yet what if we, with better grounds of belief are also Monists? Haeckel is unable to conceive any monism but that of physical substance. Let us give him a different view.

Suppose we were to try the conception of the Primal Substance, and Soul Substance (immaterial or spiritual), and Material substance, as not three substances, but as three forms of one and the same substance, would monism not remain the impeccable doctrine of substance? There the subject must

¹ See chapter xvii. for discussion of the point.

be left for the present,¹ our purpose merely being to meet Haeckel's invalid definitions with suggestions containing the nucleus of a greater, wider unity than he has ever conceived—a unity realized, not by reduction of the universe to material conformity, but by the admission of the interaction, correspondence and oneness of manifold planes of being, summed up in the wider non-pantheistic monism of Nature, Man and God—the free reciprocal monism of the Material, and Spiritual and Divine. The easiest, one term, one plane, degreeless solution of the universe is certain to be the least true.

The summing up anent this definition (5. That *spirit as energy is sensitive and thinking substance*), is that of entire condemnation: Spirit, as energy, is neither substance, nor sensitive, nor thinking. Spirit is not energy, and, as spirit, is substance, is sensitive, and thinks, but, while not energy, may be a cause of it. As such, it is spiritual in character, as distinct from the physical energy associated with matter. On the other hand, energy is neither substance, nor is sensitive, nor thinks.

6. *These two substances, matter and spirit (or energy), are properties of the same substance.*

The Universal Substance having gone, this same substance of which matter and energy are supposed to be properties are matter and force themselves. So that if the definitions still stand, or if matter and force are still properties, then they are properties of themselves. But by putting these two words "matter" and "force" together as one, the substances represented by them are supposed also to become one, called matter-force.

Hence, whether these two substances are retained as substances, substance, aspects, or properties, matter and force are the substances, substance, aspects, or properties of matter-force. We submit that this is unthinkable, or, to say the least of it, unscientific.

¹ See *Monism* (chapter xv.).

Putting aside the idea of the disclaimed universal substance, also that of the attributes-question (undisclaimed), the residuum of this definition is that there are in the universe two substances which constitute one substance—matter and force together constituting the one substance, matter-force, which is the world-substance "breaking upon our preception" in two different ways.

We need not elaborate the difficulties here: suffice it to say that there are no two substances, matter and force, since force is not a substance; that there is no one substance compounded of two other, since matter-force is not one substance but a substance *plus* force. No separate substance can constitute with others a common substance unless mechanically combined, and no substances become one substance unless chemically combined—neither of which cases holds with matter-force. If there are two substances, as Haeckel says, then monism is destroyed by his own hand, on any principles he teaches. And matter and force are not the substance of matter-force, and are not one substance in any sense, but are *distinct and separate uncompoundable facts in different but co-acting spheres*. It is this latter point, of difference with co-action, that is the crucial trouble of all these much-mixed definitions.

It may be well to remind ourselves of the impossibility that matter and force can ever constitute one substance.

Either these two elements unite as one or they do not. When elements unite, whether mechanically or chemically, they form a third and distinct substance. Here is a case in which the two are always together, yet always distinguishable, like Siamese twins—never unite in any sense as one substance, like the constituents of water or of air. They are not one substance, and are not, as one, a "reality" at all: they are only one in a common end. They are united as electricity and a motor-car are united, or as a cart and horse. Imagine the cart and horse

one substance, and then for analogy's sake call the two "cart-horse," and there will be quite as much reason in the new labelling as in calling matter and force, matter-force, and thinking of them as of one substance. The subjects of the thought here are as different, separate, ever-distinguishable facts as are the subjects of its illustration. If we are not unnecessarily to multiply causes, or to separate substances, neither are we to blend into one the elementally different, merely because they are found co-acting.

Yet there is more. For, though we put aside temporarily the question of "attributes," they have still a part to play. We have seen from the *Riddle* (p. 8), that "matter and spirit are the two fundamental attributes or principal properties of . . . the universal substance," though Haeckel afterwards agreed that they *are* that one substance. Indeed, on p. 5, we read of the universe that "its substance, with its two attributes (matter and force), fills infinite space, and is in eternal motion." On p. 76, we find that the two laws of the persistence of force and of matter "are fundamentally one," that this "is self-evident to many monistic scientists and philosophers, since they merely relate to *two different aspects* of one and the same object, the *cosmos*," and that the unity of these two laws "is of the utmost importance in our monistic system."

Thus at the time that Haeckel was asserting matter and force to be properties of an invisible substance and divine essence of the world, he was also asserting that they were two "aspects" of the *visible* world.

Again, we read, "This universal substance . . . shows us *two different aspects* of its being, or two fundamental attributes—matter and spirit." Thus, in the same sentence, Haeckel re-affirms matter and spirit as "different aspects," and identifies these "aspects" with the fundamental *attributes*, matter and spirit. Mr

M'Cabe repeats the statement,¹ that matter and force (or spirit) "are two *aspects* of one reality," yet he has already told us (p. 27) that "they *are* the one eternal substance or reality," "breaking upon our perception in two different ways."

From all which confusion it appears that in this accurate system of monism "so clearly defined," "in order to prevent misunderstanding," aspects and attributes are held identical; and that it is the same thing to say that these are aspects or attributes of the one reality, and that they *are* the one reality, or that they are aspects and attributes either of the visible cosmos or of the invisible "essence" or "divine nature of the world." Aspects, attributes, and properties are thus one and the same; matter and force may be aspects, attributes, or properties either of the invisible essence of the world, or of that which we see. It would logically follow that aspects and properties are identical, and identical as definitions; and that matter and force may be aspects and properties of themselves as the one substance or reality.

It is something new to have substance defined as an attribute of itself; but look at the confusion introduced. Is the relation of matter and force to substance (whether itself or not) definable in interchangeable terms of aspect, attribute, or property? Is an "aspect" of a thing, or the way in which outsiders view it, a "property" or "attribute" of that thing? Is even an "attribute" strictly identical with a "property." Put the case more concretely. Is matter an "aspect" of substance? Then, since we have dismissed "essence," and matter is the only substance left, can matter be an "aspect" of itself, an "attribute" of itself, a "property" of itself?

Turn now to force. Is this an "aspect" of material substance? or an attribute? or a property? It is neither part, nor element, nor aspect, nor attribute, nor property of it. That it

¹ *Haeckel's Critics Answered*, p. 55.

is associated with it in the production of results is the sole fact discernible of it in that relation.

The unique character of force and the conclusion to be drawn from it, we have already considered (ch. x.).

This consideration of the definitions is enough to show us with what care we should tread among them, knowing that the sequent system is thence derived (whether they are drawn as "conclusions" or as "assumptions"), and that in the case of the *Riddle*, it is not the facts that are at issue but the meanings read into the facts, and the arbitrary way these facts are dealt with and denominated. The results of the study of the definitions on which the *Riddle* is built may be placed side by side with the definitions themselves:—

DEFINITIONS.

1. There is a universal substance.
2. This substance has two fundamental attributes or principal properties.
3. These properties are matter and spirit (Energy).
4. Matter is infinitely extended substance.
5. Spirit (Energy) is sensitive and thinking substance.
6. The two substances, matter and spirit, are properties of the same substance.

RESULTS.

1. There is no universal substance—Haeckel being witness against himself.
2. There are no such properties; but those which answer to them, being the only substance, are either properties of themselves or of nothing.
3. Matter and spirit are not properties of matter-force, but the two elements which are declared to be their own properties.
4. Matter is not infinitely extended.
5. Spirit is not energy, yet it is substance, and is sensitive and thinks.
6. No separate substances can be properties of another substance: matter and force must be essentially distinct.

Summing up this analysis in a sentence, it will be seen that not one postulate of all involved in the definitions drawn out thus in logical order, and expressly purporting to be given to prevent misunderstanding, either in the least tends that way, or expresses any coherent or rational truth.

Haeckel's writing, in fact, abounds with confusions and contradictions, and it is impossible for anyone to accept his statements as being in any degree the outcome of skilled and systematic thought.

Many incidental points have not been touched: if "force," for example, is a "substance," why does Haeckel not claim "infinite extension" for that also, as for matter? Or, again, if both force and matter are infinite and eternal, why does he exclude matter from the conception of God, and limit that conception to "force" only? His writing abounds with confusions and contradictions of this character, palmed off upon us with the most imperturbable complaisance, as if they were indeed divine philosophy itself, or as if his mere word were sufficient to pass them.

CHAPTER XII

The Definitions Compared with other Statements

WE are told in the definitions (p. 8) that matter is extended substance, and that spirit or energy is sensitive and thinking substance; that is to say, if there is any value in definition, that matter is extended or dead as distinguished from energy, which is unextended and living. On p. 64, however, we read that "sensation and will" may be attributed to atoms. "*I explicitly stated,*" he says, speaking of the difference between atoms being alive and being "conscious," "that I conceive the elementary psychic qualities of sensation and will, which may be attributed to atoms, to be *unconscious.*" It thus appears that matter is alive as well as energy, and that the definitions of this monistic system are rendered merely ludicrous.

Moreover, we now learn that "sensation" may be *unconscious*. Pray, what is unconscious sensation?

"Will" also follows the same authority's dictate. This is certainly a curious philosophy: atoms, whose definition is non-living extension, in contrast with living non-extension, have yet "sensation and will" though they are not aware of it and feel nothing, being unconscious, *i.e.*, having no sensation.

Turning to p. 78, we find "I must lay down the following theses . . . as indispensable for a truly monistic view of substance . . . (1)—The two fundamental forms of substance, ponderable matter and ether, are not dead, and only moved by extrinsic force, but they are endowed with sensation and will (though naturally, of the lowest order); they experience an inclination for condensation, a dislike of strain; they strive after the one and struggle against the other."¹

Here we have the ether included, so that not only atomic matter, but a substance non-atomic, is now declared, not problematically, but positively and indispensably, to be endowed with "sensation and will." But "I explicitly stated" that this sensation and will are unconscious, yet now the whole universe of particles, atomic and non-atomic, are (with only fourteen pages between them) suddenly rendered conscious, for they have experiences, inclinations and dislikes, they strive after and they struggle against. Wonderful particles, and more wonderful science!

We have gained this, at least:—we have made sure of the fact that substance *per se* is "not dead" (which we may presume means that it is alive), and that, experiencing sensations, it is necessarily conscious—in spite of the fact that "I explicitly stated" it to be otherwise.

We are taken a step further, however, on p. 80, where we read, "The irresistible passion that draws Edward to the sympathetic Otilia, or Paris to Helen, and leaps over all bounds of reason and morality, is the same

¹ Italics not Haeckel's.

powerful 'unconscious' attractive force which impels the living spermatozoon—or unites two atoms of hydrogen to one of oxygen for the formation of a molecule of water. . . . It receives empirical confirmation (this 'unity of affinity') from the interesting progress of cellular psychology. . . . On those phenomena we base our conviction that even the *atom* is not without a rudimentary form of sensation and will, or, as it is better expressed, of *feeling* (*æsthesis*) and *inclination* (*tropesis*)—that is, a universal 'soul' of the simplest character."

Here sensation and will are "better expressed" as "feeling" and "inclination": that is to say, "feeling" (*æsthesis—sensitivity*) and "inclination" carry the consciousness involved in sensation a long way deeper, quite and finally remove it from the unconsciousness which "I explicitly stated" to be the atom's condition, and make the very nature of the atom to be *sensitivity* having distinct "inclinations." We are proving our sensitive and thinking substance of the definitions to be sensitive and thinking indeed.

Now, will any man believe that a substance that is not dead and is therefore alive, that is sensitive and thinks, that has sensation and will, that has the experience of inclination, dislikes, strivings and strugglings, and possesses feeling or sensibility, is the unconscious substance "I explicitly stated" it to be? If there is such an one, will he answer to himself the question, What is an unconscious sensation, unconscious sensitiveness, unconscious inclination or feeling, or sensibility or dislike or struggle?

We must carry this comparison of definition and general statement one step further. Let us turn to p. 91. Here we come upon the demand for belief in abiogenesis or spontaneous generation—the production of life from the non-living. Haeckel says, "I restrict the idea of spontaneous generation—also called abiogenesis or archigony—to the first development of

living protoplasm out of inorganic carbonates. . . . I entirely agree with his (Naegeli's) assertion that 'to reject abiogenesis is to admit a miracle.'

Haeckel's faith here is that living things came out of non-living or dead things; that the inorganic matters, specifically the atomic combinations of carbon, are such dead things; that there is no such production of living things now from non-living; but that in the beginning life was so produced; and that, to believe the contrary of this—viz.: that life at the first originated from the living, is to believe a miracle. That is to say, it would not be a miracle for the living to come out of the non-living, but it *would* be a miracle for life to proceed from life! To which one might surely add that since, within our knowledge or belief, it has been the uniform law that life has come from life, the true miracle would lie in its production by any combination of the non-living; that physical combinations of carbon may very well be the media of life's production, but could never approve themselves the cause or more than the fitting physical conditions; and that all that is needed for uniformity of productive process is the demand for the Cause of the Universe as the adequate Cause of life.

However, the question of the origin of life will be discussed later on;¹ what we have now to do is to compare the statements adduced. The definitions and other passages assure us among them that all substance is alive—both atomic matter and ether, atoms having sensation and will, and ether and energy being sensitive and thinking. The definitions are extended into "feeling and inclination" as "better expressing" what is meant by sensation

¹ See chapter xiv.

and will. In a word, all the mental and life-properties possessed by organisms—sensation, thought, feeling, inclination and will, with the outcome of these in energy and striving—are here attributed to *atoms*, the original substance out of which organisms are made. Yet we are assured that life must be believed the spontaneous outcome of the protoplasmic substances constituting these organisms.

What we have to ask is,—How does the doctrine of spontaneous generation of life in protoplasm agree with the teaching that the atoms themselves are alive? The one statement means that life arises only in organized substances by the peculiar combinations of those substances: the other statement means that life does not require organized or organic substance as its condition, but that inorganic matter is itself alive. How can life arise spontaneously or through the non-living, by the peculiar combinations of organic substance, if the atoms constituting those substances are themselves alive? That looks like life coming from life, and rather a glaring contradiction of the teaching that life arises from the non-living. What is the use of pretending to hold a doctrine accounting for the arising of life, when the very basis of monism is the existence of life from the beginning of substance—that is, from eternity—in the particles themselves which constitute the monistic universe?

Here at least is one part of his book affirming spontaneous generation, and another implicitly denying it. The above will be enough to indicate the consistency of Haeckel's teaching as held by Mr M'Cabe, and to show us how effectively, by contrast, his definitions compare with his other statements.

Part II

GENERAL RESULTS

CHAPTER XIII

Evolution; and a new Theory

HAECKEL'S theory of Evolution, that of the natural Rationalist or materialistic Pantheist, differs, of course, from Darwin's, who held it in the form of Natural Selection applied to organisms already existing. The Haeckelite believers in its thorough-going application hold it the "decisive answer" to the question of the beginning of life and mind. From this point Haeckel is necessarily carried back one last step, for, if Evolution account for life, why should it not, *plus* the law of substance, account for the universe itself, or as much of it as it can account for—even a theory that affects to account for so much being compelled to assume something and start somewhere?

We have already discussed one half of the basis of monism in the supposed Law of Substance, with consequences flowing from it: at the opening of this Second Part, we will discuss the theory of monistic evolution previous to entering on questions of which it purports to find the solution.

In this chapter our purpose is to lay open the question of evolution, its pros and cons, by showing (1) The kind of fact on which the theory is based; (2) The leading difficulties in its way; and (3) Suggesting a new theory of part of the evolutionary process. Our object throughout is to keep in mind the position of the religionist on the one side, who is afraid of the facts, cannot answer them, and, without trying to do so, takes refuge in the difficulties; and that of the evolutionist, on the other, who discounts the difficulties and holds the theory proved on the facts. We profess to maintain the balance between them, and to produce a new theory

which accepts the facts equally with the difficulties, and explains both.

1. *The facts on which the theory is based.*

1st. The first is that of the undoubted development of the universe in successive systematic order from rudimentary beginnings.

Everyone has some glimmering of the fact that the universe has grown progressively from what is understood as a diffused cloud of attenuated matter to the condensed and differentiated formalities of the heavens and the earth with "all that therein is." There is no question of such development in any mind, and the only difficulty in the use of the word "evolutionary," in regard to this universal progressive development, is the present appropriation of the term by a particular theory.

Nor, indeed, need there be any trouble about accepting the phrase "Natural Selection" as indicating a local and limited mode in which that process has been carried out. It is only when the special theory of evolution is confounded with general development, and Natural Selection taken as embodying that theory, that there is any reason for deliberation in the use of our terms.

The general fact of development, however, aids the evolutionary theory immensely, as it would any likely theory whatever having a basis in fact more or less detailed. And as the theory called Evolution is the only general explanation offered of such development, it is natural that it should greatly gain in force by the commonly recognised fact of such expansion, and that the two should even be con-

founded in ordinary apprehension. Such general perception of development predisposes greatly to the acceptance of the special explanation offered by the Evolution itself first suggesting it. It possesses to most minds the advantage of a good send-off as a theory with a large likelihood of truth, especially as identified with the leading scientific teaching of the hour. The result is that to-day the Theory is in many quarters quite confounded with the fact as exhibited in nature.

2nd. A specific case exemplifying and supporting the Theory.

In America, there was discovered in the strata of the Eocene Period of the earth's formation a creature like a small fox having four toes, with slight differences in the hind and fore feet. The same creature, enlarged in size, appeared in the lower part of the Miocene Period, but with three toes and a rudiment. Later, that is, higher up, in the same period, this animal, showing further development in size, was discovered, still with but three toes, yet having the middle one greatly enlarged, and a much smaller rudimentary one. At the beginning of the Period above the last (the Pliocene) this animal, still further grown, is found, with the three toes as of old, but without the rudiment. At the top of this geologic period, remains of this creature were discovered reduced to one toe very greatly enlarged, with two rudimentary flanks; till in the Recent Period, there appears the one enlarged toe or *hoof*, with the two rudimentaries much diminished—the representative of the true *Equus* or modern Horse.

Here is a case of undoubted development, then; and the theory is that the horse has thus been evolved by the operation of natural laws, specifically by that of Natural Selection, from a creature with four or five toes into the large and capable animal we know, with hoofs only, but still having rudimentary signs of the toes out of which the hoof was developed—all limbs,

teeth and trunk, keeping in corresponding form.

This is a case of development within definite range and well defined limits, and it may well be, of development by Natural Selection as the means. Why not? At any rate, the facts satisfy the conditions of that theory as propounded by Darwin, within a limited range, and as bearing reference to animals, already organized, showing growth by variation. Of course, a case like this does not touch the Haeckelian demand for the formation of the living organism itself by evolutionary processes; but so far as it goes, it is strong for a progressive variational development within certain limited areas. Again, why not?

3rd. General or racial development as proof of Evolution.

Here we come upon a complicated case and one that is best focussed and disentangled as to its elements by a grasp of the principles of Embryology—the doctrine of pre-natal stages of growth. Higher animals previous to birth follow the organic outline of the stages through which the lower have developed. "The human embryo," says Darwin,¹ "at a very early period can hardly be distinguished from that of other members of the vertebrate kingdom," and it "closely resembles that of other mammals." Again, "I will conclude with a quotation from Huxley, who, after asking, Does man originate in a different way from a dog, bird, frog or fish? says, 'The reply is not doubtful for a moment; beyond question, the mode of origin, and the early stages of the development of man, are identical with those of the animals immediately below him in the scale.'" "In his development from cell or egg," says Mr Hird,² "he presents structures that are precisely like those seen in the bodies of the lower and lowest animals in their adult state. . . . The detailed life-history of any one shows the history of his race."

The main outline of man's formation

¹ *Descent of Man*, p. 9.

² *Easy Outline of Evolution*, p. 41.

before birth is clearly made out: from the cell, the 125th of an inch in diameter, indistinguishable from those of every living thing, to the division into masses of cells, he is but a reproduction of the lowest living creature. In the liquefaction of these cells he becomes like the hydra and the sea anemone. In the formation of the first outline of the backbone "as a little rod of tissue" he resembles the first vertebrate developments.¹ In the fish-like tadpole form, and in the aortic arch in man we have the result of "development from pre-existing conditions identical with those now persistent in fish." "The gill-clefts appear on either side of the fore-gut, they are the openings of the gullet, through which, in our primitive fish-ancestors, the water which had entered at the mouth for breathing purposes made its exit at the side of the head. By a tenacious heredity these gill-clefts, which have no meaning except for our fish-like aquatic ancestors, are still preserved in the embryo of man and all the other vertebrates."² "At a later period when the extremities are developed, 'the feet of lizards and mammals,' as the illustrious Von Baer remarks, 'the wings and feet of birds, no less than the hands and feet of man, all arise from the same fundamental form.'"³ "The arms and legs of man begin to develop, and continue for some time to develop, on the same plan as the fins of fish."⁴ And so on through the later resemblances to the forms of animals nearer to himself, such as the ape. "On any other view" than Evolution, or the modified descent of man from a common progenitor, says Darwin, his prenatal likeness to other animals in fact and in the order of formation, "is utterly inexplicable."⁵

4th. Rudimentary organs.

¹ *Easy Outline of Evolution*, pp. 43 and 45.

² *Riddle*, p. 23.

³ *Descent of Man*, p. 9.

⁴ *Hird*, p. 45.

⁵ *Descent of Man*, p. 24.

This means, according to the theory, that there are organs in the human body that are of little or no use to the body itself, but are remnants from developments in previous animal states—such as, for example, the gill-slits in the side of the neck still found in members of our race—as the tail-piece at the end of the back-bone—as rudimentary muscles in various parts of the body, by which a twitching of the skin can be produced by the human animal, in the forehead, scalp, external ear, etc., as the blunt point on the margin of some human ears derived from the ears of monkeys, or as the wool-like hairs which cover the embryo in the sixth month, etc.

In Embryology and Rudimentary organs, we have facts of great import from any point of view, and we put it to the religionist that it is necessary for him to decide what his relation to them is to be. If he accepts them, must not the acceptance of the theory of evolution follow, as things now stand? About the facts there can be no manner of doubt, attested as they are by numerous and credible observers, whatever may be said for the explanation. If he declines the explanation which Evolution has to offer, has he any other to give?

"Yes," says the religionist, "but there are difficulties in the way of the theory, equally serious." Of one thing we would assure him, that no difficulties whatever can for a moment *touch the evidence of the facts* (not necessarily for the theory of evolution now accepted, but for evolution in some form); the difficulties referring to other matters, for the most part, than those by which the evolutionary process is held to be proved. If their supposed strength prevents him accepting the theory, however, it will probably do so at the cost of *leaving the facts unexplained*, seeing that, likely enough, he has no other theory to take its place.

In that case, the current evolutionary theory remains unanswered, and will go triumphantly on its way. On the

other hand, there are some evolutionists who cannot see the difficulties—cannot understand what people bogle at; to whom, for our part, we can only say that those incapable of appreciating them and the position of the evolutionists who perceive them, may fairly be held incapable of appreciating Evolution itself in the form in which they maintain it. We now come to these difficulties, and the reader may judge for himself.

2. *The leading difficulties in the way of the Evolutionary Theory.*

1st. The Theory is untrue to itself, whether Monistic or Creational.

A. Monistic.

Monistic evolution is untrue to itself in postulating the evolution of a necessarily unevolvable substance, therein making the Matter-force Cause the subject of its own evolutionary effect. It is not as with the believer in a Creator who postulates an Originating Cause in its nature unoriginated; but the case of the Monistic evolutionist is that of postulating a substance as infinite and eternal, *i.e.* matter-force, which is itself the known subject of evolution.

It seems plain that to talk of the infinite being *evolved* is unjustifiable—an intellectual contradiction; and yet it is the infinite which is the supposed subject of this evolutionary process.

Moreover, since this monistic infinite is the Matter-force Cause, it is necessarily the cause of the evolutionary process, but, being made the subject of evolution, it becomes itself the effect and subject of its own product—which is absurd. Neither the Cause nor the infinite can be thought of as evolved without intellectual confusion and contradiction—a confusion and contradiction which, in predicating evolution of the Monistic infinite and cause does but strike at the root of monism itself as an unstable, confused and contradictory quantity.

Again, since this infinite and eternal causal matter-force is necessarily the cause of the evolutionary process, not

only was there a time (*this* eternal being in *time*!) when the unevolvable cause existed but there was also a time when this unevolvable cause became not only a subject, but a subject evolvable and evolved, and that through (as we have seen) the agency of its own effect. It is needless to point out that an unevolvable, like an evolvable, subject never can *become* evolvable; yet it ought to be seen that this infinite matter-force cause is both evolvable and unevolvable—unevolvable as infinite cause (else in being evolved it would become conditioned and finited), and evolvable and evolved as the product of its own evolutionary principle. In other words, this matter-force, according to unconscious monistic claims, is a palpable self-contradiction as great as any Hegelianism it condemns, being at once evolvable and unevolvable, finite and infinite.

Thus Monistic evolution is untrue to itself in postulating an evolutionary infinite: since the infinite cannot be *evolved*. There is either no infinite or no evolution. Both cannot be predicates of the same subject.

B. Creational.

What, then, of those Evolutionists who do not believe in the infinity of matter, but in Evolution *plus* the infinity of God? They hold the current theory to be His method of action. Then how did the matter of the universe *originate*? If it did not originate, it is infinite, and there are two infinities—which is impossible. If it did originate, in what, from what, and how? It must have been created before it could be evolved; so that this Evolutionist has not got rid of creation, but has both that and evolution on his hands. Was matter created by God's mere word, out of nothing? We are back in the slough, since from nothing, nothing comes; and Evolution, here or later, does not help us a jot, for all our bowing in the House of Rimmon.

For, of course, the Originating Power that began the creation of matter must continue it from point to point in sus-

tenance and preservation by a *Divine* Selection, as a recent American writer¹ has named the process. Divine Selection is held as but a perpetual creation, with Natural Selection as the instrument; but we are committed to the principle of creation still, all the way down the development of the universe, having professedly accepted Natural Selection as cause, without requital, and in that acceptance practically given up the Divine action for nothing.

It may be said that Divine continuance or perpetual creation, to which the Creator is committed by the first creative act, requires methods and forms of procedure which *might* be evolutionary (in the sense of the Theory) or in some other way developmental. But the explanation of the physical mode does not free the evolutionist believer in God from belief in the *continuous Divine action* in the universe. "That is just what we hold," says this would-be Evolutionist. Yes, but the point to which we are leading is the incompatibility of the two theories of Creation and Natural Selection. There is no *via media* in Evolution as the *method* of Creation. Natural Selection meaning the eternity of the Selective Matter, and the Evolutionary Theory being precisely that and nothing else, the alternative is between this Theory, excluding God, and the alternative of continuous Divine Action. These are incompatibles which by no means can be united; and the profession of the acceptance of current evolution by its holders is a bridge of Mirza from which the next unseen step is into the gulf below. Let us make no mistake. Evolution may be the means of Divine action. The evolutionary theory cannot be. But how will our theologians, accepting the facts of Evolution, escape the Theory? They are in a tolerable coil.

Moreover, the Evolutionary theologian, believing also in creation, has

¹ *Divine Selection*, by G. H. Dole.

yet no notion of the *nexus* between the Creator and the created, and tries to fill the hiatus, unfillable by any theoretical or physical considerations known to him, by means of an arbitrary, unrelated statement that creation is the effect of the WORD of God. How will that statement explain the relation between the Infinite and the finite, or the action of the Infinite in production? Without the *nexus*, such evocation is a mere spell, and spells do not operate here. This arbitrary causal principle may be the very truth of the facts, if the theologian only knew how to find it. But of all situations in this question that of the Religious Evolutionist is the most utterly helpless, illogical, and mentally confused, though he does not seem in the least to be aware of it.

2nd. The next difficulty in the path of the evolutionary Theory is the essential idea it involves—the production of the internal by the external, of the subject by the object, of the living by the lifeless, of the centre by the circumference. It is, on this theory, the external and physical that produces life and mind and personality—the circumference of the universe that produces the centre.

Think how pure Evolution would accomplish this. The forces of the great lifeless space act together, without idea, sense, or end, and by a fortuity, named necessity, to save it from shame (though this very "necessity" needs most of all accounting for), life emerges, organisms appear, consciousness is produced, mind evolved, and the personality, greater than all it sees, stands forth, comprehends; and belief in a living cause as God and Life, and in immortality as hope, crowns all. Yet it was the physical force of an inorganic cloud, inanimate matter, *death*, in a word, which did all this. From itself, by a necessity unaccounted for, it brought forth man and God, and brought life and immortality to light. Is this seriously, rationally credible?

We will not lose ourselves in general conceptions; but will take a special case. The eye sees; how? The Theory says that when physical forces had worked together to produce sensitive hair-cells on the surface of an organism, pigment or carbon, developing in them and acted upon by light, being converted into a perlucid glass-like jelly, began to reflect the things about it, and behold sight was!

We are told that it is wholly arbitrary to suppose the eye was in view while the work of its formation was proceeding, or that it was the inflowing life with an end before it, acting through the organism, that determined the event; but that the *Aeneid* of Virgil and the *Hamlet* of Shakespeare are necessarily fortuitous evolutionary products. Who does not see that the one main point of consequence, the one demanding explanation is left out of this theorising, viz: not how the eye was formed (being a physical organ it must of course have been physically made, and that stage by stage, by whatsoever process) but how the power to see and observe necessarily came into the physical eye.

How is it that not only *sight* emerges but the *ability to observe* merely because the eye is produced with a nerve behind it? Is it, then, the physical eye that sees and observes, or the nerve behind it, or even the brain, or not rather the *mind* through all these as its physical instruments? Or how is it that the instruments are made before the cause demanding them, and able to use them, is produced? Or is the making of a physical organ, such as the eye, the same thing as the creation of the corresponding mental act? Is the *sense* to apprehend external objects, and the *conscious knowledge* of their existence, the same act as the making of a physical organ?

The mental and physical are correspondent but not identical; and Evolution shows us no proof whatever of the physical being the cause of the mental. And does not Haeckel

deny that mind or energy arises from matter?

If Nature, then, by mere physical energy made a whole body with every organ intact, no matter how gradually and through how many ages, will that ensure the existence of any one mental property eventually acting through these organs; without which the organs, protoplasmic or otherwise, are valueless? Just that one thing is wanting and assumed in all this physical organ-making which the Primal Life and Mind alone can impart. Mind is admitted not to come from matter; then either *force* is that mind (which is not Haeckel's position, but its reverse) or else a Primal Mind of which the physical and spiritual forces are but the instruments.

To sum up: is our philosophy seriously willing to hold as the basis of life and its fundamental theorem, that the circumference begets the centre? This is the essential idea involved in the Theory of Evolution.

3rd. The next difficulty is that of the absence of intermediary forms where they should and would be if the current theory were either the only instrument of God's action or the method of materialistic development.

This difficulty is usually, *very* usually, by Mr M'Cabe, sneered at as the theory of "gaps." That cannot be laid to our charge, but if the gaps are there we want to know it, and likewise why.

On pp. 53 and 54 of the *Riddle*, Haeckel gives us a provisional classification of all organic life by which he hopes, in his own language, "to trace the soul of the man from the soul of the brute." This classification has eight stages, from the uni-cellular protozoa up to apes and man—which latter, of course, come together as stage eight. It is a striking circumstance that between the first stage and the sixth there are none intermediate, though intermediates exist between the sixth and eighth.

Haeckel however, tries to obscure

the fact, and deals with the lack of intermediary forms in a most singular way for a scientific mind. He says, a number of these "subordinate stages" we may distinguish "more or less clearly."

He goes on, "naturally, however, in reconstructing them we *have to fall back* on the *same* defective evidence of empirical psychology which the comparative anatomy and physiology of the actual fauna affords us." In plain English this means that we have little or no evidence in the actual animals now living of these gaps being filled up, and of course we are really unable to reconstruct these intermediates though we take this round-about method of declining to say so. Then he continues, "As the craniote animals of the sixth stage—and these are true fishes—are already found fossilised in the Silurian system, we are *forced to assume* that the five preceding series of *ancestors* (which were incapable of fossilisation) were evolved in an earlier pre-Silurian age."

This is surely astounding for a scientist. Not content with glossing over the absence of intermediates where they should be present for Evolution, he tells us we are "forced to assume" these stages as evolved in an earlier age: and as the basis of that assumption we call these stages, which do not *exist at all in any early age*, "the five preceding series of *ancestors*?"

That is, the facts are not there, so we must assume them, and to be sure of their being thought there we call them by the familiar assuring term of "ancestors." This is science with a vengeance! But why are the "ancestors" not in the earlier age? Because they, being soft and boneless animals, are "incapable of fossilisation," like those supposed to fill up the gaps between the stages.

If *none* of these animals are preserved, either from the stages or between them, how can the filling up of these gaps be "distinguished more or less clearly?"

He would apply the "more or less clearly" of present living animals to those of the pre-Silurian age, which yet, as far as he knows, *do not exist at all*.

Where, then, are these "actual" animals found? In our seas and lakes; and here "the same defective evidence" for the filling of the gaps is a conspicuous feature. In fact, they are not filled up, but remain. Haeckel's first six stages "in the development of the human soul," therefore, yield sufficient evidence of the "gaps," if such evidence is required.

If Evolution be true, it is a pertinent question, Why are these gaps not filled up? The "stages" are there; the "intermediates" are not: Why? These intermediates are "more or less" in evidence after the sixth stage. A greater blow could hardly have been dealt the Theory by the merest fiction than this hard fact from Haeckel's own pages deals it. Yet some Evolutionists sneer at "a philosophy of gaps!"

Moreover, on Haeckel's classification, where is the proof that Class I. ever rises into Class II., or Class II. into III., or III. into IV., or IV. into V., or V. into VI.? There is none. That the stages between the sixth and eighth contain "more or less" of intermediates is explained by the fact that the bodies of the great animals covered by that portion of the classification were required in more abundance for the making of the soil of the earth.

4th. This difficulty is that of Instinct and the impossibility of accounting for it on the theory of evolution. Haeckel, with all he says about instinct, does not attempt to explain it, but assumes it as the result of habit, adaptation, and heredity. Of course there are instincts developed by, and residual from, habits, fostered by adaptation, and carried forward by heredity, but this leaves untouched the instincts that have no basis in habit.

Let us note some human forms of instinct: for instance, *the instinct of God*. How is it that the lowest races

possess this instinct? The question has been replied to, but not answered, by anthropologists, and the instinct denied. We are told that the lower races, dreaming of ancestors and others, get the idea of spirits or ghosts, which gradually merges into that of a great Spirit, helped thereto by the fact of the tribe having a chief or king.

The answer is, First, that some of these lower races have the clearest belief in a Supreme Being and no traceable belief in spirits or ghosts, and the belief in such Being is sometimes doubtful among those who believe in spirits. Second, that the notion of the idea of a chief or king being transferred to God is out of court, for the reason that some of the tribes believing in a Supreme Being have no chief or king, and some having a king have no Supreme Being!¹ The result is that the instinct of God, full-blown, untraceable historically to any source, and unaccountable by Evolution, is a fact of the lowest races, and of all others above them, with a few doubtful cases.

In the same way, the *moral* instinct is unaccountable. The basis of human evolution is, by the theory, Natural Selection, which means personal self-aggrandisement. Darwin somewhere says that if it can be shown that any act of Natural Selection is done directly for the good of another, his theory would be disproved. How, then, does the moral instinct arise under Natural Selection, especially in the altruistic sense? And we all remember Huxley's emphatic declaration, Evolutionist as he was, that while in nature, below man, the self prevails, yet in man and his sense of an ideal good the principle of Natural Selection is broken in two, and we have to begin the reversal of all that nature taught us. The altruistic side of morals lies apart from Natural Selection. Not only is the moral relation left unexplained and inexplic-

¹ We would recommend a study of the facts presented in Mr A. Lang's *Making of Religion*, ch. ix., ff.

able, but the two are incompatible as laws of the natural order.

So with Immortality. Of course, with Haeckel, this is a "superstition" for which it is not even worth his while to account. Yet here is an instinct of man's contrary to all that the senses would teach, which, whatever explicit form it takes, is one of the strongest factors in life. What is there in Selection, as a determining principle of individual success in a material world, to beget such a conception? Why does this element, with the others named, enter into all religions, and play its great part, like them, in lifting man's mind above the "struggle for life" and even the wish for continuous personal survival here, making Natural Selection itself, with its urgings and hopes, of no effect?

If Natural Selection be the law of life, on which all is founded, and adequate to the explanation of all, how is it that it not only can be, but, with all its implications and selfish promptings, *has* to be, fought against and surmounted in order to the highest, or to any, human nobleness? And at what moment did Natural Selection ever lift its eyes to a sphere transcending this, and look forward to continued existence in it? But if Immortality be absolutely beyond the scope of Natural Selection, how will that earth-hunger explain this uplifting instinct, superstition or otherwise? How could it arise out of Natural Selection?

Or, again, what of the instincts of music, of art in general, having no direct connection with life under any form of Selection, but, like religion, lifting the mind above the devices of Selection with its mere utilities and strivings, above the sphere of its commands and of temporary pain, and even moral injury, from its inflictions? Nor is the extinction of the Dramatic and Poetic instinct, in the great teacher of Natural Selection himself, forgettable in this connection as a proof of its power even to kill instinct, and of the relatively low human level to which a

mind imbued with its principles, and given up to its rule, may eventually sink.

It may be objected that these states of mind tending towards God, moral life, Immortality, certain forms of art, such as music, etc., are not instincts but ideas. To which the reply is evident that even if they are, the case is untouched, since ideas as well as emotions may be developed instincts, but that, in truth, such states are instincts which find expression as ideas, and as such may even be elaborately formulated. The case remains that such instincts or primary perceptions are untutored utterances of human feeling with which, in the nature of things, Natural Selection can have nothing whatever to do; and that the only explanation of the instinct in these cases is the truth (for man at least) of his instinctive need of them, of their objective reality, or of both.

5th. Hybridism.

The almost uniform sterility of hybrids is a singular comment on the theory of evolution by Natural Selection. "Yes," it is said, in effect, "the almost!" The answer is that "hybrids have never been brought to reproduce themselves naturally *without artificial crosses*. On this point, we refer the reader to the demonstration supplied by MM. Blanchard and Quatrefages. M. Blanchard says: 'Science can no longer entertain any doubt, except about the affiliation of some very closely allied species. Wherever one of the productive elements predominates, the other is lost. Thus we are brought to recognise the independent character of the specific types and the impossibility of originating a new and independent form.' This sterility of hybrids is regarded by MM. Blanchard and Quatrefages as constituting a fundamental law of nature, which alone maintains the order and fixity necessary in the domain of life; for without this law, we should have only a chaos of non-coherent and changing forms."¹

Thus, then, stands the present evolu-

tionary problem. On the one hand an array of facts, in themselves unchallengeable, open to the interpretation given them, which, being so interpreted, indicate and apparently prove an evolutionary development of all organisms, man included, through and from each other, step by step, beginning in what may be called their common ancestor, living or protoplasmic matter, itself developed from inorganic substance, and in turn seemingly producing the formed cells out of which all organisms emerge.

On the other hand, no counter-interpretation of the facts, but an opposing mass of difficulties so great as to stagger even some evolutionists themselves, who can only hope that the chief of these may be answered by the continuous progress of science, and the pile of facts thereby be completed. But that, at least, is in many respects hopeless, striking at the root of the theory as a few of the difficulties do, so that we are not likely ever to approach the reconciliation of the theory and the difficulties. In truth, were it not for the facts which the theory claims in proof, the inability of the theory to do the work of explanation required of it all round would have caused its relegation long since to the waste-bin of human thought.

Thus, apart from the prejudice in some minds against the theory, in others the conviction is strong that in some way inexplicable at present the whole position is fundamentally wrong; and that, in any case, Natural Selection is quite unequal to the task allotted to it. The difficulties cannot answer the facts or give them a new interpretation, but they are strong enough to challenge the theory and to keep some aloof from it in spite of its seeming proof.

What is wanted, then, is a new solution of the facts upon which the theory is based, a new interpretation of them; that is, a new theory; one, moreover, not merely adequate to the facts, but adequate to a solution of the difficulties.

¹ Pressensé: *Study of Origins*, p. 195.

It is a significant circumstance that, if the current theory be the true one such radical difficulties, a few of which we have indicated, should remain. That of itself is sufficient to induce the idea that the theory, seemingly proved, cannot after all be true; for if the facts speak to its adequacy and the difficulties to its inadequacy, one or other must be wrong, with the result that some foregone conclusion in either case decides the position for us apart from the evidence.

The balance of judgment is against the theory, for the reason that a theory that would remove the difficulties—and such an one *must* exist—is preferable to a theory which can never get rid of them. It is plain that the difficulties *ought* to vanish were the theory the right one; instead of which, they show a tendency to increase and deepen in intensity.

If the difficulties are unalterable, there is in that the clearest proof that the theory is wrong, and that no further accumulation of facts would dispose of them. For these facts would all be in the same line, and it is the *line* of the theory that the difficulties front, and not the facts it alleges.

3. *A New Theory of the evolutionary process.*

We make no pretension to have found a detailed solution, but we hold a general theory which answers to the facts, we believe, equally with the current one, which removes the difficulties with which that theory has to contend, and one which may eventually, if worked out in detail, reconcile contending parties.

We start with the unquestioned natural fact that every living organism arises in a single cell. This idea is in no way, as seems to be imagined, the property of the current theory. It is a fact of nature.

Beginning from this base, we have to observe, 1st, That there is no evidence of the conversion of the protoplasmic matter of external nature into the simple-celled protozoa—the

lowest animal forms: Haeckel's assumption, No. 1. 2nd, That there is no evidence of the development in external nature of the simple-celled protozoa into the metazoa: Haeckel's assumption, No. 2. 3rd, That Haeckel's introduction of "souls," cellular or communal, into these protozoa may be of much more use to us than it can possibly be to him, seeing that, at bottom, the real question which evolution has to answer is that of the place and needs of mind or soul as an evolutionary factor, and not of mere body, as the theory assumes.

We make no doubt, however, as to the point of departure for these forms of animal life, that protoplasm was the means by which cells were formed, but protoplasm is not cellular, and left to itself, never will be. In short, there is no evidence of the conversion of protoplasm into cells, nor of differently classed cellular animals into each other, in any of the grades of Haeckel's classification, even where so-called intermediate forms may be admitted. The distinctness of the facts, and the separateness of classification, bar the way; nor has any evidence been offered which can touch that discreteness of difference.

The teaching of the facts, then, is to this effect, that the formation of each class necessarily followed the law of *beginning from the single cell*. Take Haeckel's rough classification of animal forms, for example, under which he traces the origin of man's soul (pp. 53, 54): Protozoa,¹ Metozoa, Vermalia, Acrania, Craniota, Placentals, and Anthropomorpha. Whether this classification be correct or not, whether there be intermediates or not, whether or not the so-called intermediates are rightly placed or understood as to their significance—these things do not concern us now.

Accepting the classification (only dividing the last into two classes) with

¹ We class the two Protozoa together because, on any theory, Multi-cellular Protozoa are not Metazoa.

what intermediates, if any, there may be, taking the facts without theory, and starting from the single cell, it follows that these sub-kingdoms were not produced from each other, nor were produced as separate creations, but that each sub-kingdom sprang directly from the single cell, and therefore passed, *within itself*, through all the formations of the sub-kingdoms previous to it.

That is to say, when the Protozoa were formed from the cell, they remained Protozoa and were not developed into Metazoa; when the Metazoa were formed, they were, like the Protozoa, produced from the single cell, were, *within themselves*, passed through the Protozoa stage, and so developed into Metazoa; but when developed were left to propagate their kind on their own plane, as were the Protozoa before them. So with the Invertebrates, and Vertebrates,—passing within themselves through the whole course from the single cell upward, and taking on their passage each form in succession till their own stage, on which they remained, was reached. Thus was it with the Anthropoid Apes; so also with man.

In a word, and casting aside man's divisions, the development from the single cell into the first members of the specific natural stage about to be produced, occurred within that stage itself, whatever that stage was, and viewing the matter independently of man's classifications. All species and varieties within that stage of growth were brought about by natural and sexual selection, leading to the survival of the fittest, but without development from one stage to another. The animals of each stage in nature's classification, which man has yet to discover, were essential to the uses of nature, but incapable of reaching higher, or of producing anything beyond the strict lines of their degree; because, for them, development necessarily ended with their own production and their consequent reproduction.

Specifically, when man, beginning

from the single cell, passed pre-natally through the class-forms of nature (whatever they may prove to be) and reached the human stage, he, having been every type or class of organism within himself, necessarily carried with him remnants of those forms through which he had passed. Thus the rudiments in man are explained. But the class-forms were all to be of use to him in time to come because forming the physiological basis for the corresponding psychological states of development, constituting the necessary stages up to the last, and securing the brain-formations by which all corresponding animal functions should be discharged.

Nature knows no leaps, and must always begin from the first. So, for man, each step has been secured under the guidance of the highest or human; all previous results passed through as present processes, and left in him, but made in that human's likeness because subject throughout to the end in view by the Originating Cause.

This statement involves three truths which it is necessary to emphasise: *a*, That nature must, in all forms, begin from the first or primal; *b*, That she works on a typical basis; *c*, That this involves intention, and brings us back to the Originating Cause.

a. That nature must, in all forms, begin from the first or primal.

It will be asked, Why cannot nature continue from one class-form to another, according to the current theory? The answer is two-fold: (1) *Because acquired powers must be according to the forms acquiring them*; and therefore, in virtue of being what it is, no one class-form can take on the powers of another.

But can the form itself be changed? Only to the extent of its class, otherwise there is *no* class but one *continuous form*—which is contrary to fact, and towards which intermediates, real or supposed, add no enlightenment.

It is precisely this continuous evolution which the theory does not and cannot disclose; and at which it makes

a bold guess because of some artificial barriers of species having broken down under its touch. We begin with certain ignorances in the form of arbitrary species; and because, under the evolution theory, they turn out to be no species but mere variations from a type or class, we boldly claim that genus and class and kingdom have also gone with the supposed species, and that all is one vast continuous organic evolution. We are assisted in this bold draft on imagination by the pliability of physical form, by the identification in our materialistic way of the physical with the *real* form, and by the consequent notion that because the physical can be moulded to any type, therefore the inward or real form is as malleable and degreeless in essential inherent capacity, as lacking in class-rigidity, as is the merely physical.

The difficulty, however, which Evolution has to meet here lies not in the physical, for that is *per se* homogeneous throughout all forms (each being but a re-combination of the same material), marking no differentiations of degree in itself. The crux for the notion of continuous form lies in the "soul" or *mind*-difference in organisms, with its inevitable fatal differentiation of degree and kind.

By what means at the command of the theory can an ape's mind be shewn evolving or evolved into a man's? That is the point which the Evolutionist, for the most part, avoids, magnifying instead the fact of approach to likeness in the brains. But who does not see that that does not touch the real question, and that by no difference in brains and body known to us can the world's difference of mental capacity and outlook be accounted for? It is not in brain that the true class-form is to be found, but in the nature, degree, scope, and power of mind. By what means known to Evolution can the ape's intellect, for example, be carried *out* of the ape-plane into the human? By what process can that intellect, carried never

so far on the ape-plane, be converted into a man's? By what means can its substance as "soul" or mind-form be endowed with the human grasp and capacity of reflecting the universe; with human far-reaching rationality; with its interior perceptions of insight; and with its calm majesty of contemplation of the innermost? By what process can an ape's emotions be so raised and developed—will it be by environment and physical changes—that they shall "delight in the law of the Lord" and be led to "meditate in that law day and night," or what the means by which religion and the love of God and man be achieved by them? Or how shall an ape's *consciousness* be transformed into the human by any physical additions its body could receive?

You might as well think to manufacture substance out of length and breadth, or try to conceive the spiritual as the property of the three dimensions, as to imagine an ape by any physical changes entering into possession of the human consciousness or of Divine relations.

When Evolutionists talk of the difference between men being greater than that between men and apes, they show how little they appreciate what manhood even in its lowest form means, or how tremendous the gulf between the free human consciousness with its personal dignity, and Godward up-looking, even in the savage, and the creatures who chatter and mow, in whom such consciousness is an eternal unfillable blank.

Difference of brain! Then why is the difference of brain so small as the Evolutionist is ever insisting, and the disparity of nature so vast? The more slight the cranial divergence, the more inexplicable is the mental difference. Yet it is solely by their capacities in this latter kind that they must be known, and their scale-place in creation found.

The Evolutionist-problem, therefore, is to account for the ape- and human-disparity by the supposed trifling

differences of brain, to show that just these few organs or cranial touches produce the human capacity, and *how* those organs are produced by Evolution.

The transformation of the low-grade *natural* mind of the ape into even the lowest *spiritual* mind of man means more, we will find, than the addition of natural qualities, or of physical substance. Its only complete solution is a change of coördinated spiritual substance, whether "soul" or mind, *plus* the correspondent cranial changes. By no possible progress conceivable to us on the physical plane, be it as slow as time is long, can the ape's mind assume this spiritual capacity, or even attain the human consciousness, perceptual, rational, emotional. For that, the differentiated human mental substance is required, and the "soul" of the ape for ever useless for any such end.

Thus the essential difference of power, even in natural organisms, being *mental*, since no physical changes we know of can account for the changes of mental and spiritual degrees in classes or in individuals, since a physical organism can express no other than its corresponding mental form, and since acquired powers must be according to the powers and upon the plane of the degrees, whether spiritual or natural, acquiring them, it follows that each class-form is an end in itself. It further follows that the only possible method by which, so far as we know, development can take place, is from the primal or cell-substance for each class-form. Nature, therefore, must, in all forms, begin from the first.

This is further shown from the *relation of life, as existing in the cells, to organism*. Life must enter either from and with matter as origin, or coincidentally with matter, or antecedently exist. But distinctive life first shows itself in protoplasm, and it is admitted that life, soul, mind, energy, does not come from matter as cause. It must, therefore, either rise coincidentally, or pre-exist. It does not rise coincidentally because protoplasm, the first-time ex-

hibitor of life, does not exist concurrently with primal matter, but arises through material combinations—though admittedly not from them. It follows that life is pre-existent.¹

Life, then, pre-existent and seeking embodiment, creates protoplasm out of matter, as its first physical form. Plainly, however, protoplasm is only an initiatory step between the life and organism; organic cells therefore follow as the first expression of life in organic form. In this first or cell-form the life, soul, mind, or energy *remains*, acting *from* it, and producing thence in turn the forms of living organisms.

But insomuch as the life of all is *in* the primal cells, and necessarily only as much as is adequate to any one form of living organisms is put forth in creating that form, the other forms as yet unproduced, and being still stored in the life (which does not arise from matter), it follows that to produce the *second* natural form or degree of organism, the life must again outflow from its immediate source in the primal cells. So, too, with any successive degree of organic form.

(2) That life must begin from the first cells for the production of any form, is further shown from the *correspondence of life and organism*. Now, since acquired powers can only be according to the forms acquiring them, and since life must flow through and forth from the cells for the production of these forms, it follows that the life cannot use any degree or form of organism for the production of the next above, but must flow immediately from the primal cell. This is because *the form of organisms* is produced in *adaptation to and correspondence with* the life inflowing into any one degree or form; and together they constitute, on their own

¹ Monism seems to "palter with us in a double sense" here. Its usual teaching is that life, energy, or mind (Mr M'Cabe, p. 55) does not arise from matter, but abiogenesis is the origin of life out of material combinations; by which monism, to be consistent, can only mean that life, not arising from matter, appears through it, and is therefore pre-existent.

plane thus produced, a perfect whole, because an end, within themselves. The reproduction of these forms, therefore, on that plane, with variations within the scope of the mental and physical organism, in wide expanses of time, and through external conditions, would be their imperative operative law. But their change into some other organic form, slow and gradual or otherwise, would be inconceivable, since the organism once formed is in essentials a finished fact, adapted to the uses of its place, time (passing or successive), degree and kind—the life and organism in mutual adaptation and correspondence unbreakable.

Let any impartial mind look at the diagram picturing the development of the horse from the Orohippus to the Equus,¹ and he will at once realize that whatever the additions in the way of growth and size, the essential principle of the animal's structure remains from first to last the same. Instead of being a proof therefore of evolution according to the current theory, this is a proof of the fixed primal forms of nature, and of adaptation to circumstances within the scope and identity of such forms. For it is not the physical accretions, however relatively great in bulk, that makes an organic difference, but the nature and possible modifications of the mental organism and consequent adaptation of physical material in correspondence with its mental and physical changes.

We have thus discussed the first of the three conceptions involved in our theory, viz.: That nature must, in all forms, begin from the primal cell. This brings us to the second conception:

b. That nature works on a typical basis.

We have shown, as also on a former occasion, that life or energy is pre-existent to matter. But as life flows into cell-forms, it carries with it, because in it and essentially of its nature,

¹ Huxley's *American Addresses*, p. 88 (original edition, 1877).

the mind or life-forms, "souls" according to Haeckel ("whatever the term may cover") by which it moulds organic forms from the material of nature, according to the quality and degree of such forms.

These organic material forms are the expressions and representations in matter of the mind-forms. Hence, from below upward, we may look upon such representative organisms as typical of the internal mind-forms they embody. And, again, looking from above downward, we see, in these mental forms, the types on which the living material organisms are moulded. In this complete adaptation of physical and mental in organisms (necessitated by the pre-existence of life and its consequent influx), we see an actual representation in the material sphere, of things immaterial and hidden, and a means of reaching back into the unseen, according to the words of Milton,

"What if earth be but the shadow of heaven,
And things therein, each to the other, like,
More than on earth is thought?"

Moreover, these mind or soul-forms of life, which the pre-existent life necessarily carries in its bosom (seeing that life can only come from life), are themselves types of the creative principle from which they spring, and Plato's Architypal Ideas as realized in modern scientific inference may not be so merely a dream as Naturalism inclines to think.

However, we content ourselves with here emphasizing the fact that since pre-existent life holds necessarily the possibility of all life and mind-forms within itself, and is itself essentially of the order of mind or energy (see Haeckel, *passim*) its forth-puttings in nature are the means by which organisms are produced; and therefore the whole system upon which nature works is demonstrably that of the typical order.

c. That these principles involve intention, and bring us back to the Originating Cause.

If life be not from matter, nor coincident with it, but before it; if external organisms are in adaptation to and correspondence with the influx of life; if the principle of production necessitates the typical form; if life can only put forth successive planes from the first or cell-forms: all this of course means the replacing of an unexplained necessity by an intelligent intention. It leads us directly to the Originating Cause—whither, as we begin to perceive, all lines converge in an inevitable primary demand. It shows us a Power presiding over nature, departing not a jot from the physical order and law itself has there laid down, but using helpless inanimation and materiality for ends and purposes foreseen in its first production; making no arbitrary or special creations; but following the very necessity of graded mental forth-putting and physical production by reverting for its material, at every stage or class-formation, to the organic instrument of the primary cell.

Then is the continuity of nature broken by such reversion? Not so. There is no continuity broken. For nature itself has none, and is wholly dependent on the continuity of *mind*, which is that of the higher order; not of the material drawing out in line, but of *intention*, grounded on ends in view. This notion of nature having a separate continuity will yet be the ruin of the Evolutionary Theory.

Nature is not initiatory and active, but receptive and passive, and is wholly dependent for form as for existence on an initiatory and active principle behind and within and sustenant of herself. The inert is bound to be and do as the active determines. Nature is formed and dominated by the order of the continuity of mind. It is intention that creates the true continuity, however broken the appearances in the linear continuity may thereby prove: intention; and if it was *necessary* that any next class, ape or man, should follow what had gone

before, that necessity can be found in no other source than mind.

For to speak of its being a *necessity* that man or ape should arise is, instead of explaining the reason of their appearance, to give the fact itself as a reason, and to leave everything unexplained by calling that fact "necessity." What is there in nature that can be shown to necessitate the coming of man or ape or any other creature? Certainly, there is no reason *there* for the arising of any of them; and necessity is but an assumption to cover the absence of a reason in nature, and yet to give her action the semblance of one.

But the only reason for anything as the only cause, is in mind—mind only and mind always, from the amoeba to the Universe. Leave out mind as an actual operating factor and you are bound to bring it back again under some guise or other—if only to give coherence to your thought in presence of your own mind. And if nature happens to be the subject, then our form of personal hood-winking is to say that nature must *necessarily* do this or that. Why must she? In what does the necessity consist? Can it be shown previous to the fact? Then the next step can be deduced from the last, and man could have been prophesied (by Apes?) as nature's crown. But reading necessity *after* the fact is a little late in the day, and merely an unwitting confession that there is some power behind gravitative matter compelling it to take form according to its will as revealed by Force and expressed in Law—two primary factors with the hidden meaning of Mind. Without mind, in fact, no step can be taken in the rational interpretation of nature.

The only continuity of nature is the continuity exhibited by mental intention. That, or else explain clearly to us how it is that power of any sort is in a nature which is neither caused, nor explained as the cause of itself? For to attribute any power whatever to that

which is neither caused, nor the Cause itself, is to give attributes to the non-existent. Irrationality bars the road there. Reject Originating Cause, and you must bring it back somehow. Then its unacknowledged action will be necessity.

Still is there not a certain order of physical progression, say from simple to compound, though nature has no intention in it? But how does that touch the point when it is *life*-progression that is essentially in question, and when there is no such thing in nature as the continuous life-progression which Evolution necessitates her yielding? Nature herself denies the Evolutionist his claim, which he has therefore to work out from her, or read into her, by assumptions of non-existent fact.

It is merely true that nature has not given us that continuous record of evolving life which we are so anxious to find there. We have only, therefore, to account for what there is, and not for what there is not. And what there is plainly offers the interpretation, not of a mechanical progress of matter without "gaps" and of mind following suit; but of a Free Mind expressing Itself in graded mental finite forms, working among physical agencies Itself has produced, and evoking therefrom and thereby a continuity of its own in the world-theatre of life and mind and matter. The continuity is rational therefore. It is a continuity of principle, of thought and mind, as against that mechanical or linear progress from nature alone which it was never even within her power to manifest.

Everywhere is the order Evolutionists demand of nature disorderly. Nowhere does she present this continuity in line—the sufficient reason lying in the fact itself, viz.: that Evolution is not physical, nor anywhere is nature in continuous physical order. But Evolution, the true Evolution of God and life and mind and nature, in one, is *spiritual* at its heart, and speaking out its inner truth through the broken appearances of matter.

Seeing, then, how this theory we advocate deals with the fact, let us see how it disposes of the difficulties.

1st. It saves Evolution from being untrue to itself in postulating, as we have seen that Evolution does, the existence of an *unevolvable*, because eternal and infinite substance, *evolved* under evolution, therein making its matter-force Cause the subject of its own evolutionary effect.

Our theory does this by reinstating the true Cause, on purely rational grounds, as the Primary Interpretation of Force, as the consequent Producer of matter, as the First and Last need of Reason and of human life, and, specifically, as implying free action from intention among the physical phenomena Itself has produced. It reveals the Divine and Spiritual within the natural, and a continuous mental order in physical productions, carried out in detail through a law of Natural Selection within the degree of each mind-form or class which, acting as Cause, it ordains.

2nd. Our theory meets the difficulty of bringing the internal from the external, the centre from the circumference, by simply repudiating the whole business as utterly foreign to human thought, and therefore in reality unthinkable by man. Instead, it refers the mind to Originating Cause as the living Centre. This difficulty is radical to Evolution as the current theory, and essentially one with it, since it is but a statement of it. The difficulty is only, of course, a trouble to those who accept it, but insuperable to them.

3rd. It disposes of the useless labour of trying to fill up "gaps" where no gaps exist, declining even to recognise the need for imagining them, by a principle involving form-development from the primary cell. What is wanted here is a new system of classification. The whole system needs, not revision and improvement, but placing on a new basis, from a new point of view—not the useless, incongruous basis of *form*, as at present, but the essential,

inevitable, profitable, because only right, basis of function, that is to say, of *use*.

Were this adopted, we should see some singular results in classification and hence in knowledge, of which, at present, our naturalists do not dream. And is it not palpable common sense that Use and not Form is the end of nature in each mind-form, as in each individual, and that Natural Selection is a means to that end?

It is plain, therefore, that by reading both class-forms and individuals from the point of view of the ascertainable function they are called on to discharge through their speciality of nature and form, we attain an insight into the *whole* of the class or of the individual—nature, form, function, use, classification—which no other stand-point can render us. It is not to be supposed that form can take precedence of that which it was produced to serve—whatever an inverted system of endless and purposeless forms may imagine.

In this matter of "gaps," the outcome of the current mode of classification, it is a strange sight to see men advocating a system both disclosing and necessitating them and yet turning to rend those who point them out, and charging *them* with the responsibility of advocating them. Apart from this (probably unconscious) effort to cover up his tracks, the evolutionist ought at least to be able to recognise that he has brought the "gaps" contention upon himself; that such gaps, from the evolutionist's point of view, are unquestionable facts which, in most cases, there is not the slightest hope of ever successfully gainsaying; that a different principle of interpretation disposes of them effectually; and that he is mistaken in imagining that the thinking of all his opponents on this matter is only a "philosophy of gaps."

4th. *Difficulty from Instincts.*

These constitute some of the deepest facts of human nature, and for the current theory to cause any difficulty here is but to arraign itself at the bar

of nature's judgment. Here she is against the evolutionist, and however he may try to say that he helps her by accounting for her, he knows that he has to minimize her finest products in order to bring his notion into line with her facts. Moreover, the very instincts he tries to explain are in their nature and substance such as make against him, for he does not want to accept nature's voice for God and Immortality; and he knows that Natural Selection as a universal principle is the method not of morality and altruism but of invincible self-aggrandisement.

On the theory advocated here, these instincts need no accounting for; but fall naturally into place, because implicitly right. They speak alike for that from which they owe their own existence, for that to which they point forward with inextinguishable assurance, and for that perception of the living present which alone makes life endurable. When any tell us that these instincts are not theirs we admit that it is possible to kill out any power, but we point to the history of the race as witness against those who profess to be of it, and yet have lost some of its very essentials.

5th. *Hybrids.*

Just as Instincts show the illimitable in man and his relations, so does the fact of Hybrids and their natural unproductiveness show him nature's limitations in a rational order, and the boundaries there which he cannot pass. What has fixed these bounds, and why? They show us plainly what they are, for over them there is as if written up, "Here the limits have been placed by the mental on the physical." Can nature, then, place limits on herself? Is she so free of action that while she is under "necessity" hard and fast, she can yet limit herself? Or is it the necessity that limits? Then where is the necessity of fruitless Hybridism under a system in which all are linear relations?

Under a system of distinct and graded mind-forms, this fruitlessness is

intelligible: in an absolutely free-love nature, it is unthinkable. Then, also, how is it that in many cases even Hybrids themselves—the very first-hand crosses—are unprocurable naturally?

These are nature's limits only because they are *mind* limits first; and as certain minds will not unite in fruitfulness so will not bodies from them. The latter alone would unite always, without let or hindrance, for matter is homogeneous and organisms from a common cell. If the physical were all, nature's limits would be absolutely abolished. Abide by mind-limits and you will not be troubled to account for bodily limitations. But mind-limits are the Creator's Degrees.

CHAPTER XIV

The Origin of Life

I. *The Haeckelian Hypothesis.*

HAECKEL'S doctrine of the origin of life by spontaneous generation from inorganic matter, or abiogenesis—life from the non-living—is professedly put forward as "pure hypothesis," which hypothesis, Mr M'Cabe assures us, is not an "assumption," but a "conclusion," having, that is, a basis in fact.

How is this basis in fact reached? Haeckel (p. 91) says, "I restrict the idea of spontaneous generation to the first development of living protoplasm out of inorganic carbonates, and distinguish two phases in the 'beginning of biogenesis': (1) The rise of the simplest protoplasmic substances in a formative fluid, and (2) the differentiation of individual organisms out of these protoplasmic compounds in the form of *monera*." He then refers us to his *Natural History of Creation*, where he has treated the "problem so exhaustively" as to make the reference sufficient.

"There is also a very searching and severely scientific enquiry into it in my

General Morphology (1866)." Further, Naegeli has represented "the hypothesis" to be "an indispensable thesis in any natural theory of evolution. I entirely agree with his assertion that 'to reject abiogenesis is to admit a miracle.'" He gathers up the conclusion (p. 6) into the statement that, among others, the problem of the origin of life is "decisively answered by our modern theory of evolution"; so that, in the *Riddle*, one theory is adduced as the "decisive" proof of another. Mr M'Cabe¹ sums up the case thus: "There are two aspects of his position. On the one hand there is the negative side, that we are not justified in rushing into the present gap (such as it is) of scientific knowledge with a 'vital force' or a 'creative power,' which are specifically distinct from the natural forces we have hitherto studied; and there is, further, the positive attempt to sketch a theory of the way in which protoplasm was evolved. . . . Both parts are scientifically justified." And the evidence for Haeckel's conclusion is as follows: "We have three convergent and consonant lines of evidence: the documents of palæontology, or the science of fossils, the documents of zoology (to speak of animals only), and the documents of embryology," to show us that the appearance of living things on the earth "was the matter-force reality slowly groping upwards through more and more elaborate combinations of the formed chemical elements until a stage was reached when a substance sufficiently plastic to exchange elements with the environing fluid, and sufficiently stable to maintain its integrity, was formed." This substance was "protoplasm, to-day marked off by several remarkable properties from inorganic matter." "The simplest organisms we can definitely picture to ourselves as simple granules of protoplasm, or structureless morsels of albuminous matter. In time, some of these are formed which live on their fellow protists," etc., upwards, through all creation to man. The evidence, then,

¹ *H. C. A.*, chap. 4.

for life coming from the non-living is *fossils, animal and plant life, and pre-natal growth*; none of which, be it observed, and apart from the theory of evolution, contain any proof, or approach to proof, as to the mode of the origin of life; the facts themselves are absolutely silent, and not till evolution comes along with its "assumption" of spontaneous generation, can science pretend even to the possession of an idea of origin. In effect, so far as proof, let alone "decisive" proof is concerned, Haeckel was right—it rests solely in the form of "pure hypothesis" upon the theory of evolution; and, of course, when that goes, the origin of life from matter goes with it—even if it lasts so long. But how can this be a serious "conclusion" where the facts themselves have to be supposed? and how can that question be "decisively answered" which is still put as a "pure hypothesis"?

But is even the hypothesis legitimate? If Haeckel's hypothesis be legitimate, then anybody's assumption of anything, where no known fact lies, may be accepted as science; for his whole position means the assumption of that of which no mortal knows anything, and of which the facts tell us nothing whatever—the production of the living from the non-living. The hypothesis involves three assumptions:—

1st. That an hypothesis can rightly be made where no facts exist. This is a case in which there are no facts to indicate the assumption. Given non-living matter; given also certain specks of protoplasm; along comes the theory of evolution and simply *assumes* that the one springs from the other as its sole and legitimate cause. That is positively all there is in it when you get down to the facts—the assumption is simply made that it is the physical adjustments that produce the life, and the connecting links imagined. It is not as in the case of an unknown planet where certain perturbations stand for it and already prove its existence. Here you have nothing to prove that the unknown—the life—

arises from the physical changes, any more than that these changes are the necessary conditions of the life's manifestation. Legitimate hypothesis cannot arise under either assumption as such, or until cases parallel with either reveal nature's harmony. But where is the parallel case of the dead producing the living? We know perfectly that the accepted law here is—no life without life.

2nd. That an arrangement of matter *can* produce life. This is just what there is no evidence for; and its assumption vitiates the "pure hypothesis."

3rd. That life did in fact come from the matter and not from a prior cause acting under prepared conditions in the matter. But we have no right to multiply causes? Quite so, but we have the right to seek for a cause when we haven't one; and it has first to be proved that any conjunction of matter can produce life. But this is the point which Haeckel and his defender assume and are unable to approach rationally, for it is a supposition and assumption of which no known fact gives us one iota of intelligence. As we said, no hypothesis can cover facts assumed, for in that case the hypothesis and the assumed facts are one. But what becomes of the "serious conclusion," and of the "decisive answer" to the origin of life?

2. *The M'Cabian demand.*

Before we enter upon the discussion of the missing facts between matter and life which alone can make possible a "pure hypothesis" by bringing the problem under the conditions of nature's order, we must meet a demand made by Mr M'Cabe. On p. 42¹ we read, "As a matter of scientific procedure, we are bound to assume that life arose by evolution, *until* it has been proved that the vital force is something specifically distinct from physical force, and could not have

¹ H. C. A.

been derived from it. That is both the scientific and the logical way of looking at the question."

The argument here is this: There are two theories in question, one of which is that vital force is distinct from physical force, and the other, that it is not. Those who hold it distinct must either prove the distinction or accept life as arising by evolution. To those who believe the two to be one, life by evolution is the natural outcome, standing in no need of proof. The burden of proof, therefore, is with those who hold vital and physical force as distinct. So far Mr M'Cabe. But is this reasoning not just a little odd and one-sided, and therefore scarcely "the scientific and logical way of looking at the question"? Would it not be somewhat more in accordance with the science and logic of facts to reason thus: Vital force is, for the common sense of mankind, so manifestly and at first hand distinct from physical force that those who hold them the same are bound in the name of science, and in the fair order of logic, to prove their identity, and, till they do, to refrain from assuming that life arose by evolution? Or must we hold it either scientific, logical or customary for science to assume its positions and leave it to ordinary knowledge to prove its own correctness? Our humble judgment says that Mr M'Cabe has here inverted the order and the duties of science and common perception. On his own assumption that there are only two theories to decide between, Mr M'Cabe's science and logic would seem to be fairly in the wrong.

But what of his assumption itself? Is there no other position possible, running through and invalidating this bit of reasoning? *Must* vital force be proved distinct from physical in order to avoid the idea of life arising by evolution? We submit Mr M'Cabe's shortsightedness here, for what of the possible third theory of physical force in living bodies being vital force in physical form? His assumption of two theories is erroneous,

then; the position assigned by him to these theories is illogical and unscientific; and his reasoning involves some essential misapprehensions. In fact, his position shows four radical vices: The assumption (1) That vital force is necessarily at variance with evolution or orderly development; (2) That because living physical things are mechanical, there is no other force in or behind them; (3) That because living physical things are mechanical, vital phenomena are referable to mechanical force; and (4) That mechanical force cannot be a form of vital force.

(1) That vital force is necessarily at variance with evolution. Suppose we said that evolution—the Theory apart—stands proved, precisely because physical force (*living*, according to Haeckel) is the expression of vital force in physical form? We have no notion that vital force is something superadded to physical to produce vital phenomena; on the contrary, we claim, setting theory against theory here, that the form of force called physical is inconceivable except as the expression of force itself, which is vital or spiritual. To put it otherwise, force *per se* is essentially spiritual, and, therefore, living or vital in character, and appears according to the recipient forms, as physical only in physical forms, and spiritual in spiritual forms; so that instead of evolution producing life, evolution only holds good in virtue of life passing by continuous development through all forms from lowest or purely physical, to highest or vital, according to reception in each. We stand by the position (to be shown later) that since force is life, and, according to Haeckel, is "sensitive and thinking," physical force *is* vital force in physical form; or more simply, that physical force is merely the physical expression of force which in itself is spiritual or living.

(2) That because living physical things are mechanical there is no other force in or behind them. The causal activities of any forms of matter are determined, not from the plane on

which these forms of matter exist, but by the power or plane *within* that on which they exist. Here is a universal law. The magnetic aura, for instance, determines gravitation, as the ether determines light and sight and the internal activities of the body. Apply this to the notion of physical force producing life, and we at once see the clear inversion of fact involved—that of the lower or external begetting the higher or internal. Were it not for the germ or living quality within the seed what results would the husk or even the pith produce? There is here the same law in least as is true of greatest things, untouched by the reproductive power of certain portions of known plants. To suppose, therefore, that any other law was at work in the production than in the perpetuation of life is to invert the order of nature and turn her against herself. *Every plane of matter or of life is produced by, exists and is sustained from, the plane above, and until this law is recognised our science is merely a topsy-turvy business, or liable to change with every wind which would erect indiscriminately effect into cause and reduce cause to effect. That simple comprehensive principle is the direct outcome of the doctrine of Discrete Degrees in nature,¹ and strikes at the root of pantheistic monism—to say nothing of the small matter of Mr M'Cabe's "scientific and logical way of looking at the question."*

(3) That because living and physical things are mechanical, vital phenomena are referable to mechanical force. The dread on the one hand, or the anxious hope on the other, of living physical things being found mechanical, is a curious phenomenon to any mind estimating the facts in the light of synthetic principle. Why physical things of any kind should not be mechanical in operation it would surely be hard to say, as it would be to imagine why mechanical action should not be produced by life. Surely living physical

¹ See ch. xvi.

things have gravity and movement; and surely weight and movement in physical things (alive or not) are mechanical! But being so, they come at once, *as to their mechanical action*, under physical law. Does not the body rest or the hand move under the physical law of gravitation? And does not the mind take advantage of that law in its movement of them? But does the fact of gravitation annul mind or make the body to be dead? Or is the mind's action *contrary* to gravitation? It is, like so-called miracles, only the case of a higher law acting down into a lower, and causing it to serve; but the service, like the action of the subject serving, is none the less mechanical or gravitative, whatever may be said as to the cause or life-force which demanded the service and produced the activity. There should be no difficulty, then, and in this respect, about respiration, digestion, selection of food from the blood, assimilation, replacing of tissue, embryonic changes, or any or all of the hundred-and-one mechanical operations performed in physical processes. Whatever their motive-power, cause, object, or result, they themselves are *physical*, like every organ, tissue, or movement in the body, growth included, and being physical, their action is *per se* necessarily mechanical. It holds, therefore, that the living quality of organisms does not supersede their material substance, forms, movements, and uses, and cannot therefore set aside the physical laws or forces under which they act. To suppose the contrary is to banish living material phenomena.

While we thus contend that organisms must retain their mechanical action and relations, are we committed to the derivation of vital force from physical? That is a totally different question. Mr M'Cabe holds it as "scientific procedure" for us here to prove that "vital force is something specifically distinct from physical force and could not have been derived from it." We deny the science of the procedure, but we decline to leave him a refuge. Therefore we

proceed to answer his assumption (4) That physical force is not a form of vital.

a. Is vital force derived from physical force?

We could believe in no scientific position so absurd or else so very badly expressed. Mr M'Cabe practically holds as proved that one force can be derived from another, and asks his opponents to prove the contrary. Vital force could certainly not have been derived from physical force since no force is ever derived from another. Will Mr M'Cabe show us when and where this happens? It can only be in Mr M'Cabe's own imagination fed by a false reading of the conservation of force. We have certainly heard of one *substance* being derived from another, but we have never yet heard of force being derived from itself, which, as force is *one*, is the plain reading of Mr M'Cabe's demand. Force is in place according to substance and reveals its quality according to the nature or degree of the substance, but no force is ever derived from any other force; so that we are quite open to affirm that which all nature proves for us, that vital force is *not* derived from physical. We rather think, as we said before, that the burden of proof is with Mr M'Cabe, and his challenge sits very easily upon us.

b. Is vital force "something specifically distinct from physical force"?

As to the terms here, if Mr M'Cabe would commit us to the idea of two forces "specifically distinct" from each other, we altogether repudiate the notion. There are no two or more forces in any real sense, but there are *forms* of force, and in this sense we maintain the affirmative—that vital force is a distinct form of force from physical. This understood,

c. There is an actual form of force which is living, and called vital.

Here the appeal lies to direct perception and its implications. We know there are physical phenomena which are mechanical throughout, both in

their nature and in their action and relations: we also know that there are physical phenomena which are perceptibly mechanical in their actions but *living* both in their nature and relations. Such are organisms whose essential nature and relations are those of life; and in that are differentiated to perception from non-living things, whose essential nature, like their actions and relations, are merely mechanical. These two forms of force, distinct in nature, make distinct appeals to perception and apprehension; and if they are not in themselves distinct as they so appear to be, but one in the sense of both being wholly mechanical (whether living or not) it is for those who maintain this mechanical identity to prove it, and not for those who have nature and direct knowledge on their side to prove a negative against nature and their perceptive knowledge.

Putting aside that legitimate fence, however, the essential point here is that all those things whose natures and relations are living, and not separate or conglomerate inorganic particles, constitute a complete whole in themselves, and are subject to organic force from above and within themselves, their actions and relations being determined by that force, and not by the mechanical forces outside and around them. They are entities, and move as spheres within a sphere, self-determined in their complete series of relations by the living force which constitutes them organisms. All inorganic forms are moved from without: these from within. In the inorganic, mechanical force determines movement: in these, life-force. But the force determining this life is not derived from physical force, seeing that derivation of force from itself is non-existent, and that it is distinct in its quality and order or degree. Whence, then, is it? Forms of force follow forms of substance, and are determined to them accordingly: material forms for material substance, and living forms for living substance. Now, since force does not

arise from the substance in which it acts, it is pre-existent to it; for indeed, speaking generally, it is force that creates substance—as we have previously seen. Therefore the form of force we know as the life of organisms is pre-existent to organisms, and is proved an independent living fact, being but, in all organic cases, a specific manifestation of the universal force. Thus vital force is not only underived from physical force, but is the direct result in matter of the action of pre-existent fact under prepared material conditions. Our perception of the essential difference between physical and living force is thus clearly justified by its inevitable implications.

d. We must now observe the *formal distinctions between this actual living force and the physical or mechanical.*

If there is no specific distinction between these forms of force, how is it (1) that after the life of an organism has ceased, vital force being no longer present, mechanical, *i.e.*, gravitative and chemical forces, still continue to act? How is it (2) that so long as vital force is present, the organism is protected from that merely physical action—the separate influence of physics and chemistry? How is it (3) that by the presence of life the same protection is afforded from external influences making specifically for organic decay, and that these invade the organism as soon as life has ceased? If in all such cases it may be supposed, though never proved, and indeed unprovable, that life and death are but different manifestations of mechanical force, how is it (4) that in a living body actions are done and states perpetuated, not merely different from those which physical force can accomplish after life's departure, but quite other than and strictly opposed to such as come within the scope of merely physical force as shown in unquestioned physical action? Is it according to any law of physics or chemistry that physical force as there exemplified acts other than physically and chemically? How then is it that

physical force in a living body should come to do things daily that it would be absurd to attribute to gravity or to chemical combinations, but that the *life* of the organism makes the difference, presenting *both the cause and the medium of living* physical actions? It is physical action we see in all cases, organic or inorganic: in the one, non-living physical action; in the other, *living* physical action; but the order or class of action in the two cases is not only different but contrary. That contrariety is caused by the presence of the life. Why? Surely because the life imports a *new cause* of action, with new ends and relations, so that while the action remains physical (as it must do, the *subject* being physical) these new ends and relations are established through them—*life* relations—wholly alien to those merely physical or chemical, but kin with the new cause from and with which they have arisen.

Now the subject of such operations is a *unit*; but the physical or mechanical unit is an *atom*; the life-unit, an *organism* and every function and relation of any organ, whether subjective or objective, is an expression and obeys the law of the whole organism or unit—that law being its life, because its cause, using mechanism for its ends or living relations; while the law of the *atom* is mechanical wholly, serving it for merely mechanical ends. Thus respiration and digestion are functions of life or organism, not of mechanism, serving living and not mechanical or atomic relations and ends—the ends of unity or solidarity of life for the organism itself, of living relations with all other organisms, and of mechanical adjustments produced by life as their means to those ends. But respiration, digestion, and all organic functions, are inconceivable and absurd as serving atomic or mechanical ends, just as they would be inconceivable without a living cause: atoms have no use for them; organisms have, and in them they are the basis of all forms of life up to the highest grades or possibilities of mind.

Would it not be curious to see gravitation or chemical action performing the uses of the circulation of the proverbial blood in a stone? Given life, and behold these mechanical actions ceasing to be causes and becoming the instruments of a higher cause than themselves, which uses them for its ends, exalting, and embracing them within the sphere of life!

How is it (5), and lastly, with the relations and effects of the interior spheres of the ether and magnetic aura? There you have operations peculiar to these spheres, which are neither gravitative nor chemical, but dynamic, and in which you have the introduction of another form of force distinct from those of both the mechanical and the vital spheres. If we are to have physical force as alive in organisms because they are material, what of those spheres in which the distinctively material properties are left behind? Clearly here are three forms of force corresponding to the functions and effects of each sphere respectively; are they all to be represented as mechanical? If not, then why is the vital, which uses them all and finds them its willing subjects in the organism, to be reduced to the level of mechanism? But beneath all this blind grasping at unity there lies the deeper, simpler truth that force is the equivalent of its sphere of action: the direct effect and manifest use of mechanical force is to produce on its own plane purely mechanical equivalents; of chemical force, to produce chemical equivalents; of etheric force, to produce, being more interior, electric equivalents, from its own plane, in the plane below; of magnetic force, to produce from itself by means of the etheric, equivalents in the material sphere; of vital force, to produce living equivalents in that ultimate; and of mental force, to produce in matter the mental changes or equivalents of feeling, thought and energy. Nor, plainly, can any one of these be substituted for any other, with the effect sustained and the use discharged. So long as man-

kind retains its sanity it will see that the dead is the basis or ultimate effect and exponent of the living—exists, *i.e.*, for the uses of the living, and never conceivably *vice versa*.

These positions lead us up to

e. The universal mode of operation of vital force among living phenomena.

How, *first*, should the relation between vital force and organisms be expressed? As cause and instrument. *Second*, Is there any universal mode under which such relation comes, and therefore under which life and matter, as cause and instrument, can be expressed? Certainly; it is, and here we strike the first of the missing facts between life and matter, that *no form, organism or motion can be produced on any one plane, or i.e., without the action of a higher plane upon a lower.*

With regard to the *first, the relation between vital force and organism expressible as cause and instrument*, we know that all forms involve and define a corresponding force. Life not only cannot exist without involving a living force, but *is* living force, and force as we know it physically is not living. The phenomena of living and non-living, as we know and have seen, are distinct; therefore the forms of force are distinct; and the relation between these forms is that of cause and instrument.

Life is not, as often supposed, an abstraction—a quality or mode existing by itself; it can only exist in a subject, from a substance—Divine, spiritual, and physical life meaning life under these forms of substance, respectively. When, therefore, we speak of life in a material organism, we can only rationally mean an effect of living (and, therefore, necessarily, of prior living) substance exhibited in material organism—the prior living substance standing in the relation of cause to the organism used by it as instrument. Now, since there is no cause in nature, as we have before seen, and since all cause, as also seen, is mental or spiritual,¹ it follows that

¹ See also ch. xvii.

spiritual force acting in material organisms acts there as cause, and that the organism is the instrument of that cause for a special function and effect. In order to accomplish this connection the cause must act through the material spheres in which all matter is held—the magnetic, etheric, and atmospheric—down into material substance, there creating protoplasm and organisms. Thus every organism is an effect produced from the primary Cause by contiguous descent through the intervening degrees to that plane upon which the organism is to be produced and live, viz., the ultimate or material. No organism can be formed short of the inert, consolidated and reactive agency of matter; and the notion of some that there have been existences created in higher spheres is futile because contrary to manifest order. While the development of the organism thus formed is continuous in line on its own plane, the living, substantial, sustaining cause is parallel, and its descent transverse, to the line of material development. If we say that the development on all planes (the organism having begun in the material) is horizontal and parallel, we may take the descent of living force as perpendicular to and through them all.

Both life and organism are thus the creation of the descending, living, substantial force. That force will not only not interfere with the laws of the organism into which it acts, but necessarily sustain them, itself having produced them as the basis in matter of the organism now produced in them. All is one, and the case throughout is that of a higher force acting down into and through lower forms produced for that end, under prepared conditions into which the force can descend: the laws of all degrees, therefore, must remain intact, for all are one. Thus living force sets aside no physical law or lower force or form of life, but acts through them, using them as its instruments to greater because living

ends, unattainable without their continuing steadfastness, and inevitably steadfast because constituting parts of one great and universal whole. Such is the principle of the so-called miracles or "signs" of Scripture, which reveal materiality intact under the agency of higher forces; and this is the law of all life in matter: there can assuredly be no greater "sign" of internal powers than life itself as physically manifested.

This consideration leads to our *second point of the universal mode under which this relation of life and matter, as cause and instrument, can be expressed—that no form or motion can be produced on any plane except from a plane above.* The reason of this law is that all productions in nature on any one plane arise by *re-combinations of substance from a higher plane.* With such a truth as this, the discussion of vital force in the light of Mr M'Cabe's demands is inevitably closed.

No plane of being is independent or sufficient for itself. The most rudimentary form of this truth is shown as between force and matter. These two are on what we call separate planes—using that word always, not as involving any conclusion, but as a simple and efficient way of indicating discreteness between forms of substance and between their results. Atomic matter constitutes a plane by itself (as related to those more interior, though, in itself considered, inclusive, because the ultimate, of all others), and as such is absolutely useless for production. In order to that, force must be posited; but force, or the activity of substance, is on a plane separate, discrete in all senses, from matter; and only by the action of this "sensitive and thinking" substance on the inert recipient plane, is anything whatever produced or producible. The meaning this carries is clear—that to the production of either form or motion there must be an active and a passive, an agent and recipient, the living and non-living, the "sensitive and thinking," and the materially extended—two discrete planes, with

different constitutive principles, built on the essential distinction of the relatively active and passive. This simple fact reveals a universal law operative between all forms of being.

Do we then know that there are differing planes or forms of substance and force? Undoubtedly. We know that the aerial or atomic is not the etheric, any more than the etheric is the magnetic; and we also know that these three physical planes are by no means of like kind with the mental or spiritual. But what if feeling, thought and energy were the mental parallels or correspondents of the three physical forms? Now suppose we are observing the production of motion or form from the etheric in the atomic plane, do we not thereby see that *that whole atomic plane is a product*, and a product of the etheric? Do not certain facts of etheric or electric action, again, lead us to the conclusion that this plane is similarly a product of the magnetic? So in the mental and physical parallel we have supposed do we not see that the *activities* of life and mind are the products of *thought*, and that thought is but the form or product of *feeling*? It looks as if the order of out-birth from the magnetic, through the etheric, to the physical found its correspondent in the mental out-birth from feelings (summed up as will), through thought, into the ultimate of action. Re-composition is the law of the formation of these planes, even as activity and receptivity is the law of their development when formed.

The effect of all which is, that matter and physical force are absolutely discredited as the universal productive power, first, because they do not constitute causal force, but are the conditioned media of effects; second, because they themselves are proved products of pre-existing forms of being and life; but, third, because, being themselves on the lowest degree of existence, they cannot produce that which is above them; must, by the universal mode or law of production,

continue fruitless without the action of a higher upon them; and are the completest examples of recipient energies from higher successive forms of life and power, back to the First or Cause: the sum of all which constitutes the first of the missing facts between life and matter, viz., that the *productive force on any plane is from the plane above*.

3. *The Essential Fact.*

By this we mean the second of the missing facts between life and matter, which is, that *life is uncreatable*; in other words, only that which has life in itself and therefore *is* life, can primarily give it. These two facts, altogether missing as yet from the discussion of the origin of life—that *the creative force on any plane is from the plane above*, and that *life is uncreatable* and therefore is *influx*—are the open way out of the labyrinth.

We touch three points here: first, Haeckel's assumption of evolution as decisively answering the question of the origin of life; second, the law of life-giving as actually known to us; and third, the reason of the law of life as uncreatable, and therefore as being influx into created forms.

1st. *Haeckel's assumption.* It is merely the expression of the fact that organisms are built up by gradual physical processes, and the conclusion from it that *therefore* life is physical. Now it cannot be too often insisted on that there must be actual corresponding physical processes, step by step from the first formations of protoplasm out of inorganic matter, up to the completion of the fullest life-development of organisms; that the exhibition of the life by means of matter is essential at every step and therefore involves corresponding physical progressions with those of the life.¹ Now protoplasm

¹ Since writing this, I have been happy to find so acute a thinker as Romanes holding a similar line, though not the same. "It is no argument," he says, "against the divine origin of a thing, event, etc. to prove it due to natural causation." *Thoughts on Religion*, p. 121.

has and must have certain physical elements, whether accurately ascertainable or recom poundable or not; but the bad logic of the monist enters with the claim that because life appears under certain conditions, these conditions are the *cause* of the life; and upon this glaring assumption his whole case rests. So bad is his case in logic that it is as if he said that the driving power of the engine consists in its mechanism; that, or any other the like logical foolishness, examples of which the reader can find for himself. But the strange thing is that this is the "decisive answer" of evolution! It is enough here to exhibit the bad logic; we can hardly be called on to discuss it. We turn therefore to the more wholesome ground of

2nd. *The law of life-giving as actually known to us.* Here at least we are on a basis of commonly-accepted fact, since it is claimed that there is no form of life that does not spring from an antecedent form: that life, in a word, is *transmission*, and therefore, logically, transmission from a primal source. Why then should not the plain lesson of such a fact as that of life from life be, for those who hold it, that of the universal and primary transmission of life? Why do they depart from this uniformity of principle to deny for the beginning what they hold to be the course of nature throughout? It cannot be that the principle of transmission would be contrary to evolution, for transmission is more in harmony with evolution than a physical recurrent beginning of homogeneous matter *not* produced, therefore eternal—which is wrong all ways, evolutionarily and in fact, as has been already shown. Of course, crediting matter with the origin of life has one advantage for those who wish to avail themselves of it—it enables them freely to accept that pantheism, which, in Schopenhauer's phrase, endorsed by Haeckel as "just," is "merely a polite way of giving the Lord God his *congé*." But even there it fails, must and will fail, so long as

men need and demand that Efficient Cause, which, of all things manufactured, matter cannot be; and so long as the Divine Will as origin can be rationally apprehended through the medium of causation and universal order. Our whole effort in this volume is to bring out in one form or other this latter most significant and explicable fact, constituting, as it does, the bridge between naturalistic and rational monism.

From the point of view of transmission, the accepted doctrine of the scientist, the only logical issue for him also is the maintenance of his doctrine intact by boldly demanding transmission of life as *the mode of origin* in the natural order. Why should he break the uniformity of law? Nay, what right has he to do so? If his doctrine is true, that life is only from life—and he deserves all honour for the consistent acknowledgment, much as he would wish the contrary—with what consistency can he put it aside when he reaches the verge of the world and looks out upon the vast? Is it the distance, the space, the lack of foothold, that frighten him and make his thought return to his earth as the origin of all things in it? Whence this unscientific halting and untruth to his principles? Has the universe ceased to be *one*? Are the links of continuous magnetic, etheric and gravitative force of no further avail to make one vast plane of the universe? Why, then, should the *life-links* be sundered? O ye of little faith wherefore do ye doubt? Be at least consistent, ye faithless ones, faithless to your darling science; lift up your eyes to the heavens and see that all that is there is here—that all is one; that all *this* is but transmission; your universe itself but a coming forth, your little earth but part of the whole evolvment—all the powers of this universe, in all its planes, from the lifeless to the living, but the declaration of that past Might which has put them forth from Itself that you may know the Life

Itself which is Mind, and rejoice to live from It. But hear what one¹ says who has been through all the toil and knows—now better than ever: "It must be allowed that we can conceive of it (the universal order) under no other aspect (than that of the nature of mind)."

Yet is it so certain that the fact of life from matter is the same thing as spontaneous generation other than in the sense of life from matter? Is there no spontaneous generation other than in the sense of life from matter? The scientist is undoubtedly right so far as matter is concerned, although, even there, his experiments, be it noted, have destroyed the *very conditions under which life is possible*: how then could he find life produced in any sort out of impossible conditions? But spontaneous generation is surely possible, on the principles here laid down, in the form of the inflowing of life from an interior source into prepared material conditions. What is the process of production on any plane of being, as already seen, but just this? Would not the scientist of the Haeckel type rejoice—nay, we might fairly use a coarser word—were he to discover the physical blend—the right protoplasmic conditions—through which life discloses itself; and would not the theologian blench? Such a discovery would not trouble us in the least, as both these classes of thinkers would realize if they only understood the problem. Life from matter would be as far from proved as ever—whatever might be said of life *through* matter. When men realize the incidence of interior planes on the physical sphere, this solution of these problems, instead of being grounds of rejection, will be realized as only the alphabet of higher knowledge.

3rd. The reason of this law of life-giving, and the last of the missing facts between life and matter, viz.: That *life is uncreatable*, and, therefore, is *influx into created forms* from that which is Life Itself.

¹ Romanes, *Thoughts on Religion*.

That matter and physical force are not infinite and eternal has been amply shown, since they arise out of pre-conditions that are strictly neither; but these pre-conditions are traceable back in increasing dynamic power to an inevitable First or Cause.

The ground of this position, and the *nexus* with the Cause, will be realized when we perceive that the subjects exhibited in these dynamic elements are (1) no more infinite than the matter which is their outbirth, and certainly no effects of their own effect; and that (2) they are not creatable even by the Cause Itself. Heat and light, the out-births of the magnetic and etheric spheres respectively, are no more creatable than the spheres producing them of which they are but the manifestations; nor is life creatable; nor is feeling nor thought; nor is force, whether physical or spiritual, which is but the expression of them all. Heat, light, life, feeling, thought and force have the common characteristic—they are not substance, as is matter or spirit; but effects of substance, acting from the Cause producing them, upon, into and through the substantial material and spiritual conditions prepared by themselves—*effluxes* of the Cause, and constituting the channels of relation, living and material, between the Cause and Its substantial universe in both kinds, which themselves as the instruments or the Cause have founded. These are *spheres* of the Cause—radiations, out-births. To It alone can they look as their Source—to the Divine Mind which sends them forth on their way; and the order of their descent is the Divine, the spiritual, the material. Being uncreatable, they postulate the Uncreatable in their very existence; the Uncreatable in action and the expression of His Divine Order. Such are the hidden links between universal causation and the Divine; as such they postulate themselves to the rational mind; and by them, the First is in the last, and the Monism of Degrees stands forth.

Here we have no professed infinite of extension, but an infinite of Power—essential, or Mind Power; and as the only known or rationally conceivable origin of Power is Personality—mind acting from Will—life and all uncreatable forces are the products of Life Itself, the only Living One. Life, therefore, is *influx*—an incessant impartation from the Divine (not of it) in descending degrees, to the ultimate or material. Thought may be helped here by the parallel of influx from the sun by its heat and light into all nature. And what, indeed, in their last analysis as uncreatable things, are heat and light and physical force but the material counterparts or correspondents of mental facts? And what are feeling and thought and life but the spiritual media through which these physical correspondents are produced and closed in matter? The last word of science is Mind.

CHAPTER XV

Monism

MONISM is the doctrine of the Unity of Substance. If there is but one substance, the question immediately arises, What is that substance? Is it inevitable that we should, supposing we declared for Monism, hold, as does the Materialistic Monist, that Matter is that substance? Does the doctrine of a Personal Cause, spiritual substance, and matter involve three substances, or is it strictly monistic—a Monism of a higher because truly rational order?

How the *Riddle* regards the question may be gathered from the following (p. 7):—"All the different philosophical tendencies may, from the point of view of modern science, be ranged in two antagonistic groups: they represent either a *dualistic* or a *monistic* interpretation of the cosmos. The former is usually bound up with teleological and idealistic dogmas, the latter

with mechanical and realistic theories. Dualism, in the widest sense, breaks up the universe into two entirely distinct substances—the material world and an immaterial God, who is represented to be its creator, sustainer and ruler. Monism, on the contrary (likewise taken in its widest sense), recognises one sole substance in the universe, which is at once 'God and Nature'; body and spirit (or matter and energy) it holds to be inseparable. The extramundane God of dualism leads necessarily to Theism; the intra-mundane God of the Monist leads to Pantheism."

Professor Haeckel leaves no room here for a Monism other than Pantheistic, which does not merely believe in force and matter, or "mechanical and realistic theories," but which, admitting the powers that these may claim on a physical base, goes much beyond them. This is very far from being dualistic, or assertive of two substances, or of three, as constituting God and the World. It does not recognise the one sole substance "which is at once God and Nature." It does not hold the inseparability of body and spirit. While accurately Monistic, it denies a God who must be, in Haeckel's sense, either extra or intra-mundane, and fully accepts a theism which absolutely excludes a Pantheism. Such a Monism, Haeckel had manifestly never imagined, though it was in the world long enough before a line of his *Riddle* was penned.

We have now to explain how this comprehensive Rational Monism is conceived. Its manifest characteristic is that it does not fear to attain Unity of Substance by inclusiveness. The materialistic or Pantheistic Monism of Haeckel, while professing to lay its grasp upon the universe in a transcendent inclusion, in reality reaches unity by excluding all but the lowest estimable forms of substance, or matter, whilst holding an appearance of comprehensiveness by retaining names for substance of which it denies the reality, viz. God and spirit.

But God and spirit have their reality in force! It has not been proved that Force is God and spirit, or shown why it should be thus re-named. Till then, we are dealing with illusive and deceptive word-play, and witnessing the use of terms for other reputable substance as gilding for the poverty of matter. It is as if Haeckel perceived the true unity as the Unity of the Inclusive, embracing God and spirit as substance, yet, knowing he rejected the actuality of this unity in favour of the partial sameness of matter only and the bestowal upon it of universal power, hastened to invest his inert matter with the life and garments of God and spirit.

But who may not see, as against this theoretical omnipotence of matter as unity, that the conditions of unity as such would be incomparably fulfilled by embracing Divine and Spiritual and Material substance, if their rational *nexus* could be exhibited? Beside a conception like this, Haeckel's Unity is only that of homogeneous atoms as compared with a various and ordered and organized cosmos; or like the unity of a living mind and body simulated by a galvanized corpse, with the galvanism passing for God and spirit, and presenting, under the supposed law of Substance, a momentary life-like appearance.

Substance may be as various as infinity. Its unity lies in its community of function, aim and end. It is the multiform acting as one that makes that union. And the greater the multiformity the more splendid the unity. Sameness of substance is death; and matter masquerading as the unity of substance is but the uniformity of sameness making life hideous with pretension. All forms eliminated but one, that one is unity! But *one* is not Unity, but a unit.

As against this semblance of Unity Rational Monism is thus conceived. We have been led inward to the conception of a Personal God or Divine Mind, who is Love, Wisdom

and Energy—Substance therefore, and the only true cause of all spheres of substance, from consciousness and its mind, through organisms and their life, down to crude materiality.

The grand essentials of form which thus strike home upon rational thought are threefold, but the Substance is One. Those threefold forms of substance are the Divine, the Spiritual, and the Material; in other words, Divine Form, Soul or Life-form, and Material Form. But these, while three in Form, are one in Substance—three forms of the same substance. It is thus that Rational Monism is conceived, and a place found in it alike for God and Man and Matter—not the feigned force-God, nor the feigned Soul-man, nor the feigned infinite matter of Haeckelism, but a true Absolute, Who, while Infinite and Eternal, is so in Life and Consciousness and Will and Wisdom and Energy; a real man also, dowered with the gift of personal life, and responsible, reactive consciousness; and an equally real and necessary material base, concrete, finite to need, adaptable, in which organisms, animated from the Highest, may develop, constituting a formative sphere of reactive physical forces, in and from which may begin the return of conscious mind to the Life which gave it individual existence, and therein freedom and immortality.

Such is the conception. The next step is to ascertain whether, and how, we have three forms of Substance in the Divine, the Spiritual and the Physical, so that we may understand that the Unity is as real as the forms are diverse.

Naturalistic Monism starts with the idea of matter being the only substance. Our position is that it is a form of substance, and the lowest form.

If matter were the only substance, then it would not only be infinite and eternal, but *absolute*, and determine all things in virtue of its inherent power. In fact, it is not only not absolute but has in itself no power

whatever, and is wholly determined upon and for by quite another power, viz., force. So true is this, that the theorist who started with material substance only would be unable to move a step in the construction of the universe. If either of the two, matter and force, is the absolute, it is assuredly force and not matter. Force is the master in matter, and is therein the representative of the higher master, because it is in its nature *dynamic*, and not, as matter is, inert; and, at best, only responsive.

Again, if matter be the only substance, then, being infinite, eternal, and absolute, it must be *itself* dynamic, and the introduction of another infinite and eternal, superfluous. On the supposition of matter being absolute, it is certainly a little more than superfluous to add anything to it: and yet, to say that matter is itself dynamic is absurd. But to this position there are three points of reply: First, that matter is inseparable from force; hence, second, that matter-force is one substance; and, consequently, third, that matter is itself dynamic.

Is matter inseparable from force? That *substance* should be separable from force is impossible, but if the supposed inseparability means that every existent atom of matter remains permanently under physical force, it is simply not true. Atoms of matter may be separated from specific forms of force, placed under others (there are about half a dozen alternatives for such a case), and finally liberated completely from even gravitation, as when the atomic particles of radium become electrons. The impermanence of matter means just this very separability from physical force by the escape of matter into higher forms of substance, no longer subject to physical law or force. Atomic matter therefore is separable from physical force—its only possible adjunct.

Is so-called matter-force one substance? We are told, of course, that this matter-force is not two things,

but one, and that there are therefore not two infinities but one. The only reply one can give to so plain a question of fact is that matter and force are *not* one thing but two things, having distinct characteristics: one is *power*, the other extended *substance*. Are these not two things? Nay, we may well drop the veiling word "thing" ("an empty pot" as Garth Wilkinson called it), and falling back on Haeckel, declare on his authority that matter and force are two "substances," "sensitive and thinking," and "extended." If these are two substances, it will puzzle a greater philosopher than Haeckel to say how they become one. That they are *called* one substance, only obscures the nature and place of force in the connection. No, so long as matter can be considered by itself, it must answer for itself, and the only rational answer is that it is not absolute substance but relative; not the only substance, but a form of it.

Should we now be straining credibility by the supposition that there are forms of substance absolutely non-atomic? Nay, for we have Haeckel himself on our side when he speaks of "imponderable" matter, and that is going some considerable way. But where shall we stop on this interior path? If once we get beyond atomic substance to non-atomic, what right have we even to the name of matter here? And that we do get beyond it is certain, for, the ether apart, what is the magnetic sphere but pure force? This sphere looks like an intermediate between matter of an ethereal order, and spirit; and we are led still to push on.

If we, then, take a step further and ask the reader to believe that soul or mind is *substance*—non-atomic, living, powerful—should we be straining credibility? Not so, surely, for again Haeckel comes to our aid and tells us that "Soul" or "Spirit" is "energy" or "sensitive and thinking *substance*." If the insubstantial power

known as force or energy, only realisable at all by mind and not in the least by the senses, may be so defined, mind itself may well come into the category.

Mind or soul, then, is substance "sensitive and thinking." But what sort of substance? Manifestly, non-material, seeing that the properties constituting it are non-material, that it is subject to no material law whether physical or chemical, but that it is the subject of a law of a different order, Psychology, to wit. The argument, of the inevitable *correspondence* of Psychology and Physiology is not to the purpose.

Irrespective, throughout, of proof already given, we see anew that mind or soul is immaterial substance. Now Haeckel's only conception of substance is that of matter; yet he says that soul is substance, therefore, of course, soul is matter—living or not. But this conclusion we perceive to be false, as the facts attest. Therefore it follows that Haeckel should, in reason and fairness to himself, maintain that substance is *dualistic*, in form at least, if not in fact. For does he not tell us that matter is "extended" substance, and that mind is "sensitive and thinking substance?" On his own showing we have two forms of substance, material and immaterial; or else "extended" and "thinking" substance is the same; in which case matter and force are the same, seeing that extension and thought are his respective definitions of them.

There is no way out: Haeckel is either committed to dualism here, or else he must acknowledge that the soul is immaterial substance; in that case, agreeing with us that there are two *forms* of substance in matter and spirit. Why then should the claim be incredible in us that is the logical outcome of Haeckel's position? For assuredly he will not recognise, any more than we do, the existence or the possibility of dualism.

There are, then, Haeckel being witness, two forms of substance. For we

decline to push him to the extreme of dualism, but give him the benefit of the alternative choice. After which, we may humbly follow suit and repudiate any charge of dualism. With him, two avowed substances, matter and spirit, are but one substance, even if one of them be extended or material and the other thinking and immaterial.

But has he any knowledge, such as Henry Ward Beecher disclaimed of the Trinity, of "how" "these two *substances*" "get along together" and make one substance? By no means; he leaves us to work out his philosophy for him. While we absolutely refuse and renounce any idea of spirit and matter being two substances the modern apostle of Monism, of all people, declares for two substances, which in some mysterious way are not only one, but, more incomprehensible still, are properties of a *third*; of which postulated third, however, he modestly pleads ignorance.

Nor is matter itself dynamic, as facts testify, for then force would be the effect of matter; and both Haeckel and Mr M'Cabe repudiate the idea. "Haeckel,¹ when you pay serious attention to *all* he says, does not hold that the brain produces the mind. Matter, he has said from the beginning, *never* produces force or spirit."

Nor is it so in fact: no force in any form of matter is from the matter, but from substance transcending that material form. True, therefore, that substance itself is dynamic and produces force, but it must be the one only infinite eternal and absolute Substance. Here is a test, then: Substance *per se* does produce force; but matter does not; therefore matter is not Substance *per se*.

It is plain, therefore, that to talk of matter being the only substance, that is to say, the infinite and eternal Substance, is only to disclose philosophic sectarianism: an infinite and eternal *anything* that can do nothing without another and distinct infinite and eternal

¹ *Haeckel's Critics Answered*, p. 55.

to help it out, nay, to act *by* it, is one of those non-descript infinites of which philosophy has known a good many in the course of its chequered career, Spinoza's included.

Differently from Haeckel, then, we openly declare for his two substances being not two substances and yet one substance, but two *forms* of substance, of which one is material and the other spiritual or mental. That is to say, we hold, and think may rationally hold, because we have proved,¹ that there is an immaterial or spiritual substance known as mind, the parallel and correspondent of the physical substance known as matter; that this spiritual substance is truly "sensitive and thinking," having also, like Haeckel's atoms, "will and sensation"; though we do not profess to say with him that its "sensations" are "unconscious"—having a dread of travelling so far into the darkness of philosophy.

And what objection may be urged against these two as forms of substance, nay, as forms of the same essential substance? At least they are intimately related, so intimately as to be essentially one—the material being for the material world what the spiritual is for the spiritual—and so one, in their distinctness, as to correspond in every detail and particular, so as indeed to be spiritual cause and physical effect, like thought and speech. Any affinity of such order, through correspondence between the spiritual and the physical, means, and is, oneness of fact whatever the difference of form may be.

The only way out of this conclusion lies in the repudiation of Haeckel's "thinking" substance as distinct from his "extended" substance, and in the direct acceptance of the assumption of pure materialism: that force is the effect of matter and that mind is simply an effect of brain as bile is of liver; though even then it is plain that mind must still have some characteristic attributes, whatever it springs

¹ See ch. xvii.

from, and that these properties must certainly bring it under one form of substance or another.

Are, then, feelings and ideas *per se* material? Yet if they are not, but are certainly immaterial, that immateriality or spirituality may be characteristic of some form of substance of which materialism has as yet taken little account.

A further step brings us to the Infinite and Eternal Cause or Primal Substance and its relation to the forms considered—the spiritual and physical. But, first of all, is there such a Substance? Apart from the reasoned presentation of the case formerly made, we have Haeckel's affirmation on this subject also. He tells us that there is "an all-embracing divine essence of the world, the universal substance" lying behind matter and force, and of which they are but properties.

Here is the thing we need, ready to our hand, since this "divine essence" and "universal substance" is the First, according to Haeckel, from which all else emanates, and is therefore the Primal Substance or absolute Cause. All that it produces, however, being matter and physical force, it comes short of its functions, since to this matter-force alone is all production attributed. Having made his bow to this Primal Substance, which he afterwards doubts having seen at all (nor do we think he really did), he very ungallantly, and by no means like a sincere worshipper, attributes its powers, as we see (those at least which it ought to possess), to matter and force, and without more ado credits them with the powers quietly stripped from the discredited "universal substance," the "all-embracing divine essence of the world" though it be.

This "universal substance," being yet true Cause, the one originating power, sends forth all things from Itself. But how? By efflux of its power as Cause, yet by subtraction or retention of its Divine Substance. That is to say, the Divine Substance

could and does send forth from Itself an efflux of energy, which, being *from* Itself is *not* Itself, though a form of the Primal Substance.

Of such action there is abundant illustration in nature. The sun, for instance, sends forth a continual efflux of spheres, magnetic and etheric, containing heat and light and energy, which are *from* the sun, are therefore *forms* of the sun's substance, yet are not the sun itself. Spheres of mind and of body emanate from man and create round each individual a circumference of mental and of physical effluxes, affecting all those agreeably or otherwise who come into relation with him, producing new and sometimes very startling results, making either for disease or health.

Such spheres, whether from sun or men, or animals, vegetables, minerals, are *from* the being sending them forth, whether unconsciously or voluntarily, but not *of* it—separate, yet connected; are neither its life nor its substance, but forms of both.

All secondary actions are but repetitions of the action of the Cause, seeing that they are the Cause acting through secondary forms. It is no question of inference, though it is true that the universe is the same in great things as in least—a grand application in infinitely varying form and degree of a few essential principles—and therefore that we can justly reason from the action of effects to similar action in the Cause. It is a question of the Cause Itself acting through all degrees, and into all effects, whether good or evil.

We may not merely say, What the Cause has given power to do, that the Cause Itself may do; but, What the Cause has given power to do, that the Cause *Itself does* in bestowing that power and in acting through it. By efflux from Its Substance—a form of Itself, while yet not Itself—all spheres, spiritual or physical, are produced. These spheres being from the Divine are not the Divine, nevertheless are

voluntary forms from It, just as a man may *will* to affect another, and by so willing send forth a corresponding sphere of influence. There is this difference—that the Primal Cause can create, *i.e.*, originate, but the secondary cannot: can only, even in man, manipulate and transmit.

By what process, then, do these spheres emanating from the Divine or Essential Substance produce the spiritual and material? We have already shown that the Divine is revealed in man in the trine of Love, Wisdom, and Use or Energy. Inasmuch as spheres emanate from the Divine, we have in this trine, the key to the formation of the spiritual and physical worlds or spheres in their order, and they flow forth therefore as spheres of Love, Wisdom, and Use respectively, these being the essentials of the Divine Nature.

But as the forms to be produced are both spiritual and physical, the spheres thus flowing forth constitute three of each in downward succession—three spiritual, and three material, each the embodiment in their order of the essentials of the Divine; the three spiritual being the degrees of Love, Wisdom and Use directly, and the three physical being the ultimated representatives of these in the matter of the Magnetic, Etheric, and Aerial or material spheres. As the Divine produces first the spiritual spheres, so, through the spiritual, it produces in turn the material.

Tracing the process downwards we observe, first, that the three spiritual and three physical spheres correspond—the three spiritual spheres of Love, Wisdom and Use to the three material spheres, Magnetic, Etheric and Atmospheric. Thus we see that proximately the three spiritual degrees acting together are the cause of the three material in the order of descent. Thus the substance of the spiritual degrees is in the spiritual world what the substance of the physical degrees is in the physical world—the same thing

in spiritual and material form respectively, because the means of transmitting forms of substance from the Divine Life.

The relation of the two may be illustrated as to their correspondence by thought and speech. Thought is to speech the spiritual to the physical. They are quite unlike, as are all spiritual and physical things; but they are nevertheless *essentially the same thing* in twofold corresponding forms: the spiritual, the thought, realises itself in the material, the speech, as do all spiritual things in their natural corresponding forms. What is their relation? That of correspondence. That is to say, what thought and all spiritual things or forms of spiritual substance are in the spiritual world, speech and all other material forms are in the material world. They are the same thing in differing twofold forms, since the spiritual, like thought, is the cause of the transmission into the natural; and speech, like other material forms, the corresponding fact in the natural world to thought and all else in the spiritual. The speech is not the thought, and the natural is not the spiritual, but they are the material representatives of the spiritual in the material world.

Of course, as in thought and speech, there is a natural process by which the spiritual is produced as the physical. But the physical process does not touch the fact either of the difference or of the correspondence between these spiritual and physical forms of the same substance on descending planes. *They* stand, whatever the process. The spiritual degrees act together to the production of the material, in and through their lowest—that of use or energy.

But the process of production may be best exhibited in considering the physical degrees—the magnetic, etheric, and aerial. How are these formed? In their order as in nature, through each other, from the spiritual acting as one. Even as the three degrees of

feeling, thought, and energy in the spiritual act together to produce speech or action by the body in the material world. It is strictly a case of cause and effect, and hence of correspond-
ence.

Limiting our thought, however, to the formation of the physical spheres or degrees from each other, it is manifest that as each proceeds in its radiation from centre to circumference a diminution of force is shown, a slower radiation, a greater compression and consequently an inertness preparing the way for a new condition of things, viz., a recomposition or recombination of parts or particles, and thence to the production of a lower form of substance. Thus the Magnetic sphere would become compressed, condensed and relatively inert, and by recomposition in that compressed state, form the Etheric sphere. The latter, again, by the same process would become so compressed in ultimates as no longer to be a sphere, but a substance at rest, becoming inert and fixed as the matters of the earths, first exhibited in atmospheric form.

This process of change is familiar in the supposed formation of the primary vapour or primal stuff of the universe into compressed, concreted and inert substances, and finally into organisms created to be recipients of the spiritual sphere of life, and rising gradually, through development, into a conscious return to their source.

The process of this origination or creation is thus as clear as any process of evolution. The six spheres spoken of—three mental and three material—are simple, primal, universal facts, and constitute the media through which all forms, corresponding to the respective spheres or degrees, proceed, from the formation of suns and earths to the production of the highest forms of voluntary life.

But life requires organisms, and the two are always found together. For life is Influx. It is influx from the Creative Power into these spheres thus

produced, and down through all, even to the lowest; in order that by formations of matter in the physical (where alone life can begin), organisms may be created into which Influx from the Creative Life can flow according to the organic form and its consequent degree of reception.

Hence this is no doctrine of Pantheism. These spheres, while from the Cause, are not the Cause. They are but forms of its Substance; and no forms of substance created in them are the Cause, though formed from its Substance. Nor is the Life inflowing into these permanent spheres the Divine Life Itself, but merely Force or Energy derived therefrom, corresponding to the organism formed for its reception.

Thus the threefold degrees of the substance of the universe are three forms of the one Primal Substance and declare a doctrine of Rational Monism. The spiritual and physical are but forms of substance emanating from the Divine, and standing in permanent and living connection with it.

CHAPTER XVI

Continuity and Degrees—Why Haeckelism can never solve the Riddle

THE Doctrine of Continuity has been, for evil, one of the great gods of practical science. All might have been well with its rule had it been retained as one of the lesser gods only. Continuity has its place, but when extended to the universe of matter as a whole, it became one of the greatest hindrances to scientific advancement.

From its rightful place as the basis of mathematics it was easy to transfer the abstract idea to the concrete universe, aided by the conception of the continuous development of matter.

Hence the homogeneity of space *plus* the supposed essential homogeneity of substance made even men of science overlook its differentiations as presented in concrete forms in the developed external universe, in which it ceases to be continuous and becomes discrete, or the subject of Degrees.

The conclusion to which this simple statement brings us is that substance, though continuous in each degree, is not, as the subject of practical science, continuous but discrete; that it could not exist in differentiations without degrees; that, therefore, the Doctrine of Degrees should hold, not merely a conspicuous but the dominant place in all interpretation of the universe and discovery of its truths. But palpable as this fact is, Degrees, as an idea even, not to speak of it as a doctrine, is quite unknown to science to-day. Hence arises a vast unconscious hindrance to her efforts, because the key to so much is missed. Let us, however, begin with this matter from the beginning.

Would it not be absurd to speak of the air as other than continuous throughout its extent? or the waters of the earth? or the earth itself, within itself? But who would speak of these three forms of matter as continuous with each other? Contiguous, yes; continuous, assuredly not, seeing that their constitutions vary with the elements composing them. Now if we reasoned about these three as continuous, or of length, breadth and thickness, say, as being identical in fact and signification, conceive into how many and lasting mistakes we might fall, even to the acceptance as permanent science of impressions and beliefs that were quite erroneous. We suggest that such has been the case.

Let us, however, pass to more interior illustrations, and consider our atmosphere as related not to visible but to invisible spheres. Knowing the composition and uses of our atmosphere should we be justified in treating it as

continuous with the sphere within it known as the ether, but also known as an essentially different substance? Not as men of science, certainly, whatever the man in the street might do. And if we carry our thought more interiorly still into the sphere known as Magnetic, or the Magnetic Aura, should we be justified in thinking of that as continuous either with the ether or with the atmosphere?

Yet now we begin to come into regions in which men of science have lived and thought as if continuity were almost the only law of substance, holding at any rate a dominant control of their unconscious feeling about these things, and hence of their conscious deliberate thinking. Is this why the relations of Magnetism and the Ether are not even yet better defined? We thus begin to understand how a right perception of the place and scope of continuity, and a firm hold of degrees as a fact of nature, might give them mastery where now they may perchance be making as if but the uncertain tentative effort of the tyro.

Coming to more apparent matters, we may indicate Degrees as facts of the universe. From the sun, the material means of life to the solar system, proceed three inter-related, but in themselves quite distinct degrees of power, familiar to us as Heat, Light, and Energy. It is from him also, mediately, that the spheres so often named proceed, viz.: the Aura, the Ether, and the Air. These three are the interior and therefore primary degrees, of which the heat, light and energy are the effects sensibly produced in our atmosphere by the action of the aura into the ether—the central motion of the etheric particles or spherules causing heat, the circumferential causing light, and the aura appearing in the crude material, the highest in the lowest, as the energy of gravitation.

Turning to the earth, the evidence of degrees is so palpable as, like the air we breathe, to receive unconscious recognition. Even in crude matter,

degrees are seen in the atom, the molecule, and the mass. In seeds, for example, they are shown in the germ, the pith, and the husk, each distinct, by no means continuous; related, but with discreted functions. Following the fortunes of the seed as a whole, we observe its development into the differentiated plant, and thence into its discreted flower or fruit, alike distinct in substance, form, and use.

Turning to animals, we observe in their brain-cells a similar three-fold form to that we saw in the seed and know to exist in plants—the nucleus, the protoplasm, and the walls; and, again, the centre of power in the cortical brain, the medulla with its derivative control of internal organs of the body, and the external and basal forms of bone and muscle. Each organ and all tissue, again, is constructed on the same lines, as, for instance, the muscle with its fibrils, bundles of fibres, and enveloping case.

Turning to man's mental and physical relations, and choosing the act of speech, we observe it to be in itself the result of the movement of the atmosphere, yet that it comes directly from the internal power of thought, which, in turn, is but the form or expression of emotion. Feeling, thought, speech are three distinct degrees. To speak of their continuity in any scientific sense would be manifestly fallacious, yet they are ultimately connected as constituting one combined mental fact in physical form.

Manifestly, this principle of discrete as distinct from continuous degrees (such as the shading of light, decrease of heat, density, etc.) exhibits itself even in this cursory sketch as a dominant note of nature; and the peculiarity which must strike us in this fact is that always these degrees are found in *trines*. This is a point that demands explanation, and that explanation opens up the philosophy of Degrees.

In all cases of discrete degrees, it is the first or inmost that produces the