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THE DOMAIN OF BELIEF

BY

HENRY JOHN COKE

AUTHOR OF

'CREEDS OF THE DAY,' 'TRACKS OF A ROLLING STONE,' ETC.

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"There is also that deepest feeling which, since the earliest dawn of history, incorporated itself in the Religions of the world. You who have escaped from these religions into the high and dry light of the intellect may deride them; but in so doing you deride accidents of form merely, and fail to touch the immovable basis of the religious sentiment in the nature of man. To yield this sentiment reasonable satisfaction is the problem of problems of the present hour."—TYNDALL, *Belfast Address.*

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CHAPTER I

THE FREEDOM OF THE WILL

Nur das Gesetz kann uns die Freiheit geben.—GOETHE.

THE three cardinal principles of Religion are Freedom of the Will, Immortality, and Belief in God. I purpose to consider each in its turn.

The instructed reader will probably exclaim, "Is it not waste of time to trouble one's head about speculative questions which have been thrashed out till not a grain of mental aliment is left in their empty husks?" Be the answer what it may, this much is certain, the last word about any one of the three will never be spoken. So long as it is the lot of man to suffer, some form of religious belief, however crude or however mystical, will assuredly be his "ark of refuge."

With regard to what is called the Freedom of the Will, if either a well-informed thinker, or the average man who has no love for the subtleties of disquisition, picked up a book that began with a chapter thus headed, it is ten to one he would fling it aside as tedious and unprofitable; but the subject cannot be omitted here, for it lies at the root of our ethical

nature. I have accounted belief in responsibility as a religious principle, because I regard the highest morality—which depends upon it—as the worthiest form of divine worship, whatever be the conception of the Deity. He only who realises this precept can have a living sense of the true theology. As a *vexata quaestio*, it has a fascination for all who are animated by a noble curiosity, especially when this tempts them to rove unrestrained amidst the boundless possibilities of the "maybe."

Concerning Immortality and the existence of a God, it is true that no speculation can ever furnish us with grounds for belief beyond those we already stand upon. Nor can belief amount to knowledge, or even surpass the limits of a hopeful faith. It may, however, be shown that the immense strides of science, which have rendered the present age a specially sceptical one, and which, indeed, have practically discredited traditional creeds heretofore deemed sacred, tend even now, and will in the future have a still stronger tendency, to place religion on a footing more durable than it has ever possessed in the past.

Freedom of the Will, though admitted to be a transcendental problem, is made needlessly and perniciously perplexing by confusion of thought, due largely to unsuitable language. But even when extricated from entanglements not inherent in it, the puzzle may, by some, be rejected as idle, not merely on account of its staleness, but because the most inflexible necessitarian might be thought to

falsify his doctrine whenever he does what he chooses.

The question, however, of the freedom of the will is not whether we ever do as we like—which no determinist ever denies,—but whether the liking, the act of willing, is or is not determined for us by circumstances of which we are purblind instruments. Either belief is tantamount to fatalism, and if sincere, cannot but have a baneful influence upon character and upon life generally. Pessimism, in its most depressing forms, is the natural outcome; and well is it when the consequences remain theoretical. Let it then be clearly understood that the question before us is not that of determinism, but of man's responsibility. To refute the doctrine of fatalism is the main object of the following essay.

It will be expedient to display, and fully display, the necessitarian arguments, in order to fairly cope with them.

We need not linger over the endless history of the subject. We will restrict ourselves, as closely as possible, to the opinions of representative writers of our own day. Illustrative quotations from a few of these, taken from different nationalities, will adequately serve our ends.

The logical conclusion of the necessitarian is moral irresponsibility. We can have no abler exponent of this than John Mill. "The fatalist believes that his nature is such, or that his education and circumstances have so moulded his character that nothing can now prevent him from feeling and acting in a

particular way, or at least that no effort of his own can hinder it. He believes that his character is formed for him, and that he has no power to alter it." (*Logic*, vol. ii.)

A thinker, if not profound at least original, Frederic Nietzsche, writes: "Over one hovers necessity in the form of passions, over another the habit of listening and obeying, over a third a logical conscience, over a fourth fantastic pleasures. But all four seek their free will just where each one is most firmly enchained. The stronger the inclination when unrestrained, the more complete our bondage, yet the more also the delusion that our wills are free. We might as well say the silkworm exercised free will in spinning its silk." "Man," says Professor Tyndall, "comes to us a bundle of inherited capacities and tendencies, labelled from the infinite past to the infinite future." M. Taine, who is more emphatic, accents the direct bearing of the question upon every form of theosophic creed. For him, "every fact, when analysed, reveals the necessity which binds that which precedes to that which follows. The woof of existence is infinite and continuous. Everything is interwoven. Each thing, each individual, is as a product of the whole. That which exists is necessary, and, moreover, is necessarily what it is. *That which happens could not but happen.*" According to M. Taine, man's intellect and volitions are nothing but the manifestations of *material* forces, and operate as necessarily as the law of gravitation or repulsion. "The sole difference that separates moral problems

from physical problems is, that the directions and magnitude of the forces do not admit of precise computation in the one case as they do in the other. . . . But although the means of notation are not the same in moral as in physical science, yet, since in both the matter is the same and is similarly constituted of forces, of directions, and of potential activity, one may say, that in the one and in the other, the final effect is produced by exactly the same law." (*Histoire de la littérature anglaise.*) As for morality, "Le vice et la vertue sont les produits comme le vitriol et le sucre." (*Les Philosophes français.*)

M. Taine leaves us in no doubt as to his meaning; he distinctly and repeatedly assures us that biology and psychology are as purely mechanical problems as is the process of crystallisation or the order of the planetary system. The idea of God is but the personification of Nature and Force. Intelligence is not the originator or controller of this force, it is not the beginning, but the end and outcome, of its fortuitous activity.

Turn to a living writer, whose forcible exposition of the subject entitles him to our respectful consideration. In his *Is Life Worth Living?* Mr. Mallock speaks for himself. In his *Veil of the Temple*, his mouthpiece is the leading spirit of the dialogues. "Our minds," he says, "are mechanisms which we are no more able to alter than a watch is able to alter the arrangement of its own wheels." Elsewhere: "If we turn to the ordinary means of knowledge, we know that human conduct is inexorably

determined by its antecedents; that the Universe takes no heed of the unit, as such, at all; and that the unit, being the unit of its body, goes to pieces along with it."

Here we have the three negations of religious belief; the denial of free will, the denial of a God, in the sense of a Supreme Providence, and the denial of man's immortality. The speaker goes on to say: "Science shows that our wills are not and cannot be free, because it shows us that there is nothing free in the Universe. . . . The very idea that man is free—that he is the author of his own actions—becomes as much an absurdity as the idea that an eddy in a river, instead of being formed by the river, forms and directs itself." Man's belief in the freedom of his will is, "according to science, quite as nonsensical as his belief in the persistence of our lives, and belief in the existence of some Deity through whom our lives will be perfected."

CHAPTER II

FATALISM

We have briefly stated the case of the fatalist. Let us cross-examine it.

Without complicating matters by reference to the distinction between "voluntary" and "volitional" modes of action, as noted by Mr. Archdall Reid and Dr. Carpenter, when we speak here of voluntary actions, we mean actions that are not automatic or reflex—like the beating of the heart, or the peristaltic motion of the intestines, for instance,—but actions that are purposive, whether we attend to them or not. All such actions are determined by motives. We do this or that because we want to do it, when the motive is single; or choose to do it, when motives are conflicting. But, because our actions are thus determined—because we do as we desire—therefore, says the fatalist, we are not free agents. The proposition, thus stated, is verbally true, but morally false.

Intricate as the antique puzzle still is, much of the tangle comes of the misleading terms in which it is presented to us. Any satisfactory solution of it from an empirical point of view is as invisible as the

far side of the moon; yet we may, by disposing of obviously inapplicable words, justly assert our limited freedom, and dispel the paralysing delusion of a hopeless fatalism.

The aggravating sources of confusion are: (1) the misuse and ambiguity of the terms "cause," "free," and "necessary"; (2) the supposition that the "will" is something more than the sense of the bodily and mental states at the moment of willing.

If freedom of the Will means that the Will acts spontaneously, and independently of all that precedes the moment of volition, this would be a violation of the law of physical causality; it would also mean a rupture in the existence of the Ego, for it would signify that the Will was a first or efficient cause, operating without any motive to determine it one way or another. The volition immediately prior to resolution or action is nothing of the kind; it is not a first or uncaused antecedent; it is an effect, a link in the unbroken chain of sequence, just as much as is the link in every sequence of physical events.

So far, the necessitarian is perfectly correct in denying independence, arbitrariness, isolation, or what is called *freedom*, to the will. Such freedom would be nothing but a *libertas indifferentiae*, which reduces freedom to a nullity. It is difficult to imagine how freedom, in this sense, could be claimed for man, without assuming that he had the power to create something out of nothing,—which willing of this kind, without motive, would amount to. Outwardly, by the mere fact of his existence, inwardly

by his organisation, *independence* is impossible. As M. Taine says, "La trame de l'être est infinie et continue." There is nothing free in the universe.

The legitimate meaning of the word "free" may best be shown by its contrast with "necessary." As used by the determinist here cited, "necessary" suggests, or rather signifies, irresistibility; if not synonymous with, it is equivalent to, "compulsory"; it means that man is the instrument of transmitted forces, that he is not the author of his own actions. "Necessity" hovers over every one of us; we are "enchained."

The first answer that occurs to the libertarian is an appeal to his conscience. When he is conscious of doing what he likes, it is nonsense to say his act is compulsory. According to Sir William Hamilton: "We are warranted to rely on a deliverance of conscientiousness, when that deliverance is that a thing is, though we may be unable to think how it is." And again: "Consciousness is never spontaneously false." (*Metaphysics*, vol. ii.)

This reply is unfortunately invalid on two scores: it ignores the postulate of the determinist, who asserts that the "liking" determines the will, and so deprives it of freedom. In the next place, the authority of conscience is worthless here, inasmuch as its competence is limited to a single instant. Conscience cannot tell us what we could do, or could have done; it tells us only of what we are feeling or doing at the moment of our appeal to it. As Mill reminds us:

"When we represent ourselves as having acted differently, we always suppose some difference in the antecedents to the act." If there had been no inducement, no motive whatever, for acting differently, —given the same conditions,—we should have acted exactly as we did.

It is to the abuse of the word "necessary," and to its appliance, in precisely the same sense, to mental states and to purely physical facts, that we must look for a tenable answer. "The application of the same term to the agencies on which human actions depend as is used to express those agencies of nature which are uncontrollable, cannot fail when habitual to create a feeling of uncontrollableness in the former also. This, however, is a mere illusion." (Mill's *Logic*, vol. ii.) Besides, there is, as already indicated, a suggestion of some mystical relation between cause and effect, some *vis occulta*, which is not adequately expressed by mere constancy of succession. There are of course physical "causes," the effects of which are irresistible: the oak cannot resist or control the lightning, nor the city the earthquake that crumbles and swallows it up. Yet all sequences are thought of by our fatalists as uncontrollable; and all antecedents are deemed causes of the same kind. The truth of the matter is, mere physical causes are but the invariable antecedents, and not causes at all in the *same sense* as are the volitions of a rational being.

To man the same limitations do not apply. Though still within the domain of physical causality,

he possesses attributes—conscious sensibility, memory, foresight, and reason—which unquestionably differentiate him from inanimate objects. Thus endowed, he is enabled to manipulate and direct Nature's forces, including those generated by his own organisation, in a way that renders the word "necessary," when applied to his actions, entirely misleading. This limited ability does not confer upon him freedom, in the sense of *independence*; nor does it in any sense make him the originator of a force which was not already latent or potential.

The fatalist dissents, of course, from the assertion of man's ability to resist and direct either external or internal forces, and treats belief in his freedom to do so as delusive. At most, he so qualifies his admission as to convert it into a negation. Thus M. Renan writes: "Since the appearance of man there is a free cause—*cause libre*—which uses the forces of nature for its desired ends; but this cause itself emanates from nature." (*Examen de conscience philosophique.*) We shall face this restriction later on. For the moment let us turn to the physical origin of volition.

It is generally admitted that there is a primary source of activity which, in certain living muscles, exhibits itself without exterior excitation. This is due to a superfluity of energy (how generated does not affect the argument) which manifests itself notably in the young, as in the frisking of the colt, the playing of the kitten, and the restlessness of children. "The determinations whence spring the voluntary

movements," says Robinet, "have their origin in the play of the machine." It is upon these self-acting muscles that the conscious being begins to operate. Movements which were primarily automatic gradually, and at first unconsciously, become voluntary; this acquired control—acquired in many cases, as the process goes on, by conscious and repeated efforts—may, as practice glides into habit, again become unconscious, and what Dr. Carpenter would call "voluntary," in distinction to "volitional." Some of them become instinctive and quasi-automatic. Speaking, walking, writing, playing a musical instrument, are familiar instances of the gradual development of the will.

It may here be observed that the brain is probably possessed of a like spontaneity of movement, and that, under the influence of external and internal stimuli, its molecular vibrations become subject to control, precisely in the same way as the muscular movements do. It may be supposed, moreover, that the spontaneous movements in the undeveloped brain are correlates of qualities transmitted by heredity, and are the primitive formulae under which all perception is categorised, and knowledge—synthetic cognition—made possible. The theory, if true, would account, on Kantian principles, for our so-called innate ideas, without being incompatible with the philosophy of Locke and that of the empirical school.

This materialistic account of the muscular origin of volitional acts must be accepted as a scientific fact;

but it offers no explanation of the conscious sensibility or of the intellectual elements with which such acts are concurrent. Anything more than a description of what happens, not only transcends our knowledge, but transcends our powers of conception. The fact, however, remains; we pass from objective and purely physical phenomena, to phenomena complicated with subjective and mental elements. The contention here is: that this complexity places the latter in a distinct class of their own; so that the acts of man, and of animals far lower than man, are adapted by man himself, and by animals, in a way that cannot be described as "necessary," in the same sense as a stone when dropped necessarily falls to the ground.

Illustration is almost impertinent; but for argument's sake, let us suppose that a man, or an intelligent animal, sees a motor-car coming towards him at full speed. The intelligence of either man or animal will cause him to get out of the road. The "motor" we will suppose to be running away without its chauffeur or any one to control it. Presently it rushes against a building, and smashes the building and itself to pieces. The demolition of both is necessary; but the action of the conscious being is not necessary in the same sense. Because his intelligence informed the man that he would have been killed, and that his knowledge of this was a motive which induced him to save himself,—is it correct to assume or to think that our minds are mechanisms which we are no more able to alter, than a watch is

able to alter the arrangement of its own wheels? This, no doubt, would be appropriate language, were men and animals mere automata—machines without senses, and without intelligence to guide them; but man has both. The real assumption of the materialist amounts, therefore, to this: man is an automaton because he is an intelligent being, and is guided by purposive motives; in other words, he is an automaton because he is not an automaton. The sole premise for such an absurd conclusion is that every event follows its antecedent irresistibly. An antecedent is an antecedent, no matter of what kind; all are themselves necessary consequences, all are irresistibly followed by necessary effects. If the premises were true, so would the conclusion be; but the argument is invalidated by the ambiguity of a word.

Take another instance of equivocal language. Suppose I use the common expression, "I was driven in by a shower"; the word "driven" indicates here a distinctly volitional act. But if I say, "I was driven over a precipice by a tipsy coachman," or "I was driven on the rocks by a wave," the same word has a totally different meaning. Used without regard to this difference, "driven" would imply what the fatalist declares to be equally true in both cases. "As I am not the author of my own actions," he argues, "that which happens could not have happened otherwise"; it is a mere delusion to imagine there is any essential difference in the nature of the sequences; for in both "la matière est la même et se compose

également de forces. L'effet final se produit d'après la même règle."

Logical as this may be, we seem compelled—or impelled, I should say—either to question the infallibility of the reasoning, or else to conclude that a confusion of thought has been foisted into the argument by misleading terms. The fact is, the objection of the fatalist to the term "free" beguiles him to an abuse of the term "necessary." Nor is this to be wondered at when we reflect how inapplicable the epithet "free" is to the abstraction we call "will." If I take shelter in a storm, or put up my umbrella to save myself from a ducking, and there is nothing to prevent my doing so, I am free to do it. If I want to walk from one street to another, I may be stopped by traffic, by a crowd, or by a policeman; but in the absence of all hindrance, I am free to go there. This, and this only, is the legitimate use of the word "free" when applied to human actions.

As Principal Caird remarks on this tendency to carry metaphors, or materialised conceptions, into the domain of ideas, and so to apply the laws and conditions of matter to spiritual things: "The human will is subject to conditions in common with the falling stone, or the ball which moves when another impinges on it. But when you say that force is the cause of motion, and that education is the cause of temperance, avarice the cause of theft, revenge the cause of murder, or in general, that certain 'motives'—appetites, desires, passions are the causes of human

volitions and actions, it is only to the ear that there is any similarity between the two kinds of relations, and only by an unconscious confusion of what is physical with what is spiritual, that we can argue as if relations so different could be embraced under a common formula." [1]

[1] *Philosophy of Religion*, p. 193.

CHAPTER III

FATALISM—(*continued*)

We come now to another source of confusion, which has so large a share in the mystifying of the question: the erroneous treatment of the Will as a distinct attribute of the Mind, possessed of power to choose, or finally to determine conduct; just as memory is the faculty of retaining or recalling the past.

Psychologists, as a rule, have not insisted upon the impropriety of treating the Will as a faculty whose functions specially pertain to itself. Yet a moment's consideration must satisfy any one that the Will is a compound of the senses, the emotions and the intellect,—of the whole man in short. It is I who feel pleasure or pain. It is I who am impelled to movements which promote the one, and obviate the other. It is I who, by means of my whole intellect—my imagination, my memory, and my judgment,—purpose and decide what does, or may, give me most pleasure; and which of conflicting motives will best contribute to this end. "Even the Will-impulse to move a particular member," says Lange, "is merely a name of a sum of functions, which has definite external results." (*History of*

Materialism.) We speak of a strong Will, and of a weak Will, just as we speak of a vivid or dull Imagination, of strong feelings, or insensibility, of sound reasoning powers, and good judgment, or the reverse; yet all of these qualities are factors in the decision which ultimately decides our conduct; and which we lump together, and, by a convenient but misleading abstraction, call the Will. Strength or feebleness of Will is nothing but strength or feebleness of my bodily and mental equipments; and of all these attributes, memory becomes the most important. "Vivid recollection of any particular pleasure or pain is the motive for pursuing the one, and avoiding whatever tends to the other. The common forms of prudence and imprudence are represented by a full or deficient recollection of good and evil. This is at the bottom of the strength or feebleness of Will, which is the faculty usually said to be concerned in these cases. . . . If a dog has no memory for the whipping he got yesterday, he will disregard what he is ordered to-day. . . . The animal that has the best memory for whippings is the animal with the strongest Will and the highest moral nature." (Bain, *Study of Character*, chap. xi.)

The Will, in short, is the Ego as a whole; and the question is not whether the Will is free, but whether I, as a specialised unit, have any share, and if so, what share, in determining my own behaviour? The necessitarian or fatalist refuses, as we have seen, to admit of any such distinction. His retort is: "You try to wriggle out of the difficulty by saying the man

is free when he does as he likes, and then identify the Will with the man. I hold that whether he does what he likes or not, in neither case is he a free agent, or the author of his own actions; for he has no power to will what he likes: this depends on his organisation, his nature, his acquired character, and upon the circumstances in which he is placed."

Herbert Spencer deals at some length with this question of the Ego. "It is natural enough," he writes, "that the subject of such psychical changes should say that *he* wills the action, seeing that, psychically considered, he is at that moment nothing more than the composite state of consciousness by which the action is excited. But to say that the performance of the action is, therefore, the result of his free will, is to say that he determines the cohesion of psychical states by which the action is aroused; and as these psychical states constitute himself at that moment, this is to say that these psychical states determine their own cohesion: which is absurd." (*Principles of Psychology*, part iv. ch. ix.)

That the Will cannot determine the cohesion of the psychic states by which the action is stimulated, is only another way of saying that we cannot will what we will. Of course the supposition is absurd, for it would be equivalent to saying the Will was its own effect first, and its own cause afterwards, which is nonsense. But the freedom of the Will is not my contention. It is the personal agency of the Ego that I uphold. This seems to be granted by Spencer in the following words: "The entire group of

psychical states which constituted the antecedent of the action also constituted himself at that moment —constituted his psychical state, that is, as distinguished from his physical self. It is alike true that *he* determined the action, and that his impulse determined it; seeing that during its existence the impulse constituted his then state of conscientiousness, that is, himself."

In insisting upon the determinateness of the mental succession, which is indisputable, Spencer subverts the legitimate inference from the foregoing passage, by pointing to the "parallel conditions" which pervade the inorganic world. After refuting the freedom of the Will, he ascribes the delusion of the belief to "the extreme complication of the forces in action. The composition of causes is so intricate, and from moment to moment so varied, that the effects are not calculable." He then illustrates his parallelism as follows: "A body in space, subject to the attraction of a single other body, will move in a direction that can be accurately predicted. If subject to the attraction of two bodies, its course will be but approximately calculable. If subject to the attraction of three bodies, its course can be calculated with still less precision. And if it is surrounded by bodies, of all sizes, in all directions, at all distances, its motions will be apparently independent of the influence of any of them; it will move in some indefinable varying line that appears to be self-determined; it will seem to be *free*."

The resemblance here claimed is utterly misleading.

The only element in common, between the mental and the inorganic phenomena, is the constancy of the sequences. In the latter we have motion and nothing but motion; we have nothing but "push and pull." In the other, the determining cause, when the action is voluntary, is a conscious cause. To argue that, because psychical states are subject to their own laws of causation, just as physical changes are products of physical laws, therefore the "parallelism" between the two is complete, and that the "psychical self" counts for nothing, is just the confusion of thought which, as Mill and Caird warn us, must attend the unwarrantable assumption of exact similitude.

The fatalist rejects the implication that the Ego is anything more than a deluded automaton. His creed is: the mind and its operations are as purely physical products as the brain, of which it is but the function. "What," he would ask, "is this Ego which you endow with a spiritual power to determine your conduct? It is a question-begging term: it assumes the whole point at issue. You are supposing the interference of a mystic entity which you call your 'Psychical self.'"

No, I summon no such spirit to my aid. I fully admit that this Ego is nothing but the symbol of my personality as a whole. Where we differ is in that you, as a fatalist, ascribe that personality to a chain of sequences which you declare to be purely material, and subject to purely physical laws of causation. The belief that man is, in the most limited degree,

the author of his own acts, you call delusive: you say we are no more able to regulate our conduct than a watch is able to alter the arrangement of its own wheels; and that Vice and Virtue are as much products of material changes as vitriol or sugar.

It is an interesting circumstance in connection with this discussion, that so profound and careful a thinker as John Mill should, as he tells us in his autobiography, have been almost driven to despair of self-improvement by the trammels of this perplexing riddle. The doctrine of Philosophical Necessity weighed on his existence as an incubus: "I felt as if I was scientifically proved to be the helpless slave of antecedent circumstances; as if my character and that of all others had been formed for us by agencies beyond our control, and was wholly out of our own power. . . . I pondered painfully until I saw light through it. I perceived that the word 'necessity,' as a name for the doctrine of cause and effect, applied to human actions, carried with it a misleading association. . . . I saw, though our character is formed by circumstances, our own desires can do much to shape those circumstances; and what is really inspiriting and ennobling in the doctrine of free will, is the conviction that we have real power over the formation of our own characters: that our will, by influencing some of our circumstances, can modify our future habits or capacities of willing. All this was entirely consistent with the doctrine of circumstances, or rather was that doctrine itself, properly understood."

If Mill had written "that *we* by influencing," instead of "that our *will* by influencing" (an alteration perfectly in accordance with his belief as here expressed, and throughout his life maintained), the doctrine would be precisely what I desire to insist upon.

Anthony Froude, denying the individual possession of any such influence, explains the delusion of freedom in this wise: "We fancy that we are free agents; we are conscious of what we do; we are not conscious of the causes which make us do it; and therefore we imagine that the cause is within ourselves." This, which is pretty much what Spencer says about the extreme complication of the forces in action, is almost verbatim the language of Spinoza: "Human liberty, of which all boast, consists solely in this, that man is conscious of his will, and unconscious of the causes by which it is determined." But, as Mill affirms, the cause is within ourselves.

If the materialist tells me I am assuming a dualism which is but a metaphysical fantasy, I reply that his material monism which reduces me to a conscious machine, is philosophically less warrantable than an idealistic monism which reduces matter to a sheer hypothesis. But we need not go so far as this; it is sufficient to say with Professor Ferrier: "The object of knowledge, whatever it may be, is always something more than what is naturally or usually regarded as the object. It always is, and must be, the object with the addition of oneself—object *plus* subject—thing or thought *mecum*. Self is an integral

part of every object of cognition." (Ferrier's *Institutes of Metaphysic*, Prop. ii.)

These, however, are propositions which will be duly considered later on; we shall then see that it is only when treated transcendentally that we can hope for a solution of the problem. Meanwhile, let us return to Mill's assertion, Have we or have we not real power over the formation of our own characters? This is the pith and moment of the whole controversy.

CHAPTER IV

RESPONSIBILITY

Our wills are ours, we know not how,—
Our wills are ours to make them Thine.
TENNYSON.

As an important prelude to the inquiry, I must call attention to the essential difference between "character" and "nature." The two words are used almost indifferently, even by careful writers.

A man's nature is born with him. He is no more answerable for it than the leopard for his spots, or the negro for his black skin, and all that skin connotes; and it connotes much. "A small difference in the pigment of a sense, by giving that sense greater susceptibility, may determine the animal's preferences, tastes, and pursuits; in other words, its whole destiny. In a human being, the circumstances of being acutely sensitive in one or two leading senses may rule the entire character,—intellectual and moral." (Bain, *Mind and Body.*) A glance at Mr. Francis Galton's remarkable work on Heredity will show how we come into the world "labelled," and what is here signified by the term "Nature."

A man's *character* is his nature modified by circumstances. His *nature* is the raw material,

whatever it happens to be, out of which his being is fashioned; it is the metal of which the instrument is made. The instrument may be a silver coin, a wedding ring, a coffin nail; but be the metal moulded as it may, to useful or ignoble purposes,—silver, gold, or iron,—it remains to the end what it was from the beginning.

Not so the character. "The whole tenor of a life," says Herbert Spencer, "may be changed by a word of advice; or a glance may determine an action which alters thoughts, feelings, and deeds throughout a long series of years." (*Principles of Psychology.*) "You will see," says Clifford, "that it is not even true that a character remains the same for a single day; every circumstance, however trivial, that in any way affects the mind, leaves its mark, infinitely small it may be, imperceptible in itself, but yet more indelible than the stone-carved hieroglyphics of Egypt." "In my own case," says Mr. Archdall Reid, "five minutes' careless conversation when a boy, led to a gradual but profound change in my entire character and career." (*Principles of Heredity*, p. 282.)

In a like strain, Hume: "The prodigious effect of education may convince us that the mind is not altogether stubborn and inflexible, but will admit of many alterations from its original make and structure. Let a man propose to himself the model of a character which he approves; let him be well acquainted with those particulars in which his own character deviates from the model; let him keep a constant watch over

himself, and bend his mind by a continual effort from the vices towards the virtues, and I doubt not but in time he will find in his temper an alteration for the better." (Essay XVII.) Yet Hume, who writes this, was as firm a disbeliever in the freedom of the will, as a first or efficient cause, as was John Mill himself. If his words mean anything, they mean that man has power to modify his own character.

That the line may be clearly drawn between the views here propounded and those of the outspoken fatalist, and to show, moreover, that ours is no quixotic fight with a mere phantom (as any one of common sense might imagine), let us again review some of the most explicit and vigorous averments of the confirmed necessitarian. Mr. Mallock, in his able and interesting work, *Is Life Worth Living?* thus distinctly puts before us the outcome of the positivist's creed: "Nature, as explained by science, is nothing more than a vast automaton; and man, with all his ways and works, is simply a part of nature, and can, by no device of thought, be detached from or set above it. He is as absolutely automatic as a tree is, or as a flower is; and is as incapable as a tree or flower of any spiritual responsibility." (Chap. ix.) Virchow accepts these dicta of unalloyed realism; and more than that, leaves us no alternative. "The naturalist," says he, "knows only bodies and their qualities; what is beyond he considers transcendental; and he considers transcendentalism as an *aberration of the human mind.*" "Whoever rejects experience," writes Büchner, in the same spirit, "rejects human

conception, and has yet to learn that human knowledge and thought without a real object is a nonentity." (*Kraft und Stoff.*) The limits of his senses and his intellect are the limits of being. The belief in anything else—in any transcendental explanation of mind and moral freedom—is an aberration of intellect; for beyond these limits is "nonentity"—nothing. Blind force, mechanism, fatalism are, in the eyes of the positivist, the only realities. What has freedom or responsibility to do with these?

To return to the formation of character: according to Schopenhauer, "Character is incorrigible; because all a man's actions emanate from an inward principle, in virtue of which he must always do the same thing under like circumstances, and he cannot do otherwise." (*Counsels and Maxims.*) The reason here alleged for the incorrigibility of character—that a man will always do the same thing under like circumstances—is exactly the opinion held by Mill. But Mill does not argue, as Schopenhauer does, that because like effects follow like causes, because the principle of causality is unchangeable and is operative on mind no less than on matter, therefore character is unchangeable. Mill does not argue, as Schopenhauer argues, that it is useless for a man to keep a constant watch over himself and bend his mind for a continual effort, since efforts, however strenuous, produce no effect. Nothing but confusion of language or of thought, or the perversity of foregone conclusions, could lead a man to stultify himself by assertions so completely refuted by universal experience.

It is the very constancy of the law of causation; it is the very fact of its certainty, which the fatalist brands with the name of "necessity," that guarantees the reward of our efforts. If evil inevitably causes evil, so will proportional efforts to mitigate it necessarily meet with proportionate success.

It is this "beneficent necessity," as opposed to undetermined will, which enables us to mould inner relations to outer relations. It is this regularity in mental sequences which makes our characters corrigible. It is through the strictness of this "inward principle" of mental causality, so fatal in the eyes of Schopenhauer, so encouraging in those of Herbert Spencer, that "Life must become higher, and the happiness greater." But for this adjustment of internal changes to external coexistences, "the harmony at any moment subsisting, and the advance to a higher harmony, would alike be interrupted. . . . There would be an arrest of that grand progression which is now bearing Humanity on to perfection." (*Principles of Psychology, ubi supra.*)

CHAPTER V

RESPONSIBILITY—(*continued*)

SCHOPENHAUER does not recoil from his own pessimism; like Hartmann and poor Leopardi he revels in the "Wonne der Thränen"; hopeless bitterness is the honey he feeds on; for him "the sweetest songs are those that tell of saddest thought." "Every man," he assures us, "remains always the same; all his qualities, good and bad, are innate."

Hume talks of the prodigious effects of education. Mill believes "the power of education to be almost boundless. There is not one natural inclination which it is not strong enough to coerce, and if needful destroy by disuse." (*Three Essays on Religion.*)

Schopenhauer takes up the question posed by Plato, "Is virtue teachable?" and answers it, as he is bound to do, in the negative. He backs his opinion by Seneca's "Velle non discitur": one cannot learn to will. If this means we cannot will to will, the proposition, as already shown, is self-evident. If it means we cannot be taught to will, then I think we may agree with Mr. Bain and King Solomon that "the rod and reproof give wisdom."

The whole question is so important that, at the

risk of reiteration and tediousness, we are bound to consult the opinions of those who are entitled to be heard as recognised authorities. Amongst such Clifford occupies a prominent place. Here are his words, which appropriately deal with the determining power of the Ego, and with the responsibility which thence accrues, in the making of our characters.

He first draws the distinction between voluntary and involuntary action. "When I look back and reflect upon a voluntary action, I seem to find that it differs from an involuntary action in the fact that a certain portion of my character has been consulted. There is always a suggestion of some sort, either the end of a train of thought or a new sensation. . . . On the mental side, that which determines what memories shall be called up by the given sensation, and what motives these memories shall bring into action, is my mental character. We may say then, in this simplest case of voluntary action, that when the suggestion is given it is the *character of me* which determines the character of the ensuing action, and consequently I am responsible for choosing that particular course out of those which were left open to me by the external circumstances."

The fatalist denies the responsibility of choosing, but he cannot deny the difference between the voluntary and the involuntary. He cannot deny that voluntary action is distinguished by its mental quality; and it is this intrinsic difference which peremptorily interdicts his treatment of the two as precisely similar phenomena.

How the mind works, how motives are set in motion, is thus described. Various inducements to act this way or that are summoned by memory and reviewed. "Then I choose which of these motives shall prevail. Those who carefully watch themselves find out that a particular motive is made to prevail by the fixing of the attention upon that class of remembered things which calls up the motive. . . . What is responsible is that part of my character which determines what the action shall be. . . . For voluntary actions I am responsible, because I make the choice; that is, the character of *me* is what determines the character of the action. In *me*, then, for this purpose, is included the aggregate of links of association which determine what memories shall be called up by a given suggestion, and what motives shall be set at work by these memories. This inner and deeper motive—choosing self—is called Reason, and the Will, and the Ego. The choice is made by directing attention to the conflicting motives. We are responsible only for the choice of one motive out of those presented, not for the nature of the motives which are presented." (*Lectures and Essays*, "Right and Wrong.")

As to character, Clifford adds: "And within certain limits I am, for the same reason, responsible for what I am now, because, *within certain limits, I have made myself*. . . . The habit of choosing among motives is one which may be acquired and strengthened by practice, and the strength of particular motives by continually directing attention to

them, may be almost indefinitely increased or diminished."

The *me* which has so large a share in determining the act is, as Clifford points out, "the aggregate *me* of my past life"; and that past life is responsible for a large proportion of our present external circumstances, which are continuously modifying our characters.

Precisely the same view is taken by Mr. James Sully. "Will, by acting on the thoughts, has the prerogative of determining, within certain limits, what the contents of our imagination shall be; and the obvious and perfectly effective remedy for the plague of ungratified desire is the volitional act by which we direct *attention* to new objects." (*Pessimism*, p. 216.)

Can any one in his senses hesitate on which side to range himself, with or against the fatalist? Can any one doubt the changeability of character, the consequences of his own efforts, or the power of education? It is just man's educability which differentiates him from the lower animals. Instinct and intelligence are in inverse ratio to each other; as animal life rises in the scale instinct declines, and intelligence takes its place. The chick picks up the grain a few minutes after it leaves its shell. The child takes months to learn one end of its bottle from the other. And just as the animal is released from the bondage of its instincts (obedience to which sometimes involves its death, as in the case of the drone-bee and the male spider), so it acquires freedom,

i.e. self-control. Schopenhauer repudiates any such distinction.

It may be thought that I have exaggerated the opinions of the fatalist; so absurd must it seem to the ordinary man to be told that his efforts are of no avail, since it is useless to struggle with his destiny. Read Mill's statement of the fatalist's belief. It is somewhat at variance with Schopenhauer's words, for it speaks of education and circumstances moulding character. We shall see presently that even Schopenhauer contradicts himself by admitting this much. "He (the fatalist) believes that his nature is such, or that his education and circumstances have so moulded his character, that nothing can now prevent him from feeling and acting in a particular way, or at least that no effort of his own can hinder it. He believes that his character is formed *for* him, and not *by* him, and that he has no power to alter it."

"This" Mill declares to be "a grand error. He has, to a certain extent, a power to alter his character; its being in the ultimate resort formed for him is not inconsistent with its being in part formed by him as one of the intermediate agents. His character is formed by his circumstances (including among these his particular organisation), but his own desire to mould it in a particular way is one of those circumstances, and by no means one of the least influential." Further: "If others could place us under the influence of circumstances, we in like manner can place ourselves under the influence of other circumstances." (*Logic*, vol. ii.)

Schopenhauer's concession goes thus far: "Although man and animals are determined by motives with equal necessity, man has this advantage over the animals, —he can deliberate. It is this that in individual acts has often been taken for freedom of the will, although it is but a conflict between various motives, of which the strongest causes necessary determination."

Man's advantage of deliberation, which Schopenhauer attempts to abrogate by reducing it to a conflict of motives, is the one circumstance which establishes personal responsibility. Drobisch, a writer of critical discernment, dwells upon this very point. "Through this is the power of deliberation and the choice of conflicting motives. Man becomes morally free—*sittlich frei*—independent, that is, of the compulsion of his nature and of its passionate vagaries; as also armed for resistance against unexpected, importunate, alluring, and misleading chances." (*Über der menschliche Willensfreiheit.*) Drobisch is a determinist in the same sense that John Mill is one. "Es gibt keine absolute Willensfreiheit, keine Selbstbestimmung, keine Spontaneität, des Willens." ("There is no absolute freedom of will, no self-determination of the will.") "It is not," he goes on to say, "a fact given in conscience; it is indisputably unthinkable, it signifies pure arbitrariness. Were it even demonstrably otherwise it would amount to absolute accident, and would be entirely without moral worth."

As to man's character, "in respect to the sudden changes of outward events, it is certainly to be regarded as constant, not positively—*schlechthin*

—unalterable, but capable of reformation." Elsewhere he fully recognises the fact, that "man's spiritual activity is subject to immutable laws, just as all other phenomena of nature are." But they are not the physical laws of unconscious matter; the laws of association, for instance, are incommensurable with the laws of motion.

One of the standing arguments of the necessitarian is the constancy of character here affirmed. "So little free are we in certain small resolutions," says Du Bois-Reymond, "that an adept in human nature predicts, with surprising certainty, which card out of many, put down under given conditions, we shall pick up." (*Die sieben Welträtsel.*)

What does this prediction amount to? Merely that beings constituted in like manner, with similar organisations, and (for this has to be taken into account) more or less catholic reasoning powers, are impelled by similar motives to similar actions; and that the adept intimately acquainted with A's or B's character can predict with certainty what A or B will do in the case of small resolutions—"in gewissen *kleinen* Entschliessungen." Well, where trifling issues are at stake, that is, when there is no conflict of motives, where no incalculable or unforeseen complications have to be reckoned with, the adept may safely predict that a person whom he is intimate with, or indeed any rational being, will act as he himself would act in like circumstances. How can this be said to annul our freedom? Would the arbitrariness, hence the unpredicableness, of our

actions under given circumstances prove our freedom as Du Bois-Reymond implies? Will he tell us that the being whose conduct could never be counted on —who, in other words, was never guided by his intellect—would be free? We should simply look upon him as an imbecile.

As already urged, it is this invariable sequence of cause and effect, to which our "spiritual activity" is no less subject than are our bodies, that enables us to regulate and modify our characters. "Only the Law," as Goethe says, "can give us freedom." Such necessity as this is the foundation of our moral being; our experiences, the desires that issue from them, and our strenuous efforts to improve, would be futile but for what the fatalist calls "the necessity of the sequence."

Then again, if we have the power, however limited, —which varies with every individual,—the ability of the expert to foretell conduct will depend, not on his knowledge of *die menschliche Natur*, but upon his continuous intimacy with A or B. If the individual under observation had been lost sight of for a decade, and had, all that time, been earnestly striving to reform his character, the adept would be entirely out of his reckoning; he would have a new man to diagnose. Dean Mansel considers this view of prediction as equivalent to fatalism; but it is nothing of the kind; regarded as here suggested, it comes to no more than this: given exactly the same conditions, the same results will follow.

CHAPTER VI

RESPONSIBILITY—(*continued*)

NATURE'S law is absolute determinism. Man,—body and mind,—like everything else in the universe, is subject to this rule. Everything is connected with, and dependent on, everything: man is no exception to the rule. From the scientific and logical point of view "freedom" is therefore a mere delusion,—a word that has no corresponding fact.

For all that, man is a specialised unit; and though no creator of force not already in existence, he has endowments, designated by the abstract term "mind," which enable him, in a measure, to manipulate and direct existing forces, including those of his own personality. He can place himself under influences conducive to the fulfilment of his aims; and by so doing can, indeed must, modify his innate and inherited nature; and thus collaborate with the circumstances which produce his character.

The error of the fatalist lies in his denial, that this complex unit—man, whom he quite correctly regards as a product of an indefinite past, for in truth he is this and nothing more than this when he first comes into the world,—that this ready-made unit has, in its

maturity, any such power; or has anything more than a delusive share in the collaboration. The fatalist is wrong in ascribing all that man comes to be,—all that he does after his development,—to uncontrollable circumstances, or to what happened before he was born. He is wrong in assuming man to be *wholly* the product of a remote past. He is wrong in refusing to make any allowance for man's own agency, as a sentient, deliberating, and rational being. He is utterly wrong in repudiating the notion that man has any share in the making of his own character.

Yet, in spite of these errors, from the *mere physiological* point of view, the fatalist is unassailable. He assumes that physical processes, being inseparable from mental processes, are the causes of our feelings, conscious efforts, and ideas. Or, to put it in another way, that feeling and thought are nothing but functions of the brain. The supposition that any psychic state can influence matter, is scientifically inconceivable. As Lange says: "Were it possible for a single cerebral atom to be moved by thought, only as much as the millionth of a millimetre, out of the path assigned to it by the laws of mechanics, the whole world-formula would become inapplicable and unmeaning." (*History of Materialism.*)

So embarrassing is this world-formula—the law of Conservation of Energy—with which the interaction of mind and body is indissolubly involved, that men of high mathematical attainments—Professors

Cournot, Saint Venant, and Boussinesq, have seriously striven to show that the expenditure of force in the act of volition is not only proportionately slight, but may be *nil*.

Sir Oliver Lodge goes so far as to make the following bold statement: "My contention is that life is, from the mechanical point of view, not a force nor an energy, but only a guiding and directing influence. It directs terrestrial energy along a certain channel, it utilises the energies which are running to waste, so to speak, and guides them in a specific way, as a waterfall may be made to light a town instead of dashing itself picturesquely against rocks, but it affects the *quantity* of energy no whit." (*Science and Faith*, p. 66.) Yet, whatever the mathematicians or psychologists may theoretically affirm, it seems absurd to deny the expenditure of energy and consequent sense of physical exhaustion which attend the resistance or guidance of terrestrial forces; and are not all of us familiar with the lassitude and fatigue caused by emotion, and by every kind of mental strain?

Amongst leading thinkers and eminent scientists who have struggled with this enigma no one is more worthy of attention than Huxley. "Our mental conditions," he says, "are simply the symbols in consciousness of the changes that take place automatically in the organism. . . . To take an extreme illustration: the feeling we call volition is not the cause of a voluntary act, but the symbol of that state of the brain which is the immediate cause of the act." But, as to fatalism, materialism, and atheism, which

this doctrine might naturally lead to, Huxley goes on: "I really have no claim to rank myself amongst fatalistic, materialistic, or atheistic philosophers. Not among fatalists, for I take the conception of necessity to have a logical—not a physical—foundation; not among materialists, for I am utterly incapable of conceiving the existence of matter if there is no mind to picture that existence; not among atheists, for the problem of the ultimate cause of existence is one which seems to me hopelessly out of reach of my poor powers. Of all the senseless babble I have ever had occasion to read, the demonstrations of those philosophers who undertake to tell us all about the nature of God, would be the worst, if they were not surpassed by the still greater absurdities of the philosophers who try to prove that there is no God."

No astute thinker like Mill, or Huxley, for one moment doubts that the laws of mind are as rigidly constant as the laws of matter. But to reduce all mental phenomena to material phenomena, and to call the belief in our moral freedom a delusion, is to pass the limits of scientific knowledge. "The materialistic position that there is nothing in the world but matter, force, and necessity, is as utterly void of justification, as the most baseless of theological dogmas." (Huxley, *Lay Sermons.*) As to delusion, if earnest and incessant endeavours to resist a besetting temptation, or an inveterate habit, end in success, to call this delusion is itself delusion; the reasoning which so concludes is refuted by the fact.

CHAPTER VII

MIND AND BODY

MAN'S personal agency—the question here substituted for the unprofitable and unmeaning one of the freedom of the Will—is inseparably interwoven with the law of conservation of Energy. Descartes, and Leibnitz half a century later, proclaimed the doctrine that the quantity of motion in the world was unalterable. From this to the constant quantity of force is but a short step; and from Mayer to Tyndall recent science has but developed experimentally the principle suggested by Descartes.[1] But, firmly believing that Body and Soul were different substances, and causally independent, Descartes could only account for their interaction by ascribing all motion, including atomic vibration, to God.

It should here be noted that Descartes' doctrine did not originate with the difficulty of accounting for the action of mind on matter; this was a derivative puzzle, consequent to the parent one of explaining

[1] "Primo statui esse in tota materia creata certam quantitatem motus quae neque augeatur neque minuatur unquam: atque ita, quum corpus unum movet aliud, tantundem motus sui ipsius decedere quantum in aliud transfert." (*Epistol.* 25.) If we substitute *energia*, or *vis*, for *motus*, we have the formula for the conservation of Force.

our knowledge of an outer world. How come we to know anything about matter at all? This question takes logical precedence of the other. "The great Truth insisted upon by Descartes, that no likeness of external things is, or can be, transmitted to the mind by the sensory organs—that between the external cause of sensation and the sensation there is interposed a mode of motion (a motion of the substance of the nerves which connect the sensory organs with the brain) of nervous matter of which the state of consciousness is no likeness, but a mere symbol—is of the profoundest importance. It is the physiological foundation of the doctrine of the relativity of knowledge; and a more or less complete idealism is the necessary consequence of it." (Huxley, *Animal Automatism.*)

The complete idealism had not long to wait for its enunciation at the hands of our great metaphysician —Bishop Berkeley; and later on, by Malebranche.

Leibnitz adopted, in a qualified sense, his predecessors' belief in the quantity of motion; but, objecting to Descartes' *Deus ex machina*, held that the *force motrice* is inherent in matter itself. He claimed, moreover, to have proved that "the same amount of moving force is preserved, which is what he (Descartes) confounded with the quantity of motion." Thus it was that Leibnitz anticipated our present doctrine.

As to the reciprocal influence of body and soul, this was as inexplicable to Leibnitz as to Descartes. The abstruseness of the riddle was intensified by his conviction of the fixed quantum of "moving force."

What relation can there be between two such absolutely alien substances as Soul and Body? If mind can impart motion to matter, if the voluntary movement of the limbs is produced by the mind, whence does the mind get this power? It could not create it, for, as Leibnitz had already asserted, its quantity is unchangeable. It could not get it from the body, for the body is only a medium for conveying or imparting to matter such force as it has received from matter. Movement must have movement for its antecedent; and, consequently, for its effects. Unless the effect were also a movement, there would be an expenditure of force without any effect, and therefore a diminution of the fixed quantity of energy. But mind or spirit does not occupy space, and is hence without motion. The spirit, therefore, cannot get its motor power from the body, and it comes to this: neither body nor mind can act upon each other.

Thus the old enigma of their interaction helped still further to complicate the equally old enigma of free will. Descartes took refuge in divine mediation. Where the human soul was not at stake, he squared his adverse reasonings by assuming animals to be automata.

It can hardly be doubted that, in his secret heart, he made the distinction with reluctance. In his day the Church was a power which had to be reckoned with; and the fate of Bruno and the perils of Galilei were before his eyes. Descartes had no ambition for martyrdom. "My devise," he writes to a friend, "is

Bene vixit qui bene latuit." (Better safe obscurity than perilous fame.) He desired probably to save the freedom of the Will; but his mathematical genius trended to a mechanical philosophy, and his divine cause was invoked, less perhaps through conviction than through prudence.

Leibnitz was debarred from this subterfuge, for though as rigorous a determinist as Descartes, he firmly believed in predestination. In a letter to Pierre Bayle he writes: "As for free will, I am of the opinion of the Thomists and other philosophers who believe that all is predetermined." To evade the dilemma, and to escape fatalism, he resorted to his famous and fantastical hypothesis of "pre-established harmony." God has created two heterogeneous substances: the material world and the world of monads —or spiritual units. The two are independent of and powerless to affect each other. Yet, in spite of their complete disconnection, both, by foreordained necessity, run side by side and keep step each with each, with the perfect coincidence of a solid object and its shadow, or like a body and its mirrored image. Yet the monad is no mere image. Each individual monad is an active and self-determined unity, and it is predestined that what man does his monad does. The belief that the act is his and free is warranted by his unconsciousness of the *mechanical* necessity from which the independent monad itself is exempt. Leibnitz does not make it clear how the self-determinism he confers upon the monad is to be reconciled with its dependence upon God as its Creator. We

must dismiss the subject, as a superficial treatment of it would only be misleading.[1]

A curious letter in the published correspondence of the Abbé Galiani insists vehemently on the supreme importance of man's belief in his moral freedom: "It is this which constitutes his humanity—*La persuasion de la liberté constitue l'essence de l'homme.* But is the persuasion that he is free the same thing as freedom in reality? I answer, it is not the same; but it produces the same moral results. Man is free, because he is convinced that he is so; and this is tantamount to freedom. Here, then, we have the mechanism of the universe as clear as water from the rock. If there were one single free being in the world there would be an end of God. The universe would become chaotic; if, too, man were not inwardly certain of his freedom morality would be doomed. The conviction of freedom suffices to establish conscience, remorse, justice, and the belief in rewards and punishments. It suffices for everything."

Doubtless the Abbé's repugnance to the actual freedom of man, as antagonistic to divine ordinance, is founded, like that of Leibnitz, on the doctrine of predestination as held by Thomas Aquinas, the Calvinists, and other dogmatic theologians. When the worthy Abbé winds up with "Voilà le monde expliqué en deux mots," he forgets to tell us how he reconciles his doctrine of rewards and punishments with man's apparent, but unreal, freedom. This, too, is a venerable

[1] A full and able exposition of Monadism will be found in Professor Caird's *Introduction to the Philosophy of Kant.*

puzzle. Every attempt to reconcile God's foreknowledge and responsibility as Creater of all with man's responsibility, though the mere instrument of his Maker, only helps us out of the smoke into the smother.

Du Bois-Reymond seeks refuge in materialistic monism: "As soon as one makes up his mind to declare the feeling of freedom to be a deception, it is as easy to harmonise the apparent freedom with necessity upon monistic grounds as by Leibnitz's extreme dualism." His last word on the subject is: "The difficulty ceases to exist provided one resolves to deny the freedom of the will and accept the feeling of freedom as a delusion." (*Die sieben Welträtsel*, p. 110.) Granted; but one might just as truly say, the difficulty ceases to exist, provided one resolves to adopt idealistic monism, and explain all material phenomena as modifications of Mind. In point of fact, this is what Du Bois-Reymond does say in the all-important rider to the above sentence: "Otherwise the freedom must be regarded as transcendental." This saving clause will be the text of discussion hereafter.

Meanwhile, I beg to submit to the consideration of the fatalist an idea which, so far as I am aware, has never yet been propounded.

The nebular hypothesis of Kant and of Laplace is, I believe, accepted by all astronomers as the origin of our planetary system. The nebulous matter out of which our sun and planets were formed must have "filled the portion of space now occupied by our

system, far beyond the limits of our most distant planets. . . . If we calculate the density of the mass of our planetary system, according to the above assumption, . . . we should find that it would require several millions of cubic miles of such matter to weigh a single grain." (Helmholtz, *On the Interaction of Material Forces.*)

The materialists maintain that the germs of life were potentially contained in this diffused mass. How many million cubic miles go to the millionth of a life-germ is a detail which the positivists have yet to work out for us. Meanwhile, let us see what this leads to.

Given infinite time, infinite space, and universality in the laws of Nature, exactly the same conditions as preceded the formation of *our* system must have existed in other parts of the universe at exactly the same moment of time. All the conditions—the quantity of nebulous matter, the quality of this matter as proved by spectrum analysis, the state of its diffusion, the centripetal and centrifugal forces, the chemical forces, and all the other forces, whatever they may be which pertain to matter being identically the same, and the process of evolution having begun at the same moment and having been in operation for the same length of time,—given all these necessary factors it follows from the principles of the necessitarian that nothing could have resulted but that which has resulted: "Ce qui arrive," as M. Taine has it, "ne pouvait pas ne pas arriver, et cela seul était possible qui arriva."

Throughout infinite space, therefore, solar systems must exist which are facsimiles of ours. In all these there must be exactly the same number of planets, in every respect replicas of ours, situated in their relation to their suns and to one another at the same distances, and surrounded by atmospheres similar to ours.

Will any logical realist deny that the history of every one of those planets is, and must be, line for line and syllable for syllable, the same as ours, from the hour of its inception to the instant now passing? Every one of those millions of our twin-born Earths has had its plutonic period, its paleozoic, its mezozoic, and its cenozoic eras. Every one has had its book of Genesis, its Adam and Eve, its Moses, its Christ, its Guatama, its Mohammed, its Homer and his *Siege of Troy*, its Shakespeare and his *Hamlet*, its Newton, its Laplace, and its Goethe; for every one the geography is the same; there are pyramids in every Egypt, there are rock-sepulchres in every Nineveh and Babylon with cuneiform inscriptions on their ruins identical with those of this Earth.

And where is all this to end? Each repetition of each one of us is as though cast in the same mould as ours, bears the same name as ours, has the very same number of hairs on his head, has had the same experiences, thinks the same, is feeling the same, doing the same, is weeping, laughing, sneezing, or— Well, well, let us leave the imagination of the positivist to fill in the picture in strict accordance with his principles of Materialism and Necessity.

Then, too, throughout the universe, other systems are beginning to form themselves, under precisely similar conditions. Incipient intelligence invents its childish nursery tales to account for these beginnings. Every day the Spirit of God moves upon the face of the waters and says, "Let there be Light!" Every day is the First Day of the week for countless worlds; each epoch will have its dragons of the prime that tear each other in their slime, in each, nature will again be red in tooth and claw; and man-apes and ape-men, and ages of barbarism and ignorance and superstition, and savage brutality and persecution will follow; and the little marionettes—our reproduced images—deluded with the notion that they pull their own strings, and absurdly fancying they have souls as well as bodies, will be resolved like us into nebulous gases; again and again to be whirled through the same processes, for ever and for ever. Eternal evolution following, and followed by, eternal destruction and dissipation.

Is this chimerical? The reasoning is based upon scientific principles. Neither M. Comte nor Mr. Harrison could object to its positivism, any more than Laplace to its version of his *Mécanique céleste*. There is no escape from it, provided—there's the rub, —provided always that science is competent to tell us, not only what is true—but (as the materialist honestly believes) the whole Truth, and nothing but the Truth.

CHAPTER VIII

COSMOLOGICAL

THE first dawn of philosophic thought is marked by the effort to supersede the mythical explanation of Nature, by some general principle pervading the universe. Just as in our day, the Principle of Evolution, and the reduction of all the laws of Nature to modes of Motion, afford a scientific theory for both the outer and inner world; so, the Grecian philosophers, pursuing the deductive method, based upon the limited scientific knowledge of the age, sought some active principle of like universality, for the foundation of an intelligent cosmogony.

Thus, with Thales, the principle of all things was Water. For Anaximenes, Water was too material a conception, Life was spiritual: the vital principle was the Air we breathe. Heraclitus believed the beginning of all things to be Fire. Pythagoras held that Number was the One universal, common to all particulars (why Four was the most perfect number, and therefore the Symbol of the Soul, is not easy to understand). By degrees we come to the ancient form of Pantheism, in the "One" of Parmenides: the One being All Existence.

The history of Philosophy has been written and rewritten. It is no purpose of mine to transcribe its volumes. My aim is to save the time and trouble of the busy man, by a glance at such notable pages of it as may serve our present argument.

Realism, Materialism, scientific Monism, Positivism, are but different names for the same conception. Substantially, each alike leads, though not inevitably, to Fatalism and Atheism; but in all ages the majority of thinkers have shrunk from the downright and unequivocal denial of any Supreme Being, or conscious Power, apart from the physical forces inherent in Matter.

The word "Materialism" is apt to convey an invidious meaning. Let me here avow that my criticism of its tenets have no such bearing. Truth is, for each of us, as each of us sees it. Every conviction earnestly sought and courageously held is, *pro tanto*, worthy of respect. On questions which transcend finite intelligence, who shall draw the line between wisdom and folly? Some of the ablest thinkers and noblest men are, and have been, without belief in Supernatural religion. As Renan—himself a pronounced sceptic—shrewdly remarks, *On est peut-être athéiste pour ne pas voir assez loin.* (One is perhaps an atheist because he is too short-sighted.) These words might serve as a text for all I have to say.

We ended our last chapter with a somewhat fantastic picture of evolution such as might present itself to the mind's eye of the purely mechanical

realist. We must go back to the Nebular Hypothesis in order to test the adequacy of materialism, *per se*, to explain the universe; and, what is even more difficult, the intelligence which thus explains it.

Every cosmical theory of our own time is so intimately related to the doctrines of the Greek philosophers that some slight notice of these will conveniently aid our comment on those of modern Physicists. A still more important reason for reference to the great thinkers of antiquity is the proof it affords that, despite the accumulated wisdom of ages and the prodigious gains of scientific knowledge, we are not a jot nearer to the essential truth which underlies all that science has discovered, or ever will discover, than were those powerful intellects two thousand years ago. More than a superficial acquaintance with the speculations of the past and the present will not, I think, be needed to convince the reader of this significant fact.

No ordinarily informed person needs to be told what the Nebular Hypothesis means. What we have to consider here are the assumptions which the Hypothesis involves,—postulates which must be taken for granted, but explanation of which, science, and hence materialism, are utterly incompetent to render.

It is not only that the materialist admits—as every man of science, whatever his creed, admits—that much has to be assumed which surpasses possible knowledge; it is the dogmatic inference which the materialist draws from our innate disabilities that we

have to contend with,—inference as untenable as it is gratuitous.

To cite an instance taken almost at random: "These individual worlds or solar systems," says Büchner, "must have been formed from a shapeless mass of vapours by the rotatory motion of specks, so as gradually to have become condensed into compact globular masses. These masses in space are in constant motion, a motion singularly combined and complicated; yet, in all its modifications, merely the result of a single law of nature—the law of attraction. This law, inherent in matter, and visibly manifested in every atom, is irresistibly obeyed by every body." (*Force and Matter*, ch. viii.) "The motion of matter obeys only those laws which are inherently active; and their manifestations are nothing but the product of the various and manifold *accidental*, or necessary, combinations of material movements." (Chap. i.)

Now for the writer's inference. "The naturalist proves that there are no other forces in nature beside the physical, chemical, and mechanical." If the critic replies: "This is the work of self-conscious, all-penetrating divinity," we ask, "What has formed that God? If God is called eternal, the world is also eternal, and thus excludes the idea of a causal principle, or renders it unnecessary. . . . The world, or matter with its properties, which we term forces, must have existed from Eternity; in one word, the world cannot have been created. . . . No one can comprehend how an eternal and governing reason

can accord with unalterable laws of nature." (Chap. xxvii.)

These passages are typical utterances of the whole materialistic school. Two or three specimens will represent a score. "Matter is uncreatable, as it is indestructible." (Vogt.) "The government of the world must not be considered as determined by an extramundane intelligence, but by one imminent in the cosmical forces and their relations." (Strauss.) "The world governs itself according to eternal laws." (Cotta.) "An extraneous and superhuman God is nothing but an extraneous and supernatural self; a subjective being, placed, by transgressing its limits, above the objective nature of man." (Feuerbach.)

Before examining the validity of such conclusions, we must reduce them to tangible details of the evidence upon which they are founded. We must not content ourselves with the mere reference to the vague and general terms "forces," "matter," and blindly accept the *ipse dixit* of the materialist, that there is no extramundane intelligence. We must carefully inquire what these omnipotent agents are. The first step in that direction is to see what they do.

In his *First Principles*, Mr. Spencer thus lucidly explains the redistribution of nebulous matter: "The condition of homogeneity is a condition of unstable equilibrium. . . . Each unit of a homogeneous whole must be differently affected from any of the rest, by the aggregate action of the rest upon it. . . . The parts of the mass stand in different relations to the force." Elsewhere: "To bring its ultimate atoms

into that proximity requisite for chemical union—requisite, that is, for the production of dense matter—their repulsion must be overcome. The only force antagonistic to this repulsion is their mutual gravitation." ("The Nebular Hypothesis," *Essays*, vol. i.)

Note here that the convergence of the nebulous Matter calls into play three distinct forces—gravitation, repulsion, and chemical affinity. There is another item left out of the reckoning, or, rather, taken for granted as a mere manifestation of the forces—Motion. By and by we shall have a word to say about this.

Now, what do the forces do? How do they operate? First, we have condensation. The immediate consequence of the condensation is that, according to mechanical laws, a rotary motion is set up in the mass. This motion being quicker at the circumference than at the centre, flings off, from time to time, the equatorial matter, which in turn forms itself into planets, while the principal mass condenses into a sun. Pressure and consequent friction from arrested motion follow; and one result of this is heat. This much we all accept as dynamic and astronomical platitudes.

Let us go a step farther back. What is the nebulous substance out of which solar systems are formed? Its tenuity is rarer than a puff of tobacco smoke, yet it is Matter, the ultimate particles of which are sometimes called atoms, sometimes molecules.

Here our difficulties and the difficulties of the

materialist begin. We have two paramount and importunate questions to answer: What is the atom? and, Are molecules ultimate particles of Matter? This is not an affair of mere nomenclature, to be settled by the dictionary; it is one upon which physicists, modern as well as ancient, widely differ. The answer lies at the bottom of the well of Truth; and that answer—or, rather, its unanswerableness—is essential to our thesis.

The arguments from "Design" have long lost such potency as they may have had in the days of Paley and the Bridgewater treatises. In his *Fertilisation of Orchids*, Darwin describes the marvels of the Pyramidalis, the Spiranthes autumnalis, and the three species of the genus Catasetum, and declares that they "transcend in an incomparable degree the contrivances and adaptations which the most fertile imagination of the most imaginative man could suggest with unlimited time at his disposal." (P. 351.) Again, "Hardly any fact has so much struck me as the endless diversity of structure, the prodigality of resources for gaining the same end, namely, the fertilisation of one flower by the pollen of another. The fact, to a certain extent, is intelligible on the principle of Natural Selection."

If Darwin could have seen, and had had what Du Bois-Reymond calls an "astronomical knowledge" of the mechanism and contrivances in the brain, he would doubtless have held the same opinion about that too. As for an efficient cause, his judgment is provisionally suspended by the qualifying words "to

a certain extent." In a letter to D. Mackintosh, he writes: "Whether the existence of a conscious God can be proved from the existence of the so-called Laws of Nature (*i.e.* fixed sequence of events) is a perplexing subject, on which I have often thought, but cannot see my way clearly."

Laplace, who spent his life amongst the stars, was wont to reject "the hypothesis of a Creator." But Laplace accepted as *given* all the forces and conditions requisite for his celestial mechanism. Evolution takes for granted that natural selection is a necessary and automatic law—a simple corollary of the laws of existence and the properties of matter.

We learn now from Professor Francis Darwin that plants have memory; and Professor Wager offers proof that they can see. Tyndall, in his Belfast address, with ostensible timidity, but with inward conviction, maintained, as Ueberweg and Zöllner had done before him, that matter is potentially sentient. "Let us radically change our notions" is the alternative he adopts. "Let us reverently, but honestly, look the question in the face. Divorced from matter, where is life to be found?"

In the foregoing statements we have a précis of modern cosmogony. But we must go back beyond First Principles even; for though we have here a brief abstract of what the forces do, we are still as far off as ever from an insight into what they are. We must turn our attention to the primordial nebulous substance, its atoms and its molecules.

CHAPTER IX

THE ATOM

To show how much we are in the dark, we have but to glance at the guesses of the ancient philosophers. Comparison will prove how little the theories of modern physicists enlighten us.

According to Democritus and Leucippus, atoms are indivisible particles of one kind of Matter; every kind of Matter is formed by the various configurations and motions of these particles.

Another and different theory was that material things consist of particles which are homogeneous in each kind of body, but various in different kinds. This is the Homoiomeria of Anaxagoras. (Whewell, *History of Inductive Sciences.*)

As Democritus was the progenitor of the atomic theory, and as Anaxagoras best serves our purpose for comparing ancient with modern notions of the atom, we need go no further afield. It must be distinctly apprehended what these two theories mean. That of Democritus is—whatever the kind of matter, the particles of which it is formed are common to all kinds of matter. The only difference in the particles themselves is in their various configurations. Their

variety of *form* is endless. The difference in the kinds of matter is solely due to the arrangement of these common particles or atoms.

Anaxagoras's theory is: Difference in the kind of matter is not due solely to the arrangement of its particles by motion; it is due to the special character of the particles themselves. Each kind of matter has its own kind of particles. The particles are alike in the same body, but vary as each different body varies. The word "Homoiomeria" signifies similarity of parts.

The importance of this difference between the two theories, and their relation to our modern notions of the atom and the molecule, may soon be made conspicuous. The number of elementary substances (which varies with the progress of chemical science) is about seventy-five. If, therefore, Democritus is right, all these so-called elements consist of atoms common to the whole list. The difference between gold and nitrogen gas, say, would depend on the form of their particles and on the motion which originally combined them.

If, on the other hand, Anaxagoras be right, there must either be seventy-five different kinds of atoms, or their atoms must be composite particles which, as we shall presently see, are more properly called molecules.

Turning to the moderns, this is what Clerk Maxwell says: "A drop of water may be divided into a certain number of parts, and no more, of portions similar to one another. Each of these the

modern chemist calls a molecule. But it is by no means an atom, for it contains two different substances, oxygen and hydrogen, and by a certain process the molecule may be actually divided into two parts, one consisting of oxygen and the other of hydrogen. According to the received doctrine, in each molecule of water there are two molecules of hydrogen and one of oxygen." Mark what follows: "*Whether these are, or are not, ultimate atoms, I shall not attempt to decide.*" (Bradford Address.)

In plain language, one of the most eminent physicists of our times declares his inability to say what an "atom" is. The molecule, we are already given to understand, is a composite particle of matter —a molecule of water, for instance. But is there such a thing as an ultimate molecule—a molecule of hydrogen or of oxygen? If so, there must be molecules of each of the seventy-five elements; and Anaxagoras' doctrine of "similarity of parts" is the true one. Furthermore, what Maxwell doubtfully calls a molecule of hydrogen would more correctly be called an atom of hydrogen—unless we are at liberty to imagine that the molecule is itself a composite thing, and not an "ultimate atom."

Tyndall expresses himself in a way which might accord with either Democritus or Anaxagoras: "In the act of combination two atoms of hydrogen combine with one of oxygen to form what we call the molecule of water." He here makes the molecule a composite particle. But, by an atom of hydrogen, he might either mean atoms of which hydrogen

consists, *i.e.* the common atoms of Democritus; or he might mean a molecule in Maxwell's sense of the word.

We need not further labour this question, as we shall have presently to recur to it; but there are many reasons for doubting, not the indestructibility of the atom, but the eternity and indissolubleness of the molecule, *i.e.* as the term is used by Maxwell.

Quite recently it has been discovered that several soft metals or alkalis are transmutable, as copper is now found to be into lithium. And if the philosopher's stone, in the shape of helium or polonium, is on its road to discovery, it becomes the more probable that every substance in the long list of "elements" will turn out to be a product of combination. "We have been accustomed," said Sir William Ramsay, "to regard atoms as eternal and immutable. You see that is not the case." Thus Sir William's words would make for the doctrine of Democritus, and tend to refute that of Anaxagoras.

A simple but ingenious experiment also goes to prove that it is the size and configuration of the atoms which constitute one important difference in the various qualities of matter. Hydrogen gas will pass through a plate of graphite four times as fast as oxygen will. As the graphite acts as a sieve only, the main qualitative difference between the two gases is *apparently* in the size and form of their atoms.

Leaving the doubtful nature of molecules for the

present, we have still to tackle that mysterious thing —the ultimate particle, commonly called "atom." When we speak of molecules of water and molecules of oxygen, we know, to a certain extent, what we are talking about. But of the atom, in the above sense, what do we know? Only this: that we have reached the confines of positive knowledge. I may say at once that no attempt will be made here to expound the mathematical and mechanical calculations of such illustrious scientists as Kelvin, Clerk Maxwell, Stokes, Helmholtz, J. J. Thomson, Rutherford, and other well-known experts; this would be alike out of place and impracticable in a work addressed to the general reader. A mere indication of the present state of the problem will, I think, suffice to illustrate the audacity and the impotence of the materialistic inductions.

The tendency of all recent research in this direction has been to define matter in terms of force. Ampère resolved the atom into a point without extension. Faraday also regarded atoms as force-centres. Since their day, since Tyndall and Maxwell, important discoveries have confirmed the dynamic hypothesis.

We have seen what obscurity arises from the vague use of the words "atom" and "molecule," and from the question whether the atomic constituents of the molecule are themselves ultimate particles of matter. The transmutation of metals enables us to dilate a little more fully on the nature of the atom.

The possibility of such transmutation is closely

connected with the disintegration of their constituents. If the molecule is a compound of "chemical atoms," these, far from being ultimate particles, are, so we learn, combinations of much smaller particles of different kinds of matter. "The mass of a cathode particle or corpuscle, as Thomson, adopting Newton's name, called it, is about an eight-hundredth part of the mass of a hydrogen atom." (Whetham, *The Evolution of Matter—Darwin and Modern Science.*)

What, then, are cathode rays? We must content ourselves with the answer that they are rectilinear rays, produced under certain conditions, by electricity. But what does this mean? Are we to understand that a particle of matter is in the last analysis resolvable into an electric ray? Yes, that is what it comes to. "We are led, therefore, to regard the corpuscle from one aspect as a disembodied charge of electricity. . . . Thus, on this theory, *matter and electricity are identified.*" (*Ibid.*)

This is the conclusion of Science, up to date; and what are we to think of it? Lange replies: "If the progress of the sciences has led us more and more to put force in the place of matter, and the increasing exactness of research more and more resolves matter into force," there is literally no solid ground for the materialist to stand upon.

If he gives up matter, and says: "Very well, call it 'force,' if you please; my standpoint is that the beginning of all things is natural and not supernatural." As Virchow says: "We must take things as they really are, not as we imagine them to be." If

such be his retort, we must remind him of the axiom Virchow is so fond of: "No force, no matter; no matter, no force."

The very word "atom" suggests a metaphysical notion. It is something which can never come within range of our perceptive faculties. The "indivisible" is inconceivable. Its being is as noumenal as Kant's "thing in itself."

"Force," says Du Bois-Reymond, "is a rhetorical artifice of our brain, which snatches at a figurative term, because it is destitute of any conception clear enough to be literally expressed. . . . What do we gain by saying it is reciprocal attraction whereby two particles of matter approach each other? Not the shadow of an insight into the nature of the fact." In his *Über die Grenzen des Naturerkennens*, he repeats: "The corporeal atom is nothing but an exceedingly useful fiction—*Äusserst nützliche Fiktion.*" "The philosophical atom, on the other hand—that is, an ostensibly indivisible body of inert passive substance, from which goes forth a Power working at a distance through empty space—is, when you come to consider it, a mere phantasm—an *Unding.*"

See, too, the contradiction involved in the supposition of this philosophical atom. If this indivisible, inert, passive substance really exists, it must fill a certain space, however small. If so, it is inconceivable why it may not be further divided,—*ad infinitum*: which is also inconceivable.

In truth, it requires no little "imagination" to convert either matter or force into the sound basis

which Materialism claims for the superstructure it professes to explain.

We have not done with the atom yet. Further comparison between the ancient and modern conceptions of it are needed to prove that we have not got, and never shall get, beyond the stage of conjecture. We have yet to see that the combination of the atoms, of which the cosmos is the result, depends necessarily upon one thing which the realist takes for granted, and this one thing is not only inexplicable, but in some respects unthinkable; we have yet to consider Motion.

Democritus made atoms vary in size and form, and argued that the larger, by falling more rapidly, overtook and struck the smaller, with a force which set up a whirling movement, and thus produced aggregation. He overlooked the fact that in infinite space there is neither up nor down; and if space be a vacuum offering no resistance, bodies of the same density would fall at the same rate, irrespective of their size.

Between this doctrine and that of Epikurus there is but slight difference. The latter also held that the atom had no intrinsic qualities save size, form, and weight. Motion for him was eternal. But, while denying intrinsic qualities, both thinkers endowed atoms with weight, and as weight is the effect of gravity, their atoms were mutually attractive. This view is in accordance with modern materialism; the fundamental principle of which is the corporeal atom subjected to mechanical impact.

It seems superfluous to observe, but it must be borne in mind, that movement, whether lateral, vertical, or of any kind, demands space for the body to move in. Whether this space is a vacuum—an all-important consideration—will be looked into presently.

We come next to Empedokles and Lucretius. Lucretius emphatically rejects the idea of design or intelligence or of any agency other than the infinite possibilities of dynamical action. The beginnings of things—*primordia rerum*—"were driven and tormented by blows during infinite past time; after trying motions and unions of every kind, at length they fall into arrangements such as those out of which this our sum of things has been formed." (Munro's translation.) How driven, by what cause of motion, is not suggested.

It is curious, by the way, to note how faithfully Hume has echoed Lucretius. "Matter," says Philo, "is thrown into irregular motions and fermentations till it unites itself to some other form; . . . till finite though innumerable revolutions produce at last some forms, whose parts and organs are so adjusted as to support the forms amidst a continuous succession of matter; . . . the original force itself remaining in activity, giving a perpetual restlessness to matter. Some new economy must be tried, . . . and so on without intermission till at last some order which can support and maintain itself is fallen upon; . . . and this has all the appearance of art and contrivance, which we observe at present." (*Dialogue concerning Natural Religion.*)

Herbert Spencer has shown, as above quoted, how this order which can support itself, and which has all the appearance of contrivance, is "fallen upon." But not he, any more than Hume, or Lucretius, or Democritus, gives us an inkling of what the *primordia rerum* were; or how all the marvellous combination and adjustment, of which this sum of things is formed, was potentially contained in the atom—itself devoid of every intrinsic quality, save the one of generating motion,—which, in itself, is a purely transcendental conception.

Passing from the ancient Atomists to the beginning of the seventeenth century, we have in Gassendi an Epicurean philosopher who, recognising the difficulty of explaining the gravitation of the atoms, like his contemporary Descartes, ascribed their self-determined motion to God. The puzzle was not otherwise to be dealt with. Atoms attract atoms in the same way as bodies fall to the earth; but how comes it that in both cases this wonderful power of attraction, or gravitation, acts through space and at a distance? Here arises a new puzzle —the *actio in distans*, and with it the ever-disputable question: Is space a vacuum, or is it filled with some medium which conveys the attractive influence?

If space be a vacuum, action at a distance is inconceivable. If not a vacuum, then the particles of matter which occupy (we can't say fill) it are in immediate contact, and motion is impossible.

But motion is a fact; there must therefore be interstices between the moving particles; and the attractive or gravitating force of these particles must act at a distance, however minute.

If, as a third hypothesis, we have space fully occupied with compressible or elastic bodies, thus admitting of motion, we should have two bodies occupying the same space at the same time; or else a movement of sub-atoms necessitating space between these sub-atoms to move in, with all the above objections over again. And so on for ever.

Familiarity dispels the marvellous; only the breach of it is preternatural. Who ever thinks of action at a distance, or of atomic attraction when he lets his stick drop? Yet both of them are, and will for ever remain, insolvable mysteries, for we have to reconcile two contradictories. Suppose space were filled, we could have no motion. Suppose it to be a vacuum, we have action at a distance.

Herbert Spencer is not the man to seek refuge in transcendentalism so long as any possible recourse is left to science, yet here is the conclusion he comes to: "While the genesis of the Solar system, and of countless other systems like it, is thus rendered comprehensible, the ultimate mystery continues as great as ever. The problem of existence is not solved; it is simply moved farther back. The Nebular Hypothesis throws no light on the *origin* of diffused matter, and diffused matter as much needs accounting for as concrete matter. The genesis of an atom

is not easier to conceive than the genesis of a planet. Nay, indeed, so far from making the Universe less a mystery than before, it makes it a greater mystery. Creation by manufacture is a much lower thing than creation by evolution. A man can put together a machine, but he cannot make a machine develop itself. . . . Those who hold it legitimate to argue from phenomena to noumena may rightly contend that the Nebular Hypothesis implies a First Cause as much transcending the mechanical God of Paley, as this does the fetish of the savage." ("The Nebular Hypothesis," *Essays*, vol. i.)

CHAPTER X

THE ATOM—(*continued*)

THESE are weighty words, considering that the great thinker who wrote them had no teleological leanings. Still, as the materialist asks no explanation of the origin of diffused Matter, since he assumes that diffused Matter has existed, and will exist for ever, as the eternal source of eternal evolution, we must dwell a little longer not on the genesis of the atom, but upon the assumptions connected with it; assumptions which have to be made by the materialist whereon to found his system of cosmogony.

Gassendi, the author of our modern atomic theory, explained the fall of bodies by the earth's attraction; yet, like Newton himself, he held *actio in distans* to be impossible. Lange says: "We may turn and twist the notion of Matter as we like, we always come upon an ultimate something that is incomprehensible if not absolutely contradictory, as in the hypothesis of forces that act at a distance through empty space. There is no hope of ever solving this problem; the hindrance is transcendental." (*History of Materialism.*)

The question of action at a distance—important

as an anti-materialist argument—is instructive as a notable example of the disagreement between recognised authorities of the highest order, and consequently as a standing protest against dogmatism. Now dogmatism is the foible of the positivist. The words "Ignorabimus" and "Dubitemus" are not in his vocabulary. He starts with propositions which he considers axiomatic, and signs his foregone conclusions with a triumphant Q.E.D. The seductiveness of materialism consists, as I have said, in its picturability. It eschews abstruseness and abstractions. It appeals to common sense; it demands no violation of everyday habitual judgments; its adoption is prompted and confirmed by the superficial smattering of science possessed by the man of average education, *Qui croit comme une brute à la réalité des choses.*

To turn to the conflict of opinions amongst our leading physicists, both as regards *actio in distans* and the atom itself. We know not whether gravitation is immediate, or whether time is required for the transit of its influence. To account for its agency at a distance, and also to account for the transmission of light, the accepted theory is, that what is called luminiferous ether is distributed throughout space. This wonderful substance is not matter in the ordinary sense of the term; it is not made up of such molecules as gases and liquids and solids are made of. Sir W. Thomson supposed it might be an incomprehensible frictionless fluid, offering no resistance to a change of shape in any of its parts. "The actual ether which

fills space," says Clifford, "is so elastic that the slightest possible distortion produced by vibration of a single atom sends a shudder through it with inconceivable rapidity for billions and billions of miles. This shudder is Light." (*The Unseen Universe.*) We are tempted to ask whether these are the attestations of physics or of metaphysics; whether we are in the land—not of certitudes—but of possibilities, or of dreams? All that we can positively say is, that it accounts for observed facts.

I do not know to what extent the theory of luminiferous ether was accepted by Clerk Maxwell. He certainly admitted that, if existent, it would explain magnetic and electrical phenomena; at the same time he says: "In the heavens we discover by their light . . . stars so distant from each other that no material thing can ever have passed from one to another." To be sure, the supposed ether cannot be deemed a material thing; if for no other reason, for this, that light travels at the rate of, say, 200,000 miles a second, while the rate at which the molecules of a gas—the simplest form of Matter—travel is but about forty miles an hour.

With characteristic courage, Clifford, an orthodox materialist, would have us believe, that "it is not impossible for molecules of Matter to have been evolved out of ether by natural processes." (*First and Last Catastrophe.*) Which is a little like telling us that the origin of atoms was—atoms. In the same spirit he writes: "We can look forward to the time when the structure and motions in the

inside of a molecule will be so well known, that some future Kant or Laplace will be able to make an Hypothesis about the history and formation of matter." The implication in both these passages is that we shall then know everything. As if the history of the formation of the atom — as if its evolution from ether—when proved, would do more than relegate the mystery to a stage nearer the final limits of the knowable.

A more noteworthy example of the disagreement between such mental athletes as Clifford and Tyndall on one side, and Sir John Herschell and Maxwell on the other, is in the conclusions they draw from the atomic theory, or, rather, from the atom itself.

"None of the processes of Nature," says Maxwell, "since the time when Nature began, have produced the slightest difference in the properties of any molecule. We are, therefore, unable to ascribe either the existence of the molecules, or the identity of their properties, to the operation of any of the causes which we call natural. . . . The exact equality of each molecule to all others of the same kind gives it, as Sir John Herschell has well said, the essential character of a manufactured article, and precludes the idea of its being eternal and self-existent. They (the molecules) continue to this day as they were created; . . . they are essential constituents of the image of Him who in the beginning created, not only the heaven and the earth, but the materials of which heaven and earth consist." (Bradford Lecture.)

Tyndall, referring to this passage in his notice of Gassendi, refuses to adopt the conclusions arrived at by Maxwell, who, like Gassendi, believed the atoms to be "prepared materials, formed by the skill of the Highest." "In his manufactured articles, as he calls the atoms, Professor Maxwell finds the basis of an induction which enables him to scale philosophic heights considered inaccessible to Kant, and to take the logical step from the atoms to their Maker." (Belfast Address.) The words "manufactured articles," by the way, which Tyndall ascribes to Maxwell, are, as our quotation shows, not Maxwell's, but Sir John Herschell's—a fact which gives them the weight of no slight additional authority. Tyndall admits that "it is impossible not to feel the ethic glow" of this passage; but adds, "I doubt the legitimacy of Maxwell's logic." Clifford prefaces his objections with the remark: "If there is any name among contemporary natural philosophers to whom is due the reverence of all true students of science, it is that of Professor Clerk Maxwell"; but as to Maxwell's proposition, that it is not possible for molecules of matter to have been evolved by causes which we call natural, "It seems to me quite possible to conceive, in our entire ignorance of the subject, that there may be other processes of evolution which result in a definite number of forms—those of the chemical elements,—just as these processes of the evolution of organised beings have resulted in a greater number of forms." (*First and Last Catastrophe.*) He argues the point at some length, and

gives many reasons which certainly strengthen his contention.

It would be impertinent for a mere layman to criticise the opinions of a scientist of Clerk Maxwell's calibre; but it is not easy to find legitimacy in the logic which denies development to molecules, on the score of variety of form, when every germ and every species of organic matter presents endless variety, due, as we now believe, to evolution. Had Maxwell substituted "atoms" for "molecules," in the passage Tyndall and Clifford object to, he would have had the influential support of no less a master-mind than Leibnitz. Here is Leibnitz's definition of the atom: "The true atoms must be atoms of substance, that is, real units without parts, in order that we may find in them the primary sources of activity and the first principle of the composition of things, or if we look at them from the other side, the last elements that can be reached by analysis. They may be termed *metaphysical points, or points of force*. . . . Hence they cannot begin but by Creation, . . . and their life is absolutely self-determined, except in relation to God. Each is a little world developing under its own laws, as if there were nothing in existence but God and itself." (Erdmann's *Leibnitz*, p. 127.) The difference between this definition of the atom and Leibnitz's monad is a very fine drawn one.

It is not for the sake of his "ethic glow" that I have cited Maxwell. Strongly convinced as I am that the ethical and emotional side of human nature is no less worthy of account than the intellectual—

most of all, where the religious instinct of man seems to supplement the inadequacy of his reasoning power, —it is not in this way that I desire to confront the assumptions of materialism. We are still dealing with scientific hypotheses. We are still meeting the positivist on his own grounds, armed with weapons of his choosing. We are still striving to show what we declared at the outset was possible to show, that the progress of science ever tends to delimit the bounds of knowledge; and to verify Du Bois-Reymond's assertion, that "*all our knowledge of nature is in truth no knowledge at all; it affords us merely the substitute for an explanation.*"

It is, however, salutary to remember that men of the highest capacity and culture, men equally well qualified, so far as professional training goes, to estimate the intrinsic value and bearing of evidence, do take exactly opposite views of its purport. It is not a matter of intellectual superiority or of education; it is a question of temperament. Excess on either side—on that of emotion, poetical imagination, and religious proclivity on the one, and of the absence of these innate qualities on the other—destroys the equity of wisdom. Who amongst us dare pretend to this supreme attainment? The most we can and may aspire to is to discipline our minds by the precepts of our ablest teachers.

CHAPTER XI

THE ATOM—(*continued*)

WE have reached the final stage of our scrutiny of the atom. Manifest as is the impotency of mathematical or mechanical genius to account for the origin of Force or Matter, or do more than offer us substitutes for explanation in abstract terms, we shall see that the materialist surpasses himself in the leap he takes from Matter to Mind. Given Force and Matter, given the atom and its attractive and repulsive powers, the genius of a Laplace—who asks no more—may construct a physical universe; and demonstrate that what is, could not, according to mathematical and mechanical principles, be otherwise. But what has his calculus got to do with Mind?

Ere reviewing the issues of physical Monism—the doctrine that there is but one substance, Matter, and that Mind is nothing but the function of this one substance organised in a special way,—we must turn once more to the atom.

Before we have Mind in its widest sense, we must have consciousness in its narrowest sense. Before we have consciousness, we must have sensibility.

The question then is: Are the atoms themselves sentient? or is sensibility a product of their combination? This, you see, is what the difference between Democritus and Anaxagoras now comes to. The query is, of course, unanswerable; for, since we can never know what the atom is — or, indeed, whether there is any such thing,—we can never know whether it is sentient or not. It concerns us, nevertheless, to ask what the opinions of the qualified physicist are, and what these are worth, when we have them. They are not very easily grasped, owing to the ambiguity of language in which they are couched. Maxwell, for instance, declares his agreement with Democritus. But when he says, "Every substance, simple or compound, has its own molecule," this sounds like Anaxagoras's doctrine, that material things consist of particles which are homogeneous in each kind of body. Nor is the ambiguity dispelled when he goes on to say: "An atom must be a molecule of an elementary substance. Since, therefore, every molecule is not an atom, but every atom is a molecule, I shall use the word molecule."

Most physicists, I believe, are now disposed to accept the main principle of Democritus, that the ultimate elements of Matter are, in the final analysis, of one kind; and that the difference in the kinds of Matter depends on the combination of these ultimate particles. In spite of this, every modern physicist of note speaks of the varieties of Matter as if each variety consisted of its own specific atoms. Thus Büchner: "An atom of oxygen or nitrogen, or of

iron, is, everywhere and under all circumstances, something endowed with the same immanent qualities, and can never in all eternity be anything else." When he talks of an atom of iron, does he mean an iron atom? I think he means a molecule of iron, *i.e.* the ultimate particle of iron, *qua* iron. But this ultimate particle of iron would not be an ultimate particle in itself; it would consist of atoms which only differed from those of the ultimate particles of nitrogen or oxygen—say, in their size, configuration, and arrangement.

Speaking of Democritus, Clifford says: "This view was right in its main hypothesis—that all things are made up of elementary parts, and that the different properties of different things depend rather upon difference of arrangement than upon ultimate difference in the substance of which they are composed." (*First and Last Catastrophe.*) Maxwell, as we have seen, points to the eternal unchangeableness of the molecules as a proof of their creation. It is plain, I think, that by molecules he here means the ultimate particles of each distinct form of Matter. In this sense, every atom of the elementary forms of Matter would be complex molecules of such forms. But it does not follow that they would be atoms in the sense of *primordia rerum* common to all forms of Matter —the question, that is, upon which he expressed a doubt. Considering that Clerk Maxwell emphatically proclaims his agreement with Democritus, this view of molecules, combined with his belief that they "continue to this day as they were created," seems

to accord rather with the exactly opposite view held by Anaxagoras.

Be this as it may, suppose we now apply the conception of the atom, taken as the ultimate particle of every form of matter, to the problem of life's first manifestation—sensibility. Is sensibility a product of the arrangement of insensible atoms? or is it inherent in the atoms themselves?

Take the alternatives as they stand. Suppose sensibility to be the product of arrangement. We are met, first of all, by the inscrutability of motion as immanent in the atom. Next by that of action at a distance. These difficulties, which are hopelessly insurmountable, would alone suffice to invalidate the materialistic hypothesis. But when we have switched off these two importunate obstructions, a third still remains, which is absolutely transcendental: how convert the movements of non-sensuous particles into consciousness? The ideas are incommensurate. "However conclusively it is shown that it (consciousness) is entirely dependent upon material changes, the relation of *external movement* to *sensation* remains inconceivable; and the more light is thrown upon it, a more glaring contradiction is revealed." (Lange, *History of Materialism*, vol. ii.) Du Bois-Reymond expresses himself just as forcibly: "Our natural knowledge," he declares, "is brought to an abyss over which no bridge, no wing, can bear us,—we are at our wits' ends." ("Wir stehen an der Grenze unserer Witzes.") "Consciousness, as a product of its material conditions, is not only unintelligible in our

present state of knowledge, but from the nature of the thing will ever remain so." And farther on: "With the first movement of pleasure or pain experienced by the simplest form of animal life on earth, with its first perception of difference, this impassable gulf is set; and the world now becomes doubly inconceivable." (*Über die Grenzen des Naturerkennens.*)

Suppose for a moment that by the light of the X-rays, or by some ingenious discovery, we should come to see what goes on in the brain as we now see into the viscera. Suppose, with the additional aid of the microscope, we should see the molecular movements in the nerve-centres; suppose we were enabled to connect these movements positively with their corresponding and invariable psychological concomitants, so that we could read off the feelings and thoughts of the subject as easily as we read a telegraphed message by the clicking needle, should we be any nearer to a solution of the mystery? A discovery of this kind may not be beyond the possibility of future Science; it is quite imaginable. But to what extent would it enlighten us? It would give us a much more perfect knowledge of what we partly know,—that every psychological phenomenon has its coexistent physical counterpart. We should have immediate perception of hitherto invisible movements. We should see and measure the wave-lengths and periods of the molecular vibrations, and ascertain the exact relation of these to each different kind of emotion and to the nicest shades of thought, till the secrets of a criminal's brain, say, could be taken down by shorthand, or

cinematographed, and a verdict come to without more ado. This may be the scientific thought-reading of the future, when "astral bodies" and "occult science" are as defunct as demonology and witchcraft. But the connection between motion and consciousness will remain as unthinkable as ever. Explanation and intelligibility must be looked for elsewhere, and the only conceivable alternative is Hylozoism,—the doctrine that the atoms themselves are sentient.

This is the solution adopted, as already mentioned, by Tyndall. He denounces the narrow negations about matter drilled into us when young. "Spirit has always been presented to us as noble, matter as vile. Suppose, instead of having the foregoing antithesis of Spirit and Matter presented to our youthful minds, we had been taught to regard them as equally worthy and equally wonderful; to consider them, in fact, as two opposite faces of the same mystery, . . . not as brute matter but as the living garment of God. . . . Is it not probable that our repugnance to the idea of primeval union between Spirit and Matter might be considerably abated? . . . It does not solve, it does not profess to solve, the ultimate mystery of the universe; it leaves, in fact, that mystery untouched." (*Scientific Use of the Imagination.*)

An attempt is here made to pick the lock in two ways; first by ascribing feeling to the atoms, and secondly by identifying the two things. Both hypotheses are transcendental. Science is incompetent to accept or reject either of them. Both may be

true. But in no case are they available for dogmatic materialism.

The inconceivability of the first may soon be exhibited by analysis of the many postulates it involves. When Tyndall speaks of matter, we must look to matter in its most elementary state. The ancient Atomists and all materialists ascribe the origin of sensation either to special molecules, that is, to compound atoms, or else to an aggregation of simple atoms. We have sufficiently discussed this latter theory, and have set it aside as unintelligible. The supposition that the atoms themselves are sentient has, in addition to the objections which apply to the combination of simple atoms, still more insuperable objections of its own. And yet, in spite of these additional objections, in spite of the paradox, one is tempted to give it the preference.

The glaring obstacle which confronts us is this: if feeling be a property of the atoms themselves, then one of two things must follow. Either there must be special sentient molecules, and specific molecules for every one of the seventy-five elements; or else sensibility, together with all the seventy-five elements, must be potentially contained in each ultimate atom. If each element has been what it is from Eternity, as Maxwell and some of our leading physicists maintain, then the latter must be true; yet is it in direct opposition to Democritus's theory which the very same physicists are pledged to. And when one comes to think what an ultimate particle of matter, what an atom, means; when one reflects that such

men as we have named, and others of their stamp, now believe atoms to be unextended force-centres, what are we to make of the theory that this imaginary beginning of all things contains, or is the centre of, the various forces which we call oxygen, hydrogen, gold, carbon, radium, etc., etc., *and feeling*, into the bargain?

This is staggering. We might as well try to grasp the idea of infinity. But, as we shall see later on, we are frequently compelled on all sides to believe what we cannot conceive.

It is amusing to observe the attempts of the materialist to show how little inconceivability affects *his* theory. He points to the marvellous properties of microscopic organisms, as who should say, "What avails it to discuss the possibilities of the atom? We know nothing about possibilities. Look at the facts." Then he gives his instances: "The wheel-animalcule, which occupies the tenth or twentieth part of a line, possesses jaws with teeth, an œsophagus, a stomach, an alimentary canal, glands, vessels, and nerves." "The seed grains of a grape fungus in Italy are so minute that a human blood-corpuscle is a giant compared with them; yet these blood-corpuscles are so diminutive that a single drop contains above 5,000,000 of them." (Büchner, *Force and Matter.*)

If we call to mind what Helmholtz tells of the several millions of cubic miles of nebulous matter required to weigh a single grain, and reflect that these millions of cubic miles are composed of discrete atoms, the above illustrations dwindle to insignificance in

the presence of such a stupendous fact. If this be too vague, take the mathematical calculations of one of the latest and highest authorities of modern times. The result arrived at by Lord Kelvin as to the size of the atom "agrees in showing that the atoms or molecules of ordinary matter must be something like the 1/10,100,000th or from the 1/100,000,000th of a centimetre of diameter." (*Size of Atoms.*) Yet what are these marvels as compared with feeling and consciousness? Do what we will, materialist or non-materialist, thought is paralysed in the presence of such facts as these.

Alluding to the influence of animal and vegetable life in matter, Lord Kelvin speaks of "its power of directing the motions of moving particles in the demonstrated daily miracle of our human free will as infinitely beyond the range of any scientific inquiry hitherto made." Will the fortuitous concourse of atoms, or will the extravagant hypothesis of inherent sensibility, help to render the mystery of mind less mysterious? "I asked Liebig," says Lord Kelvin, "if he believed that a leaf or a flower could be formed or grown by chemical forces. He answered, 'I would more readily believe that a book on chemistry could grow out of dead matter by chemical processes.'"

If Liebig took "chemical forces" to mean the accidental combination of chemical molecules, well might he make such a reply. But if the question was whether the organic structure of the plant is potentially contained in the atom, Liebig's disbelief is

hardly so philosophical as he fancied. Both Liebig and Thomson refused to believe that living organisms could come of *dead* matter; but what if *dead* matter be a misnomer? That is the point. In spite of the inconceivability, are we not driven at last to seek the origin of life in the ultimate elements of all matter —the atoms? Not only are the leaf and the flower living organisms, but we have reason now to believe that the plant is endowed with elementary consciousness. Professor Francis Darwin, in his remarkable address to the British Association the other day, said: "The fact that plants must be classed with animals as regards their manner of reaction to stimuli has now become almost a commonplace of physiology." And what is reaction to stimuli but sensibility? what the *habit* of plants, which Mr. Darwin went on to demonstrate, but the symptoms of rudimentary memory? Those who believe, as every man of science must believe, in the never-broken continuity of Nature, are, it would seem, compelled to accept the proposition as regards life and consciousness. The intelligence of the chimpanzee, of the elephant, of the dog, —their reasoning, their affection, their moral conscience, are precisely similar to these same qualities in man. From the superior animals to the lowest that bear the name, and from these downwards, there is no "missing link"; though some of us clutch at that straw, as if the farther from animals, the nearer to God. Yet was there ever human being who could divorce his animality? The gradation is uninterrupted.

Does life begin with the protoplasmic cell? If so, what is the beginning of protoplasm? Life must have its physical basis somewhere. Where are we to trace it to, if not to the beginning of matter itself—to the Atom?

If by any effort of the imagination I could picture the Atom as a something which did actually exist, I should have no choice save to couple the beginning of life with this beginning of matter or force. But every conception of the Atom that we have discussed precludes the possibility of any presentment of it to the imagination that is even dimly picturable.

We may safely say that the Atom is a purely dynamical abstraction, and that the molecule is the embodiment of this abstract idea in each distinct form of matter. This, as we have seen, is no help to us; it lands us in the antimonies of Kant; whichever way we turn, we are arrested by an endless series of inexorable contradictions.

Are these conclusions a surrender to the materialists? It might be thought that they concede every point asserted by their spokesmen. I give Professor Haeckel's words; the wide gulf which parts us will then be defined. "In opposition to the dualistic or teleological conception of nature, our theory considers organic as well as inorganic bodies to be the necessary products of natural forces. It does not see in every individual species of animal or plant the embodied thought of a personal Creator, but the expression, for the time being, of a mechanical process of development of matter,—the expression of

a necessarily active cause; that is, of a *mechanical cause.* Where teleological Dualism seeks the arbitrary thoughts of a capricious Creator in the miracles of creation, causal Monism finds in the process of development the necessary effects of eternal and immutable laws of nature." (*History of Creation.*)

I, too, believe organic as well as inorganic bodies to be the necessary products of natural forces. I believe evolution to be the process by which the world has attained to its present state of development. I believe this development to be the necessary result of eternal and immutable laws of nature. I I have no more belief in the arbitrary thoughts of a capricious Creator than has Professor Haeckel. I believe with Malebranche that "Dieu n'agit pas par des volontés particulières." Nor is it to the individual species of animal or plant that I look for the embodied thoughts of a personal Creator.

But here my agreement with the learned professor ends. I cannot accept his "causal monism" as the explanation of the eternal and immutable laws of nature, for "causal monism" with him means matter, and nothing but matter. We have reduced matter to its lowest terms; and what have we found? "The word Atom is merely an expression for a necessary conception for certain purposes. We have no real notion of the thing we term Atom; we know nothing of its size, form, or composition." (Büchner, *Force and Matter.*) Yet this admission notwithstanding, Büchner, and every materialist, make this "word"

—this *vox et praeterea nihil*—the foundation of their entire system.

Still, the Atom is not nothing. It is the vanishing point of matter. It is the end of Realism; but it is the beginning of Idealism. It is to the Atom we must look for the evidence of Design. The whole teleological argument—so scotched by modern Realism, and especially by the doctrine of Evolution—must henceforth shift its ground. Its sure and impregnable proof is to be found in the Atom.

It is to Science that we owe this truth; Science, the guiding star of this world's progress, the bright flame that irradiates the obscure path to all beyond, and keeps alight the inextinguishable torch of Hope and Faith.

CHAPTER XII

THE RELATIVITY OF KNOWLEDGE

Je ne puis trop la répéter, c'est l'idéal qui est, et la réalité passagère qui paraît être.—RENAN.

"THE materialistic position that there is nothing in the world but Matter, Force, and Necessity, is as utterly devoid of justification as the most baseless of theological dogmas." (Huxley, *Lay Sermons.*) Without spraining our brains with bewildering and futile contemplations of the universe, what we have seen of the atom is enough, I hope, to verify Huxley's words. We are indebted to science—to "positive" knowledge—for proving to us, beyond dispute, that the portals of the atomic theory are stamped with the warning, "So far and no farther." For science, at any rate, the inscription is *Nihil ulterius.* It is manifest, that if we follow the materialist with docility, he inevitably leads us to an impasse. His system, by his own showing, is a suicidal one. Nor is the atom the only source of its refutation. We have still further evidence of its fallacy, also derived from the Realism upon which it is founded. We have still to substantiate the Relativity of all human knowledge; first, as demonstrated by physiological facts; finally, by the

obligation hence forced upon us to turn from phenomena to Noumena.

The relativity of knowledge, though an obvious truism to every thinker, is rarely, if ever, an operative truth with any of us. We are so habituated to take for granted that the outward world is what it appears to be, that the illusion is completely overlooked; or if remembered, is ineffectual. We reflect as little upon that which underlies appearances as we think of the back of a picture when we face its front. Yet we may venture to say there is no knowledge which so deeply concerns our religious belief and our spiritual nature as the conviction that Realism, Materialism, Positivism—call the mechanical explanation of the universe what you will—is but relatively true; is true only in the profound sense of Protagoras, that "Man is the measure of all things." It is true for *us* only because we cannot escape from the laws and the disabilities of our psychological constitution. From this it follows, that it is not only negatively true, but false, for things in themselves. "Our sensations," says Helmholtz, "are for us only *symbols* of the objects of the external world, and correspond to them only in some such way as written characters or articulate words to the things they denote." Whatever brings this home to us is invaluable as mental discipline. It is the most instructive lesson philosophy has to teach us; it is the very pith of the injunction to know ourselves. These truths, which are platitudes to those who are disposed, and have leisure to meditate upon them, may be of inestimable service to the many

who are less fortunate. As it is to the latter that I address myself, I shall still cite authorities and instances which have no novelty for the instructed.

All knowledge of the outer world is derived through the senses. In illustration of its illusive nature, take the following, also from Helmholtz: "The auditory nerve translates everything into phenomena of sound; the nerves of the skin into sensations of temperature and touch. The same electric current whose existence is indicated by the optic nerve as a flash of sight, or by the organ of taste as an acid flavour, excites in the nerves of the skin the sensation of burning. The same ray of sunshine which is called light when it falls on the eye, we call heat when it falls on the skin." (Goethe's *Scientific Researches.*)

If the same electric current affects us in so many different ways, has so many different meanings for us —now a colour, now a taste—what is it in itself? The question is unanswerable; and would remain so if we had ten times the number of senses we now have. There must be beings in other parts of the universe, possibly in some respects similar to ourselves, whose nervous systems respond quite differently to the same modes of motion as those which excite our sensibility. It is easy to imagine such beings with organs of sense which would make them taste what to us are sounds, and hear what we call colour; beings who are affected in many other ways which would oblige them to form conceptions of the world and of themselves, as different from ours as ours are from those of the fly on the wall. They, like us, must be compelled to perceive

and to think, in accordance with their physical and mental conditions; and between their perceptions or those of any other finite beings, and *things in themselves*, there can be no conceivable resemblance.

Think what sensations produced by the outer world really are. Ultimately they are psychic states, caused, realistically speaking, by molecular vibrations in the brain. But, before the vibrations reach the brain, they have to be started at the surface of the body or at the extremities of the nervous system. These outer ends of the nerves again are set agoing by vibrations in the surrounding media, whatever it may be, so that we have no immediate apprehension of outward objects; all we are conscious of, all we know, is the change which takes place in the state of our nervous fibres. Can there be anything in the grass, say, which has any thinkable likeness to that state of the nerve-fibre which we call green?

How utterly disparate are the cause of a sensation and its effect is frequently proved in a remarkable way. After an eye has been destroyed or removed, irritation of the optic stump produces the effect of light. Any one may have experienced a similar result by rubbing or pressing his eyes in the dark. Furthermore, the difference between green and red, or any other colour, and between these and light itself, is nothing but a difference in the length of the waves of the undulatory movement of the ether. This movement may, for all we know, be movement in itself; that it is not colour, to anything save the eye, which makes it so, is self-evident. Can we suppose, then,

that these subjective states give a true picture of the things which cause those states? "The most complete difference offered by our several sensations, that, namely, between those of light, of hearing, of taste, of smell, and of touch—this deepest of all distinctions, so deep that it is impossible to draw any comparison of likeness, or unlikeness, between the sensations of colour and of musical tones—does not, as we now see, at all depend upon the nature of the external object, but solely upon the central connections of the nerves which are effected." (Helmholtz, *The Sensation of Sight.*)

Remember, these connections, these nerve-fibres and their vibrations are for the anatomist parts of the outer world no less than his scalpel and his microscope; and that they, too, are only known to us subjectively, that is, as sensations; they are but Symbols in consciousness of the movements assumed to account for them.

If then we were obliged to accept Monism as the only solution of the incomprehensible connection of mind with body, it is clear that it must be a spiritual, and not a material monism; for our knowledge, strictly speaking, is limited to our states of consciousness: our knowledge of an outer world is entirely mediate.

The brilliant light the materialist bids us follow turns out to be a Will-o'-the-Wisp. At any rate, "the Reality underlying appearances is," as Herbert Spencer says, "totally and for ever inconceivable to us; . . . but," and this is the gist of the whole

business, "but we are obliged to regard every phenomenon as the manifestation of an incomprehensible power, called Omnipresent, from inability to assign its limits." In a chapter on the Unknowable he goes so far as to speak of its purpose, "to show that all material phenomena are manifestations of a Power which transcends our knowledge; that force, as we know it, can be regarded only as a conditional effect of the Unconditional Cause."

It is pretty certain that Herbert Spencer would not have authorised us to translate Unconditional Cause into God. It is quite certain that the materialist would scoff at the idea of any cause written with a capital initial; but it is hard to find a synonym for Unconditional other than Efficient or First; and I confess myself not only willing, but compelled, to adopt this meaning in that sense. Choice, indeed, is restricted; we must either regard the atom—that is, force or motion—as a conditional effect, or ascribe its existence to an Unconditional Cause. The materialist does not hesitate, nor do I.

CHAPTER XIII

THE BASIS OF KNOWLEDGE

THE Relativity of Knowledge, demonstrated by physiological evidence, is further illustrated by the inscrutability of our mental attributes and their processes. Take Memory to begin with; it is the root-element of our intellectual being. The shallowest investigation of it will help the untutored mind to form some idea of the mysteries which arrest the student on the very threshold of psychological analysis.

Anything more than a transitory glance at the subject would entail research far beyond the scope of an elementary work of this kind. We will briefly notice the obvious, but essential, importance of Memory; then give the psychological description of its functions, and leave its transcendental character to the reflections of the reader.

"If," says James Mill, "we had no other state of consciousness than sensation, we never could have any knowledge excepting that of the present instant. The moment each of our sensations ceased, it would be gone for ever, and we should be as if we had never been." (*Analysis of the Human Mind*, vol. i. ch. x.)

"Change of impression," says Bain, "is an indispensable condition of our being conscious, or of being mentally alive either to feeling or to thought; every mental experience is necessarily twofold. We can neither feel nor know heat, except in the transition from cold. In every feeling there are two contrasting states; in every act of knowing two things are known together." (*The Senses and the Intellect.*)

"It is admitted on all hands," says Spencer, "that without change consciousness is impossible. A uniform state of consciousness is in reality no consciousness. When the changes in consciousness cease, consciousness ceases." (*Prin. of Psychology*, ch. xxv.) The primordial element of all consciousness is change.

Now, it is evident that if consciousness depends on change, there must be comparison between past and present; or, let us say, a sense of difference between the two. Even if the two be present to the mind at once (as Bain tells us is the case), there is still a retention or revival of the past; we are still dependent on memory.

Nor is this retention or revival the only element requisite to memory; there is another essential factor in the process — namely, the identity of the being who remembers. Inseparable from every act of my memory is the conviction that it is I whose past feeling or thought is recalled. What is more, we can have no notion of *self* without memory.

"The memory of a chain of states of consciousness

is the evidence for belief in my own identity." (*James Mill*, vol. ii. ch. xiv.)

John Mill, commenting on this passage of his father's, writes: "My personal Identity consists in my being the same Ego who did or who felt some special fact recalled to me by memory. So be it, but what is Memory? It is not merely having the idea of having that fact recalled. . . . It is having the idea recalled along with the Belief that the fact which it is the idea of really happened; and moreover happened to myself. . . . The phenomenon of self and that of memory are merely two sides of the same fact."

It is needless to dwell further on the part memory plays on our intellectual organisation. As an instance of its share in our emotional nature we may observe that sympathy is also dependent on retentiveness.

"We are able," says Bain, "to conceive the pains of other beings by our experience of the like; and whenever we do so conceive them we feel urged to the same steps of alleviation as if the pains were our own." (*The Senses and the Intellect*, p. 350.) It is the remembrance of our own pain that enables us to feel for others. The paramount importance of memory in volition, and hence to the formation of character, has already been insisted upon.

The word retentiveness does not embrace the full meaning of memory. We may retain our money if we lock it up and lose the key. Memory implies that we can keep our feelings stowed away, yet revive or recall them in the shape of ideas. The

process by which this is effected, either voluntarily or involuntarily (the voluntary act becomes in many cases automatic through repetition and habit), is the great principle of Association. This may be considered under two heads—association by similarity, and association by dissimilarity.

The Association Psychology is as old as Aristotle, and was familiar to Hobbes, Locke, Hume, and others, till Hartley, more especially, laid stress upon it. Subsequently it became the salient feature of James Mill's system. Nearly one-half of Bain's exhaustive work on the *Senses and the Intellect* is allotted to this one department of mental science. A few words will adequately show how the facts, when recorded, have a mere descriptive value; and so far from aiding us to comprehend them, description only makes the mystery more unfathomable.

The law of association by contiguity is thus formulated by Bain. "Actions, sensations, and States of Feeling occurring together in close succession tend to grow together or cohere in such a way that when any one of them is afterwards presented to the mind the others are apt to be brought up in idea." "Contiguity joins together things that occur together, or that are by any circumstance presented to the mind at the same time, as when we associate light with heat or a falling body with concussion. . . . The second property of Intellect, termed consciousness of agreement or Similarity, is a great power of mental reproduction, or of means of recovering past mental States."

From this account of the mechanism of memory we may pass to the important conclusions—in the shape of antinomies—to which it brings us.

As mere consciousness demands change, every phase of memory must postulate a series of mental states, of which two at least are known together. "If, therefore, we speak of the mind as a series of feelings, we are obliged to complete the statement by calling it a series of feelings which is aware of itself as past and future, and we are reduced to the alternative of believing that the mind or Ego is something different from any series of feelings, or possibilities of them, or of accepting the paradox that something which, *ex hypothesi*, is but a series of feelings, can be aware of itself as a series. The truth is, we are here face to face with that final inexplicability at which, as Sir W. Hamilton observes, we inevitably arrive when we reach ultimate facts." (J. S. Mill, *Exam. of Sir W. Hamilton's Phil.*)

In other words, the antecedent and the consequent must co-exist. Two things must be present to the mind at the same time, and successive states of consciousness become simultaneous states before they can be states of consciousness at all. Indeed, this applies to all thinking, to all comparison and all judgments. Yet Spencer, while insisting on change of states as indispensable to consciousness, goes on to say: "To be known as unlike they must be known in succession, since consciousness cannot be in two states at the same time." Here, again, we are brought to a deadlock by Realism, for this is what

it tells us: We can only know a present state by its contrast with a past state; this necessitates comparison, but to compare one state with another, both must be before us at once. We cannot be conscious of a past state, for a feeling exists only while it is felt. Yet unless we are so, there can be no such thing as consciousness.

Spencer tries to get out of the difficulty by asserting that "the compound change takes place almost *immediately*." Almost! But almost will not do. Even "immediately" will not do. Past is past; how it becomes present as well as past is more than Realism is competent to explain. Spencer is perfectly aware of the contradiction, and frankly admits that the apprehension by consciousness of several states at once is illusory. They "appear to be simultaneously presented," although not really so. This drives us to Idealism.

In his skilful exposition of this problem the late Professor Martin Herbert thus answers Spencer: "It follows that our apprehension of the time relations existing between our feelings is only phenomenal and not real. We seem to see together in consciousness successive feelings, the earlier of which must have ceased to be." But if the actual present is nothing but the passage from the past to the future, and the time which separates the two is like the division between black and white placed contiguously—a line without breadth,—there is, logically speaking, no time for a present feeling even, much less for a present and a past.

This looks like an argument in support of Kant's view that our apprehension of time is phenomenal, and explicable only as a form of thought; for if Time be the reality we take it for, consciousness of it, and of everything else, would be an impossibility.

CHAPTER XIV

MIND AND BODY

In Chapter VI. an allusion was made to the materialist's assumption that all mental processes are products of material processes. It was there stated that the law of conservation of energy precludes the possibility of any other decision. As the connection between mind and body affects every philosophical speculation, and especially the claims of Materialism, it is incumbent on us to give it careful attention. The question before us is: Are mind and the molecular movements at the nerve-centres different aspects of the same thing? Or, are mental acts products of nerve changes?

The realist insists upon material monism. Vogt, regardless of aesthetic niceties, declared that thought bears the same relation to brain as gall to the liver, or urine to the kidneys. Cabanis, long before him, had spoken of "la sécrétion de la pensée." In both cases the analogy is misleading; we can see, measure, and weigh the one, but not the other. We might as well call speech a secretion of the vocal organs, or the sound of a drum a secretion of a drum's head. Bain, Spencer, and Huxley, with many other

distinguished scientists, reject the crass dualism of Vogt. "The arguments for the two substances," says Bain, "have, we believe, now entirely lost their validity; they are no longer compatible with ascertained science and clear thinking; the one substance with two sets of properties, two sides—the physical and the mental, a double-faced unity—would appear to comply with all the exigencies of the case." (*Mind and Body.*)

Besides these two schools we have a third in the Spiritual monists; Berkeley, with his followers the pure idealists, and the pantheistic idealists, Fichte and Hegel, who resolved all existence into mind or ideas. With these, materialism has nothing to do. They are outside the pale of our present debate.

That the state of the mind depends largely on the state of the body, that the mind is dependent, not only on the condition, but also on the size, convolutions, and chemical constituents of the brain, is a fact too well established to admit of dispute. This is the apparently unassailable point of materialism. Its weak point is the equally unquestionable action of mental states on the body. The physical effects of grief, joy, anxiety, anger, love, are common experiences of everyday life. If more extraordinary evidence be needed, we may recall the stigmata on the body of St. Francis, produced by his incessant contemplation of the wounds of the crucified Jesus. "By thinking strongly on the hand we affect the local circulation of the blood, and by persistent

attention we might set up a diseased action in the part." (Bain, *Mind and Body.*)

In all cases where emotions are started by non-mechanical causes—let us say the receipt of a telegram announcing ruin, death, or the realisation of extravagant hopes,—the initial movements in the brain are indubitably set up by the mind. A completely quiescent state of the nerves may suddenly be changed into a violent state of agitation, not by external movement but by ideas. How can the light waves which strike the retina on the reading of the written words account for the exhibition of force which follows astounding news?

Here steps in the law of Conservation of Energy, and peremptorily forbids the barest supposition that ideas can produce motion. It is conversant with movement, and movement only. The physical chain of causation can never be broken. Those who, with Bain and Spencer, believe that mental and physical phenomena are but different aspects of the same thing, adhere as rigorously to the conservation of energy as the materialists themselves; but they attempt to evade the dilemma by their theory of "double-faced unity." This is certainly preferable to the materialistic doctrine, inasmuch as it does not involve infringement of the conservation law. To ascribe mental states to molecular movements, as does the materialist, directly revokes that law, for then we should have an expenditure of force which the mind, *ex hypothesi*, cannot transmit; the force is lost. In another way also the unity has an advan-

tage over materialism: suppose we identify mind with the material changes which are inseparable from it, matter is annihilated; for if there be but one substance this one must be mind, since all we have immediate knowledge of is our state of consciousness.

Still, the Conservation of Force is a dragon in the path for psychologists. Every attempt to grapple with the puzzle—the presence of psychical disturbance and mental agency in the midst of physical movements — ends in hopeless defeat. Accepting the doctrine as inexorable, physical states can no more cause or pass into mental states than mind can move matter; in either case there would be a rupture of physical causation. Movements must have movements for their antecedents.

It is curious to see the muddle careful thinkers get into when they venture to deal with the difficulty upon realistic principles. Thus Huxley asserts "that *all* states of consciousness are immediately caused by molecular changes of the brain substance"; so that the startling news above instanced had first to set up molecular changes before it could excite consciousness of it. In the same sentence: "There is no proof that any state of consciousness is the cause of change in the motion of this matter of the organism." So that no mental shock can increase or stop the action of the heart or affect the bodily organs in one way or another.

We have here the scientist's conscientious endeavour to keep on good terms with the Conservation

Doctrine. What are the consequences? What does it mean when applied to facts? First, the grief or joy anent the startling news could not be felt till the necessary molecular changes had been set up. These changes were brought about solely by the undulating waves of light reflected from the telegram paper, and the waves imparted their motion to the sensorium *via* the optic nerves. Then followed the tumultuous psychic disturbance, the outward manifestations of grief or joy, the writing of letters, the despatching of return telegrams or telephones, numbers of people communicated with, a long chain of physical movements started, and ending we know not where.

As "there is no proof that any state of consciousness is the cause of change in the motion of the matter of the organism," all these effects were due, and solely due, to the motion in the light waves reflected on the retina; and of course, if the mind had nothing to do with it, we are all of us, as Huxley implies, nothing but automata. Yet, in spite of his reasoning here, he elsewhere, as we have seen, declared that if driven to choose, he would reject Realism for Idealism. If its *reductio ad absurdum* invalidates a proposition, what other choice is left to any one? Palpably, the scientific doctrine concerning the persistent quantum of energy when applied to mind, far from explaining, only intensifies its ineptitude. Idealism, that is Sceptical Idealism, which we shall come to by and by, is imperatively necessary to save us from the dilemma.

The mental phenomena cannot be treated as negligible facts. Yet where do they come in? Two theories are put forth to save physical continuity. One is that they are concomitant or collateral events outside the series of physical causes and effects; the other that they are different aspects of the same thing.

To go back to the telegram: suppose the mental disturbance which followed its reception was due to energy transmitted to the brain, we have at the outset a physical cause followed by a non-physical effect. And as the perturbation must have consumed a portion of the energy expended, that portion would have been lost. If not lost, then we are driven to admit that the mental movements which took it up, returned it, or converted it into physical movements again. Both suppositions are invalid. For if physical energy passes into, and becomes mental energy, there must be a breach of physical continuity. To suppose that mind can of itself generate force to set up physical movement is, *realistically* speaking, impossible. If it could do so, we should have a non-physical cause of a physical effect—a miracle, in short.

Clifford, while advocating the first of the two theories—that of collateral events outside each other, —eludes the dilemma by the hypothesis of sentient matter. "The two things (body and mind) are on utterly different platforms; the physical facts go along by themselves and the mental facts go along by themselves. There is a parallelism between them,

but there is no interference of one with the other." This is Leibnitz's "Pre-established Harmony" pure and simple. But Clifford had no dream of looking to God like Descartes and Leibnitz for explanation of the "parallelism." "Knowing as we do," he goes on to say, "that it (consciousness) must have arisen by continuous physical processes out of inorganic matter, we are obliged to assume, in order to save continuity in our belief, that along with every motion of matter, whether organic or inorganic, there is some fact which corresponds to the mental fact in ourselves."

We have here the usual *volte face*. "The two things," we are first told, "are on utterly different platforms." Yet, "with every motion of matter," even inorganic matter, there is some fact which corresponds to the mental fact in ourselves. That is to say, the rudiments of consciousness are inherent in all matter, so that, in the last resort, the two are one.

To the passage quoted, Herbert replies: "If so, then the mental facts do not, as described above, 'go along by themselves,' but each goes along with a motion of matter. In other words, the mental series depends altogether on the physical series." This means: there must either be two separate funds of energy, one for the mind, and the other for its material concomitant, or else one fund supplies energy for both, which lands us where we started, still fettered by the conservation law.

One word more about this double-faced unity.

Spencer describes the alliance as "subjective and objective faces of the same fact," and as "manifestations of an ultimate reality in which both are united." But he also asserts that "no effort enables us to assimilate them. That a unit of feeling has nothing in common with a unit of motion becomes more than ever manifest when we bring the two into juxtaposition."

Spencer thus shirks the difficulty of dualism by resorting to a transcendental hypothesis. What he and Bain call two faces of the same fact are as much two distinct facts as any other phenomena. Again and again he repeats, in varied language, that "the difference between subject and object is one transcending all other differences."

The explanation lacks consistency; in order to account for the alliance of the incommensurate facts, it jumps to the conclusion of their identity. "If they are to be called *faces*, all other phenomena must be so called, for all belong to the same category; while on the contrary the one fact in which, according to Mr. Spencer, the two faces are merged, belongs to quite another category; that is to say, belongs not to phenomena, but to the unknowable realities which are supposed to lie behind them. Hence, in the world of phenomena, the two faces—nervous action and feeling—count as two things, and cannot be merged into one; the reality in which they are supposed to be united belongs not to the world with which we deal." (Herbert, *ubi supra.*) Positive science wholly ignores it.

The bare statement of the different theories, in

the very words of their expositors, carries in each case its own refutation. The entanglement remains inextricable, and contradiction always crops up in the effort to escape it. What is the inference to be drawn? It is, as has been intimated from the outset, that *realism unwarrantably assumes that external phenomena are what they seem.*

Speaking strictly, we see only phenomena of the material world, appearances consisting only of feelings, but we assume that the material world is before us. "We are presented with but one thing, the mental appearance of a material fact, and erroneously suppose that we are presented with two, the fact as well as the appearance. In other words, the parallel facts of feeling and movement turn out to be the single fact of a feeling appearing like a movement. The superfluous doubleness proves to be imaginary and illusory, a difficulty of our own creation." (Herbert, *Modern Realism Examined*, p. 99.) The antinomies with which each of the discussed theories is beset arise from the shifting backwards and forwards from the objective to the subjective nature of the facts dealt with. "It is not true," says Herbert, "that two sets of facts are before us in so-called external phenomena —material objects and a mental picture of them. Only the mental picture is actually before us, and to regard its contents as external is to make the materialistic assumption respecting them. We may proceed on that assumption and treat the phenomena as material objects, or we may regard them strictly as they are presented to us, that is to say, as parts of con-

sciousness; but we cannot do both at the same time, . . . we cannot take them twice over."

The upshot is, that if we wish to be consistent and avoid contradictions, we must abandon compromise and every attempt to reconcile or explain the concomitance or interaction of these incommensurables. When we are dealing with physical phenomena scientifically we must completely ignore mind. Science has no alternative save the decision that everything would and must happen as it does happen, just as if man were an automaton and there were no such thing as Mind. So far as our philosophy and our moral nature are concerned, this absurd conclusion—absurd because it appeals to reason in order to refute reason—is, morally speaking, the most valuable lesson Science has to teach us.

It is hardly needful to point out how it affects the Will puzzle; for, as a mental phenomenon, the Will shares the fortunes of its kindred psychic states. Like everything to do with mind, its action can only be regarded as a transcendental fact; it cannot, as previously intimated, be brought under the category of physical phenomena. The moment we class the Will with material phenomena, either as identical with its physical concomitants, or as a product of these and as subject to the laws of physical causation, we mix up things incompatible, and are at once stuck fast in a slough of contradictions.

No instance more strongly illustrates this than the realistic treatment of the Will. Its freedom is denied on the score of the continuity of physical causation.

Yet, notwithstanding this, the Realist never questions his own scientific proofs of the relativity of knowledge. He knows perfectly well that the world, as we apprehend it, is but a *non-resembling* symbol of the world *in itself*. To subordinate the Will to this non-resembling symbol is to confer ontological reality upon that which he himself has demonstrated to have but an illusory semblance of reality.

Every form of religious belief is affected in the same way. If all acts, called purposive, were automatic, that is, if the supposed purpose had nothing to do with the event; if, for example, every one of the millions of letters and parcels posted yesterday would have been correctly delivered to-day, had the postal system not been elaborately thought out and organised, and had the postmen been unconscious machines; if mind were absolutely inoperative in all the affairs of life, and had nothing to do with the history of the world,—then the materialistic notion that the universe and everything in it would be what it is, without the aid of supernatural prevision and purpose, might be a plausible argument. But as no one, not hypnotised by his own system, ever doubts the fulfilment of his resolves in the absence of hindrances, he must admit a mental share in what follows those resolves. When the Realist asserts that this mental share—volition—is in no sense a cause or even antecedent of what follows, but merely a joint product of previous material changes, or a mere symbol in consciousness of that state of the brain which is the immediate cause of what follows,—he is

mixing up mind with movements in a way which leads directly to his own stultification.

From the very beginning of our inquiry, the unbroken continuity of physical causation has been admitted, nay, insisted upon. No question can be raised as to the validity of empirical demonstrations so long as these refer exclusively to physical phenomena, and so long as such phenomena are acknowledged to be non-resembling appearances of problematical things in themselves. That there is nothing behind these appearances—nothing to be known beyond the conscious changes in our psychic states,—is an assumption of crude Realism as extravagant as that of crude Idealism. It is impossible not to believe in this something which our feelings symbolise. The resistance the outer world offers to our efforts, the frequent uncontrollableness of this resistance and its invariable presence, the persistent objective order which our transient feelings would not account for, the fact that a series of sensations would not constitute the unity of life without a permanent reality, force us, when not biassed by the extreme conclusions of Realism or Idealism, to assume a cause which transcends both mind and matter, as these are known to us.

Besides which, the scepticism which forbids us to accept appearances for realities would be impotent but for this assumption, since the very idea of appearance presupposes something of which it is the semblance or the symbol. Indeed, the consciousness of self necessarily posits the existence of the non-self.

Though true, that we know nothing immediately beyond the present feeling, we could not even swear to our own identity, or to a single event that occurred an hour ago, if we did not accept convictions which are no better founded than our belief in what is and must for ever remain inaccessible to finite beings such as we are. The whole argument of the fatalist is based on the proposition that the present does, and the future will, resemble the past; yet these assumptions transgress the limits of positive knowledge. Our knowledge of the past and of our identity depends on Memory, and Memory, as we have seen, is outside the province of Realism.

CHAPTER XV

THE LIMITS OF KNOWLEDGE

THERE are two passages in the foregoing pages which may not be readily intelligible to a reader strange to the transcendental aspect of the discussion. The first is from Huxley: "I am utterly incapable of conceiving the existence of matter if there is no mind to picture that existence." The other is from Herbert: "We are presented with but one thing, the mental appearance of a fact, and erroneously suppose that we are presented with two—the fact as well as the appearance." These may perhaps need some little comment to make them clearer to the uninitiated. To those who have neither time nor aptitude for abstract speculations, it sounds nonsense to say that the existence of the outer world depends on its being perceived by some picturing mind. Individualism, the valuation of truth by personal experience, blocks the path of imagination. But for any one who has taken the trouble to follow the preceding arguments touching the relativity of knowledge, the meaning of the passages cited may soon be made simple.

The language of both writers might almost imply

that they were absolute idealists in Berkeley's sense. This neither of them was; both were Sceptical Idealists. An interpretation of Huxley's words will help to explain Herbert's. Huxley says the *esse* of matter is *percipi*. But, to say that matter, as we know it—which is what he means—necessarily depends on the knowing, is to say the same thing in different terms. Do away with the perceiving mind,—not the individual mind, but the universal faculty of perception,—and the object, the outer or sensuous world, is divested of the qualities which mind confers upon it. What it may be when stripped of these qualities is inconceivable; its very existence even is hypothetical. Huxley means no more than this: it was like saying colour would be inconceivable if there were no such things as optic nerves to convey the vibrations, which brain converts into colour. As this applies to every sensation it applies to all matter —as we know it,—and so practically annihilates matter —*as we know it.*

With regard to Herbert's "one thing presented to us," his ambiguity arises from an omission exactly the opposite of Huxley's. Huxley neglected to distinguish between matter as known to us, and whatever may be that which is veiled by its appearance. Herbert omitted to treat mind as we know it, in the same way as he treats matter, that is, as an "appearance" of a fact. It may seem strange to talk of mind as an appearance; yet what is true of so-called matter is true of mental phenomena, for these are objects of the inner sense, and hence

phenomena also. Is not the thinking subject the object-matter of psychology?

As to Herbert's oneness of presentation, this is correct if taken in Kant's sense, that the mental appearance and the cause or occasion of it are elements in the unity of experience. In all perception we have a dualism, which resolves itself by synthesis of apprehension into a transcendental unity. In this sense we have what Bain and Spencer call a double-faced unity. In no sense can the unity be thought of as material monism—matter in itself—because, as such, it would be stripped of all that which, for us, gives it existence. It would be an object without a subject to constitute its objectivity. To speak metaphorically, knowledge is a binary compound of knowing and being, or of subject and object; each presupposes the other. Its existence, like that of the molecule, depends on the unity of its dualism, and the unifying principle is the relation of each to the other. The mistake which the realist makes is that, while fully admitting the truth that the objects of the senses cannot be otherwise than symbols of the sensuous world, he at the same time declares them to be realities having existence apart from the perceiving mind. Thus, as Herbert says, counting the one fact twice over.

All the futile efforts to bridge the gulf between body and mind—the extended substance and the thinking substance—arise from the dualistic assumption that matter is not merely a representation of an unknown object to which it is in some way

related, but that the mental representation is—what ordinary human beings take it to be—the object itself; and that it exists apart from our sensibility. This paralogism is the inevitable consequence of unremitting sensuous experience, unaccompanied by reflection.

Herbert is right enough in saying: "We are presented with but one thing, the mental appearance of a fact," for, as Kant puts it, "I, as represented by the internal sense, and objects in space outside me, are two specifically different phenomena, yet are they unified by their interdependence, and by their relation to that which transcends all phenomena. The transcendental object, which forms the foundation of external phenomena, and the other, which forms the foundation of our internal intuition, is therefore neither matter nor a thinking being by itself, but simply an unknown cause of phenomena that supplied to us the empirical concept of both." (*Transcendental Dialectic*, Max Müller's trans. vol. ii. p. 329.)

We have now reached a stage whence we can scan the transcendental character of the contradictions inseparable from Realism or Empiricism. Foremost amongst those we have already examined is the Freedom of the Will. This turns wholly upon the law of Causality. The puzzle is, how to reconcile freedom and responsibility with a necessary sequence which has no beginning. We cannot do better than give Kant's statement of the problem and of its solution: "That there is no free cause and no necessary Being, is true of the phenomenal world, in

the sense that the empirical regress can never bring us to a cause which is not an effect. . . . Yet the thesis that there is a free causality and a necessary Being may also be true. It may be true that behind the play of contingency in the former there is an absolutely necessary Being in the latter." Kant is careful to add the rider: "We do not attempt to prove the existence of the necessary Being, or of free causality, but merely to leave room for them, in case they should otherwise be proved."

No rational impediment, therefore, precludes our belief in moral freedom, for the causality and necessity as known to us, and which are inconsistent with freedom here, "apply only to the world of experience. They are principles whereby phenomena in the visible world are related to one another; but they cannot be used as arguments against a theory of the relation of the intelligible world to the phenomenal. And it may quite well be the case that the phenomena of the sensible world, which, as phenomena, form part of the context of experience, and have to be explained in relation to other phenomena, may have to be explained in a quite different way when we consider their relation to an intelligible world. The principle of causality may, therefore, be used in two senses; in one sense as applied to phenomena . . . and in another as applied to the connection of the phenomena with things in themselves."

What Kant calls the "category of causation" leaves us no choice but to presuppose an antecedent for every effect; the belief in moral freedom and

responsibility is consequently deemed inadmissible. For the same reason the materialist denies the necessity of a First Cause. We cannot, by any effort of the imagination, conceive a beginning of Time, or of a cause which is not in itself an effect. Now, quite apart from the Kantian doctrine that Time is but a form of thought, it is obvious that our conception of Time must be an empirical one; and so incarcerated are we by our psychical constitution that our obligations and disabilities can have nothing to do with an "intelligible" world, which is unknowable.

The conclusion is always the same. We cannot jump off our own shadows, nor can phenomena explain themselves. The only possible solution of the antinomies lies in Transcendental Idealism.

The expression "nothing to do with an *intelligible* world which is unknowable" needs a word of explanation, as we shall have to use the term pretty freely. We have to transfer our thoughts from our world of experiences to a world beyond them. It is to this latter that Kant gives the name "Intelligible." Here is the sense in which he employs it: "Whatever, in an object of the senses, is not itself phenomenal, I call intelligible. If, therefore, what in the world of sense must be considered as phenomenal possesses in itself a faculty which is not the object of sensuous intuition, but through which it can become the cause of phenomena, the causality of that being may be considered from two sides, as *intelligible* in its action as a thing in itself, and as *sensible* in the effect of the action." Intelligible, then, is an intellectual concept,

an idea or notion, coined by the thinking faculty, and outside the domain of the world of experience.

We have here Kant's theory of the Freedom of the Will. It is to this intelligible world that we must transport ourselves for a reconciliation of moral freedom, with its impossibility while we confine ourselves to natural phenomena; confine ourselves, that is, to what we take for realities but are only appearances. This twofold aspect of causality—that of a free cause, and that of a link in the chain of natural sequences which resolve themselves into one in their causal action upon the *effect*, and must as a possible experience belong to the world of sense,—is no mere figment of the imagination. For Kant goes on to say: "As all phenomena not being things by themselves must have for their foundation a transcendental object determining them as mere representations, there is nothing to prevent us from attributing to that transcendental object, besides the quality through which it becomes phenomenal, a *causality* also which is not phenomenal, though its *effect* appears in the phenomenon." (*Transcendental Dialectic*, vol. ii. p. 465.) The possibility of Freedom is thus made dependent on Transcendental Idealism; upon the belief, that is, that all phenomena, including the action of the so-called Will, are but representative symbols of things in themselves. If phenomena were the things in themselves, the materialist would be right, and Freedom a delusion.

The relativity of knowledge is not questioned nowadays by the most arrant Realist. What he

declares is, that with things in themselves we have nothing to do. This is true if he be content never to stray beyond the tether of science. We need no belief in noumena to invent an aeroplane or transmute an element; but let us not dogmatise about Freedom, or Immortality, or God,—as if we knew. Even if we allow but a limitative and disciplinary value to Kant's noumenon,—and Kant himself repeatedly asserts that it is but a negative concept "to keep the claims of sensibility within proper bounds,"—still, as our intuition does not embrace all things, but objects of our senses only, we cannot resist the conclusion that there must be some cause of these representations. "And we may call that purely intelligible cause of phenomena in general the transcendental object, in order that we may have something which corresponds to sensibility." This transcendental object is what Kant means by noumenon. Although this notion of "things in themselves" has no objective value,—it cannot prove the existence of what could not be known,—yet it shuts the door in the face of dogmatism, and opens it to objects of non-sensuous intuition. Moreover, it would seem impossible to resist the logical conclusion to which the physical proof of relativity leads; and it surprises one when a thinker like M. Taine, for instance, after praising the "rare merits" of Mr. Spencer, writes: "Laissons à côté dans Herbert Spencer, la partie faible et arriérée, c'est-à-dire l'hypothèse scolastique d'une substance inconnaissable." (*Derniers Essais de critique: Herbert Spencer.*) For M. Taine, the hypothesis of

the Unknowable is sheer antiquated pedantry; for him the sensuous and non-sensuous world are one and the same thing. The contradictory results and preposterous assumptions of such raw realism have been sufficiently exposed.

In the light of Kant's theory, by which freedom of causality may be harmonised with the universal law of natural necessity, we may return to the question of the part played by man as a conscious cause, distinct from that of an unconscious antecedent.

In the world of sense man is subject to the laws of natural causality like all other phenomena; but in non-sensuous matter we see nothing that corresponds to the conscious and rational faculties of man. And though he knows himself as an object of sense, he is also conscious of his internal determinations. This he cannot ascribe to the impression of his senses. "Man is thus to himself partly a phenomenon; partly, with respect to certain faculties, a purely *intelligible* object, because his actions cannot be ascribed"—wholly, we may add—"to the receptivity of the senses. We call these faculties understanding and reason. It is the latter in particular which is entirely distinguished from all empirically conditioned forces or faculties, because it weighs its objects according to ideas, and determines the understanding accordingly, which then makes an empirical use of its concepts." (*Transcendental Analytic.*) This, then, is Kant's argument: that there is in man a faculty of determination, independent of the necessitation through sensuous impulses.

Regarded empirically, as a phenomenon only, no action can begin absolutely by itself. Transcendentally viewed, we have pure reason unshackled by sensuous limitations. "Of pure reason we cannot say that the state in which it determines the will is preceded by another in which that state itself is determined. For as reason itself is not a phenomenon, and not subject to any of the conditions of sensibility, there exists in it, even in reference to its causality, no succession of time, and the dynamical law of nature which determines the succession of time according to rules cannot be applied." (*Transcendental Dialectic*, p. 477.)

CHAPTER XVI

IMMORTALITY

Zwei Blumen bluhen fur den weisen Finder,
Sie heissen Hoffnung und Genuss.
SCHILLER.

THE question of personal continuance is, as already observed, a purely speculative one. We know nothing, and, to judge by the past and present, never shall know anything, to guide us one way or another.

We may show good grounds for belief in our moral responsibility, and in a Supreme Being; but we have no convincing reason for belief in Immortality. Lofty aspirations, ethical demand for retribution, whatever the arguments may be, they are met by others which leave us where they found us. It cannot even be said that the belief in a future state is either intuitive or universally desired.

The Buddhists—estimated at over 400,000,000, —more than one-third of the human race,—believe in, and pray for, ultimate annihilation. As a rule, a future state preoccupies the generality very little until death becomes imminent, or the pangs of eternal parting force us to think of it. No discussion of the subject can afford to evade or understate the difficulties which beset the would-be believer.

Attempts to do so create mistrust, and undermine the hopes they are meant to sustain. We must be honest with ourselves, and boldly face whatever our secret conscience tells us is the Truth. There can be no impartial judgment as to this, without a patient review of the *cons* as well as the *pros*.

Following the method we have hitherto pursued, we will examine opinions deemed unfavourable to immortality; and then see what is to be said in its behalf from the transcendental point of view.

The first and obvious objection to the separate existence of a soul is the physiological evidence of the mind's dependence on the brain. No brain no mind, is but the corollary of no matter no force. Haeckel writes: "The artificial discord between mind and body, between force and matter, which was maintained by the erroneous dualistic and teleological philosophy of past times, has been disposed of by the advances of natural science, and especially by the theory of development, and can no longer exist in face of the prevailing mechanical and monistic philosophy of our day. . . . With regard to the origin of the human mind, or the soul of man, we in the first place perceive that in every human individual it develops from the beginning step by step, and gradually, just like the body.[1]

In his *Evolution of Man*, Haeckel reminds us that, "Just as even now in every individual of the human race the wonderful and complex structure of the brain develops step by step, from exactly the

[1] *History of Creation*, vol. ii. p. 361.

same rudiment . . . as in all other skulled Animals, so the human mind has gradually developed in the course of millions of years from the mind of lower skulled Animals; and as now the brain of every human embryo differentiates according to the special type of the Ape-brain, so also the human psyche has historically differentiated from the Ape-mind."[1]

Clifford, after calling attention to the demonstrable connection between mind and brain, goes on to say that, with the facts before us, "we should have the highest assurance that Science can give, a practical *certainty* . . . that there is no mind without a brain."

Any number of quotations to the same effect might be selected from other eminent writers; but they would simply be repetitions of the above. Haeckel's argument is based upon man's position in the animal kingdom as a development of its primary stages; while Clifford confines himself to the irrefutable evidence afforded by physiology of the dependence of mind upon the brain. We will deal with these two stock arguments to begin with.

Take Clifford's observation that he, as little as Haeckel, has any mental reservation as to transcendental possibilities. Clifford was no believer in immortality. In his *First and Last Catastrophe*, where he shows that "the end of things, so far as the earth is concerned, is as probable as science can make anything"; and refers to "the final destruction of consciousness," which some think a probable

[1] *The Evolution of Man*, vol. ii. p. 451.

consequence of the extinction of all organised beings on Earth. He says: "*We* who hold that belief must just face the fact, and make the best of it." No apology, therefore, is needed for accepting his expressions in their literal sense.

See, then, what they lead to. Mind and consciousness cannot exist without brain; so that, throughout the infinite universe, unless there are beings with brains *like ours*—for brains are brains, and nothing else,—there is no consciousness, nothing that knows, anywhere save on this little speck of star-dust we pompously call the World; and when that comes to an end, as Science proves that it must, consciousness throughout the universe will also be extinguished.

The conclusion is a pretty sweeping one; for it is not limited to possible mortals in other parts of Space; it relates distinctly to an Infinite mind in the pantheistic sense. "Can we regard the universe, or that part of it which immediately surrounds us, as a vast *brain*, and, therefore, the reality which underlies it as a conscious mind? This question has been considered by the great naturalist, Du Bois-Reymond, and has received from him that negative answer which I think we also must give."

The climax is almost grotesque in its extravagance. "It seems clear that the knowledge of such an organism could not extend to events taking place on the earth, and that its volitions could not be concerned in them. And if some vast brain existed far away in space, being invisible because not self-luminous, then, according to the laws of matter at

present known to us, it could affect the Solar system only by its weight."[1]

Unless, then, there be a brain that fills the universe,—and "is it not possible that the stars we can see are just atoms in some vast organism, bearing some such relation to it as the atoms which make up our brains bear to us?"—unless there be a brain of these dimensions—for it must be *brain*, look you, in some sense analogous to ours, stars taking the place of cerebral molecules—there can be no conscious mind, no immortality, not even a God! This is philosophy in a strait-waistcoat.

Turn now to Professor Haeckel's argument. This assumes the premise from which Clifford's conclusion is drawn. Syllogistically stated, the proposition stands thus: "No animals have souls. Man is an animal; therefore man has no soul." That Man is an animal, and that he is lineally related to the higher apes (with all deference to our great naturalist, Dr. A. R. Wallace), can no longer be disputed. Acknowledging, moreover, as we must, the continuity of sequence which pervades the organic world, it is impossible to draw a line, and assert: Up to this point, "the Spirit does but mean the breath"; here an immortal soul begins.

We have elsewhere noticed the latest announcement of science touching the indication of insipient consciousness in plants; why should not we share the poet's "faith that every flower enjoys the air it breathes"? We have recognised the irresistible force

[1] *Body and Mind*, p. 67.

of the hypothesis that the elements of life are indissoluble from the elements of matter; are we, therefore, compelled to accept the final induction of Professor Haeckel? Why, if the progression be unbroken in one case, may it not be as continuous in the other? (We are arguing empirically now, as the man of science argues.) If matter be eternal, as he maintains, and inherently sentient, then mind, as its counterpart, must also be eternal. And if, as in the organic world, organisation develops from its most rudimentary elements till it reaches man, why may there not also be every possible grade of the immortal element—mind or soul?

What authority has the materialist for the assertion, "No animals have souls?" A pat answer is, of course, ready: If it pleases any one to call life an eternal element in nature, we materialists do not object; but we protest against the term *soul* as implying a discreet entity, and its personal continuance as a conscious unit. The life of each unit is but the product of its organisation; each special organism disintegrates at death, and perishes; and with it the life and mind, or what you call "soul," which is but the function of the specialised matter.

The objection is not easily answered. Yet, some such reply as the following might be made, without departing from the logical and scientific standpoint.

The validity of the realistic argument depends on that of its assumed materialistic monism; and how can this be maintained, despite the fact, granted by the materialist himself, that the brain, just as much

as the mental functions, is, like matter itself, merely a set of human sensations, and that its objective reality, apart from these sensations, is an inference to account for them ?

I have spoken of mind as an eternal element. Now, the hypothesis that the ultimate elements of sensibility are to be looked for in the ultimate elements of matter is quite consistent with realistic monism.

Thus, Clifford writes: "A moving molecule of inorganic matter does not possess mind or consciousness; but it possesses a small piece of *mind-stuff* when molecules are so combined together as to form the film on the underside of the jelly-fish; the elements of mind-stuff which go along with them are so combined as to form the faint beginnings of Sentience. When the molecules are so combined as to form the brain and nervous system of a vertebrate, the corresponding elements of mind-stuff are so combined as to form some kind of consciousness."[1] This seems to me to be admirably put. But when he heads this section of his essay, "*Mind-Stuff is the reality which we perceive as Matter*," one is at a loss to reconcile such Idealism with his absolute Realism as to brain.

Anyhow, it expresses the idea I wish to convey; given an eternal mind-stuff whose sum is infinite, this is represented to us in every possible grade of complexity through living organisms; so that every living unit embodies, *as phenomenon*, a share, how-

[1] *On the Nature of Things-in-Themselves*, p. 85.

ever infinitesimal, of an eternal principle analogous to our abstract conception of energy.

A somewhat similar idea of Renan's may help to make the concept clearer. "Sensation," he says, "ends with the organ which produces it, the effect disappears with the cause; no consciousness, in the ordinary sense of the word, can persist. But, *la vie de l'homme dans le tout*—the place man holds, his share in the general consciousness—*la conscience générale*—this has nothing to do with his organism, this it is that is eternal." [1]

Still, the materialist may retort: Though this mind-stuff of yours were anything more than a figment of your fancy it would afford no grounds for the supposition that the share of it enjoyed by each individual organism during its vital term would persist *apart* from the *conscience générale* after its habitat, so to speak, had perished.

Certainly this objection cannot be met by any positive reply. But a negative proposition completely deprives it of dogmatic potency. Here is John Mill's view. He reminds us that, though we have no proof of immortality, this want of proof is the sole evidence against it. As already pointed out, it is impossible to assume that nowhere in the universe can there be conscious beings not constituted as we are. Nothing is easier or more rational than to imagine the existence of such beings. "We may suppose that the same thoughts, emotions, volitions, and even sensations which we have here may persist

[1] *Dialogues philosophiques*, p. 142.

or recommence somewhere else under other conditions, just as we may suppose that other thoughts and sensations may exist under other conditions in other parts of the universe." [1] We are so governed by the law of association that it becomes almost impossible for us, in many cases, to think separable what we have never known apart. Mind and body are an instance in point. But Mill bids us "remember that the uniform co-existence of one fact with another does not make the one a part of the other, or the same with it. The relation of thought to a material brain is no metaphysical necessity, but simply a constant co-existence within the limits of observation. . . . That it (the soul) does not exist elsewhere, there is absolutely no proof. A very faint, if any, presumption is all that is afforded by its disappearance from the surface of this planet." [2]

The materialist is unable to think of the soul but as something supernatural. How does he know that its persistence is not as natural as the persistence with which he endows matter? Is it because he can see, or feel, or weigh one, and not the other, that he is so positive? Is it so certain that his five or six senses exhaust the catalogue of possible existence? Nay, if it comes to that, what does he know of matter? Let him tell us what the atom is, what any force is. "I know no more of electric and magnetic force," says Lord Kelvin, "or of the relations between ether, electricity, and ponderable matter, or

[1] *Essays on Religion, Immortality*, p. 200.
[2] *Ibid.*

of chemical affinity, than I knew and tried to teach fifty years ago, in my first session as professor."

We draw a hard and fast line between the Natural and the Supernatural. If this means that one is within the range of possible knowledge and the other beyond it, then the demarcation seems to be arbitrary. In a sense, we know no more of one than of the other; and in that sense both are equally miraculous. What is Nature? A course of order and regularity pervading phenomena whose laws are so formulated by our mental constitution as to render them possible experiences.

"The understanding," says Kant, "is not only a power of making rules by a comparison of phenomena, it is itself the law-giver of nature; and without the understanding, nature, that is, a synthetical unity of the manifold of phenomena, according to rules, would be nowhere to be found, because *phenomena, as such, cannot exist without us*, but exist in our sensibility only."[1] What can we know of Nature beyond what our senses tell us? And, what that knowledge amounts to, we need not further examine.

The foregoing passages involve two distinct questions: (1) Is there a spiritual and universal essence apart from matter as known, and knowable to us? (2) If so, does the personal and individual share of this element survive its present combination?

We have seen that belief in the first cannot be refuted; and may even be plausibly entertained.

[1] *Transcendental Analytic*, p. 111.

For the second, the arguments unfavourable to belief are partly negative, but partly, as must be admitted, discouraging. What can we think of the origin of the soul? Let us suppose that it begins its dualistic or binary course in the atom or molecule, and that its development progresses *pari passu* with the complexity of the molecular structure. If the state of that mind-essence developed with, and was dependent on, the structure, how can it retain its advanced stage when the structure is dissipated? Reason (speaking always empirically) suggests that, upon the dissolution of the structure, the molecules revert to their primary atomic simplicity, keeping only that share of sensibility which pertained to them as atoms. Were this so, the immortality of the mind-essence would be unimpaired; but the individuality of the organic unit would have passed away.

Consider now the ordinary conception of the soul as limited to human beings. This is even more barren of promising expectations. Consider, at the outset, the fact of generation,—a fact identical in character with that common to the animal kingdom, to say nothing of the analogous methods of reproduction exemplified in the vegetable world. Consider the results of this generative process: a large proportion of the issue die before, at, or soon after, birth. Have these units immortal souls? Then look at the serious number of imbeciles, and of hereditary irresponsibles, born to folly and to crime. Have these also immortal souls?

A sense of justice, of retribution, seems to demand

some other sphere of existence for a more perfect adjustment of happiness and misery; but when we appeal to such moral promptings we are dumbfounded by the appalling amount of evil which surrounds us. The most we dare hope for is that, as in the world we live in, the survival of the fittest is the law of progress, so, too, in some other state, the noblest, purest, and loftiest intellects may preserve that higher grade of spiritual structure which, partly through their own efforts, they have attained to here. Yet, this does not satisfy our notions of right and wrong; and in no wise accords with our idea of an almighty and beneficent God.

Nor is this the only kind of difficulty we have to surmount. For us, this life is the beginning of the existence of the Ego. This implies either a new creation of each individual, or a continuation of past existence of which we have no memory. Would a future state, if such there were, resemble the present in this respect? Would it be for us a fresh beginning without consciousness of a past? If so, we should no longer be the same beings; but, as far as identity is concerned, new creations. That would be equivalent to annihilation of the *me* at death.

Again, is it possible to accept the orthodox creed that, with the generation of each unit, a new and additional soul is called into being out of nothingness to spiritualise that unit, whatever may be its material destiny consequent to the invariable laws of its physical conditions? What, then, would become of the principle of heredity, which compels us to believe

that the mind-essence in each one of us is part and parcel of that which animated our ancestry from times we know not how remote?

The dilemma is formidable: either the soul is a fresh creation, or, as heredity would seem to indicate, its existence is continuous. The first proposition is fraught with insuperable antinomies; the second deprives the surviving soul of its individuality: it reduces it to an heirloom, modified by each successive inheritor, for the better, or the worse; thus rendering immortality a kind of Buddhistic metempsychosis, finally to end—when heredity ends with the race—in Buddhistic annihilation.

CHAPTER XVII

IMMORTALITY—(*continued*)

WHERE a subject so completely exceeds the limits of human conjecture, and dialectic is impotent to guide us, it is at least interesting and collaterally instructive to reflect upon the meditations of the cultivated and philosophic minds which have influenced, and will continue to influence, first the thoughtful, and by degrees, the masses of ordinary beings.

Amongst all thinkers of modern days no one is listened to with more reverent attention than the many-sided Goethe. His comprehensive attainments embraced the later discoveries of science, up to quite recent times; he knew the best that had been thought and said in every age. His far-reaching intuition swept the range of human knowledge and speculation; his completeness, his versatility, the breadth and penetration of his powerful intellect, enabled him to turn his vast experience and acquirement to the best account. Whatever he said or wrote bore the stamp of genius, and of a wisdom which, for its suggestive value, has perhaps never been surpassed.

The opinions of such a man cannot fail to enrich

our stock of ideas and expand our mental horizon, whether we accept or reject them. His thoughts upon Immortality, like those of the rest of us, are mere gropings in the dark. At the same time we cannot forget that they are Goethe's; and well known as they are to many, no excuse is needed for a translation of them here.

Apropos of the ending of the last chapter, Goethe in conversation with Eckermann says: "The conviction of continuance arises in me from the conception of activity; for if I am unceasingly active to my end, Nature is bound to allot me another form of existence if the present one is no longer able to sustain my spirit." [1]

"Nature is bound!" exclaims Strauss. "What is the meaning of that? Goethe, if any one, knew that Nature acknowledges no duties—only laws. What did Nature owe him for his restless activity? Who could be better rewarded for his labour than was Goethe with his long career of success and honour? To demand more than this was a weakness of old age." [2]

We may observe, by the way, that Strauss' affable compassion for "a weakness of old age" is somewhat gratuitous. It is true, Goethe was then in his eightieth year. But a year later than this, he was still busy with the second part of *Faust*, and was so absorbed in the philosophical contest raging between Cuvier and Geoffroy St. Hilaire on the

[1] Eckermann, *Zweiter Theil*, p. 40.
[2] *The Old Faith and The New*, p. 146.

question of the Unity of Composition in the Animal Kingdom, "that he could hardly listen with patience to the news Eckermann brought him of the French Revolution in July."

Whatever Goethe's feeling about his "Fortdauer"—his continuity—may be worth, its value is certainly not attenuated by senility. On the contrary, his sentiment was in accordance with his belief in the continuity of nature, and in anticipation of the later doctrine of evolution, which Strauss suggests that he ignored. That Nature acknowledges no duties, only laws, is true enough; but as Goethe was appealing to Nature's law, Strauss' criticism is irrelevant.

Precisely in the same spirit Goethe on another occasion says to Eckermann, "I have no doubt about our continued existence, for Nature cannot dispense with entelechy (the completion of its ends), but we are not all equally immortal; and to manifest oneself as a great entelechy one must already be one." That is to say, one must have fulfilled the ends of the higher life here.

Five or six years earlier, speaking of death, he says: "Me, the thought leaves in perfect peace, for I have the firm conviction that our Spirit is a substance (*Wesen*) of an absolutely indestructible nature; its activity continues from eternity to eternity."[1]

All this, you see, harmonises with the accepted doctrines of continuity and progress. The progress

[1] *Erster Theil*, p. 107.

made in this life, being the condition of its future status, quite accords with the principle of Evolution; and, so far from the babblings of old age, these utterances seem to me more like the accumulated wisdom of a mighty intellect inspired with sagacity.

In a most interesting conversation with his friend Falk, upon the death of Wieland, Goethe expressed his views upon immortality with a freedom which he seems never to have indulged in on any other occasion. Though the whole of Falk's report is well worth reading, we must confine ourselves to a few disconnected passages.

"Never under any circumstances can there be a question in Nature of the destruction of the forces which animate souls like his (Wieland's). The ultimate elements of all beings, and, so to speak, the initial points of all that appears in Nature, divide themselves, according to my notion, into different classes, and form a hierarchy. These elements we may call Souls; for they animate everything. Let us call them monads, and keep the old Leibnitzian term; there is no better to express the simplest essence.

"Well, experience teaches us that monads are sometimes so insignificant that they are only fit for one existence, and for one subordinate purpose. Others, on the contrary, are extremely powerful and energetic. These forcibly attract within their circle all the inferior elements that approach them, and compel them to become integral parts of the substances they have to animate—be it a human body,

be it a plant, be it an animal, be it a higher organisation—for example a star. . . . You may name this power what you please, provided you well understand that this *idea*—this inherent *intention* is prior to the development which appears in the nature of the thing, and which emanates from it. . . .

"All monads are by their nature so indestructible that even at the moment of dissolution their activity is neither lost nor suspended . . . the past relations in the midst of which they lived are dissipated, but at once they enter into new ones. In this exchange all is regulated by the predominant monad. . . . Here we have the history of the monad after the cessation of its terrestrial life. . . . The secret tendency which guides each one enfolds at the same time the secret of its future destination. . . . As for annihilation, it is not to be thought of. But to be seized by a powerful monad, yet of an inferior order, and to remain under subjection to it—here is a real danger for us, and, for my part, the simple observation of nature has not entirely saved me from this fear."

"I asked him," says Falk, "whether the monads that had passed into a new state retained a consciousness of the past." Goethe replied, "As to what concerns us, the existences we have passed through on this planet may be regarded as a whole too unimportant, too trifling, for any considerable portion of their events to be deemed by Nature worthy to enter into a second memory. . . . But while we live we must so live that our principal monad may

preserve the memory of some great historic moments only. To speak rigorously, I can know nothing of God beyond the conclusions which phenomena permit me to draw from the very restricted circle in which I am imprisoned on this planet. But it in no wise follows that this limitation imposed upon our observance of Nature should impose a limit to our faith. On the contrary, when we reflect on the divine sentiments which impress themselves upon us immediately, it is natural to admit that science cannot exist save as a vague fragment in a planet like ours violently torn from the bonds which united it to the sun. . . . Where Science suffices, faith is not needed; where Science loses its validity and becomes incompetent we must not dispute the claims of faith."

One must change places with Goethe to appreciate this mystic interpretation of a future existence as he viewed it. The one thing evident is that under some mode or other he firmly believed in its continuance.

Like Renan, Goethe apparently did not believe in what may be called indiscriminate immortality. It is probable that he would have smiled, more or less approvingly, at Renan's "Je ne vois pas de raison pour qu'un Papou soit immortel." It depended with both of them, I take it, upon how much of the divine essence each individual may be endowed with at the outset, or may have assimilated by his own efforts. The Papou would be but a potential soul, like the primordial molecule; but none the less imperishable on that account.

No light of the past can help us to penetrate these

realms of Darkness. Whether we go back to the Hebrews of the Old Testament, or to the ancient Greeks, we find them as curious and as blind as ourselves. Yet the early dreams of Greek philosophers of some universal principle to which all things are subordinate, resolve themselves naturally, when modified by later philosophies, into conceptions not unlike those we have here vaguely propounded. Before Plato's time, "The soul," says Jowett, "had been supposed to exist in the form of a magnet, or of a particle of fire, or light, or air, or water, or of a number, or of a harmony of numbers." We have elsewhere spoken of these early generalisations, participation in which constituted the individual soul. The principles themselves readily suggest correspondence with the more modern idea of spiritual-substance, or mind-essence. "At length Anaxagoras, hardly distinguishing between life and mind, or between human and divine, attained the pure abstraction." Jowett expresses this pure abstraction in Kantian terms: "The opposition of the *intelligible* and the *sensible*, and of God to the world, supplied an analogy which assisted in the separation of the Soul and Body. If ideas were separable from phenomena, mind was also separable from matter; if the ideas were eternal, the mind that conceived them was eternal too."[1]

Then came Plato, who bases his argument for immortality upon this conception: "The main argument of the Phaedo is derived from the existence of

[1] Introduction to the *Phaedo*, vol. i. p. 393.

Eternal ideas of which the Soul is partaker." Thus we have a thread of kinship running through the ages, connecting past and present notions of the soul, as an effluence of that Infinite, Eternal, and conscious Being, to which we can give no name.

And now at last we reach the purely transcendental treatment of the question. Kant prefaces his discussion of it by a free avowal of his inability to do more than "repel the dogmatical attacks of an opponent, by showing to him that he can never know more of the nature of the subject, in order to deny the possibility of my belief, than I can know, in order to cling to it."[1] He reminds us that all the difficulty arising (1) from the supposed inseparability of the soul and an organised body; (2) of the beginning of the association between the two; (3) of the end of that association; are difficulties of our own making. They rest on a mere illusion due to our psychic disabilities. What, after all, is this Matter which bars our belief? "Matter, the association of which with the Soul causes so much misgiving, is nothing but a mere form, or a certain mode of representing an unknown object by that intuition which we call the external sense."[2] "There may well be something outside us to which the phenomenon we call matter corresponds; but in the last analysis this cannot be regarded as something totally heterogeneous and different from the conscious essence. True, when we think of the soul, the object of our thoughts is a

[1] *Transcendental Dialectic*, p. 332.
[2] *Ubi supra.*

representation of the internal sense; and when we think of Matter the object is regarded as a representative of something we call external. Yet both representations are mental facts,—they both equally belong to the thinking subject. . . . We thus see that all the wrangling about the nature of a thinking being and its association with the material world arises simply from our filling the gap due to our ignorance with paralogisms of reason, and by changing thoughts into things and hypostatising them."

These are forewarnings against the arrogance of the dogmatist. But Kant does not pretend that they have more than a negative validity. There are undoubtedly intractable perplexities that have to be reckoned with. What do we mean by the Soul or immortal substance? As John Mill puts it: "Wherever there is a series of thoughts connected together by memories, that constitutes a thinking substance."[1] Professor Caird epitomises Kant as follows: "It seems natural that I should regard myself as substance, in which my thoughts, feelings, etc., inhere as accidents. But this means nothing more than that all my thoughts and experiences are mine. . . . I cannot, from such a use of the category of substance, draw any inference as to the permanence of myself as a thinking being beyond the moment of thinking." When we consider the matter we find "there is no permanent perception of the object of inner sense, and no perception of anything within me that I can represent as permanent, such as there is in

[1] *Theism*, p. 200.

the case of matter."[1] The very existence of such an entity depends on its thoughts and feelings, upon its consciousness; and this consciousness seems to depend on something that is not itself. Then as Kant says: "Whether this consciousness of myself is even possible without external things, through which ideas are given to me, or in other words whether I could exist as a thinking being, without being a man, is utterly beyond my knowledge." Professor Caird plainly states the case: "I cannot be sure that that to which consciousness negatively relates itself is not a necessary condition of consciousness." Perplexing as this at first sight may appear, we are still free to fall back on Kant's unassailable refuge. If we suppose that matter may be accessory to mind, "the very process by which we have arrived at this result secures us against the dangers supposed to lie in it. . . . No explanation of mind that resolves it into matter is possible. For such an explanation would be the explanation of mind by one of its perceptions."[2]

The third difficulty—the persistence of the soul—Kant himself gives as follows: "As the object of inner sense does not consist of parts which are external to each other" (that is to say, as the soul is not an extended substance), "its increase or diminution is possible consistently with the principle of substance." The indestructibility of matter does not apply to that which is without extension. "Thus the clearness of ideas in my soul, and so also my faculty of apper-

[1] *The Philosophy of Kant*, p. 543.
[2] Caird, *ubi supra*.

ception, have a degree which may become greater or less without any substance needing to come into existence, or cease to exist." The soul "may in this way be exposed to extinction,—not by division or separation of the Composite being" (the body) "in which it inheres, but by gradual process of decay." [1]

The second puzzle of the three—the beginning of the association between body and soul—is perhaps the hardest to grapple with. We cannot simplify Kant's own statement of it. Indeed to every thoughtful mind it must be "difficult to believe in the eternal existence of a being whose life has first begun under circumstances so trivial, and so entirely dependent on our own choice." [2] The language is euphemistic; but it comes to this: Is Immortality a product of animal instinct? "With regard to each individual, to expect so important an effect from such insignificant causes seems very strange."

One is curious to hear how Kant will meet a paradox so "strange." But dialectic is out of court; it can neither distinguish, nor plead for, the false or the true; and Kant can only underline the old saw that the wisdom of man is folly. "Even against this," he urges, "you may adduce the following transcendental hypothesis, namely, that all life is really *intelligible* only, not subject to the changes of time, and neither beginning in birth nor ending in death. You may say that this life is phenomenal only: that is, a sensuous representation of the pure

[1] *Metaph. Anfangsr.* iii. 2.
[2] *Discipline of Pure Reason*, p. 668.

spiritual life; and that the whole world of sense is but an image passing before our present mode of knowledge, but, like a dream, without any objective reality in itself; nay, that if we could see ourselves and other objects also *as they really* are, we should see ourselves in a world of spiritual natures, our community with which did neither begin at our birth, nor will end with the death of the body, both being purely phenomenal." [1]

[1] *Discipline of Pure Reason*, M. Muller's translation, p. 669.

CHAPTER XVIII

BELIEF IN GOD

It were better to have no opinion of God at all than such an opinion as is unworthy of Him ; for the one is unbelief, the other is contumely.

BACON.

IT is impossible for any one who is not a confirmed Atheist to approach the discussion of the existence and attributes of God without feelings of awe and humility. To the believer, the mere inquiry seems a desecration of all he cherishes and reveres as most sacred. To question the absolute certitude of a Supreme Being is at once blasphemous in respect to that Being, and an outrage to the believer's intuitions and reasoning powers.

It is nevertheless true that this mechanical age of ours is desperately in need of surer foundations for its religious creed than is possessed by a large and rapidly increasing proportion of the masses most advanced in civilisation. It behoves us, therefore, while preserving a deep sense of reverence and responsibility, to prosecute our investigation with the courage, frankness, and impartiality, which should guide us had we no other object than the pursuit of Truth.

To this end, the strongest arguments of the dis-

believer have to be honestly stated and carefully considered; for we must not forget that he may be as earnest and conscientious as ourselves. We must bear in mind, too, that religious consciousness, though prevalent to a large extent, is not an inseparable element of each individual's spiritual nature: witness the many instances of prominent thinkers of the noblest character who have been, and are, devoid of intuitive belief.

The object of this treatise is to promote and strengthen religious faith; but we must face the truth that the existence of God cannot be proved by Reason. In order to justify belief we must, so to speak, take leave of our senses; these can only lead to a realism which is the main stay of Atheism. All reasoning is founded on an empirical basis; it must therefore be inadequate to the demonstration of that which surpasses this limit. "A God who can be proved," says Jacobi, "is no God; for the ground of proof is necessarily above the thing proved by it." The moment we attempt to reason about God or an infinite and unknowable Being, we become inextricably involved in alternative impossibilities of thought.

Although inductive reasoning is ineffectual, its inefficacy does not mean that we are to accept assertions opposed to it. Reason must so far sanction belief as to admit that such and such a hypothesis transcends its jurisdiction, but is not absolutely inconsistent with the knowable. Reason, for example, cannot sanction the belief that the justice, goodness

and love of God are different in kind from our ideas of them. The proposition, whatever it may be, that we are asked to assent to, while evading the paralogisms in which unaided reason would involve us, must be "intelligible" in the Kantian sense of the word. The content of the thought, though beyond the reach of reason, must still be consistent with the principles of rationality. The incompetence of Reason is due to our finite share of it; its disability is a quantitative, not a qualitative one: it simply premises that nothing save the Infinite can comprehend itself. Yet the relation between the finite conception and the infinite reality must at least be thinkable.

Now, although intellectual activity, even at its highest, does not necessarily involve the religious sentiment, religion finds substantial support and confirmation in the approval of the intellect. The relative pretensions of every creed are distinctly within the province of trained intelligence to determine. It is for the unbiassed judgment, supplied with requisite knowledge, to decide upon the comparative merits of Fetishism and Christianity for instance, and of the numerous forms of religious worship which lie between the two extremes. The degree of ignorance, of superstition, of speculation, and of practical worth, must in every case be tested by the arbitrament of Reason. The cultivated mind can never accept as an object of worship that which reason denounces as incompatible with its idea of goodness.

For all that, to know God, His presence must be

felt. No logical process can establish His existence. Virtually, however, no exercise of the higher intellect is strictly destitute of feeling. The solution of a mathematical problem, the result of a chemical experiment, researches in biology, or physics, or in any department of science, are accompanied by emotion of some kind. The mind is a whole, a complex unity, and can only be treated arbitrarily for psychological convenience, as composed of separate and unrelated faculties. If ever Laplace imagined we have no need of a God to account for the systematic order of the universe, it is impossible that he, any more than Kant, could have looked upon the starry heavens without emotion. The average human being can hardly gaze upon the boundless starlit firmament without some sense of wonder; but what must the feelings of Laplace have been, equipped as he was with knowledge enabling him to grasp the idea of Infinity as applied to the object of his contemplation? Feelings of awe and admiration, in the presence of infinite space studded with infinite worlds, must have been as intense in one mind as in the other. With Kant, the emotion inspired a transcendental conception of the Universe, which was eminently religious. With Laplace, scientific meditations predominated; and in moments of doubt, to which the most thoughtful minds are subject, the presence of infinite order may have revealed no more to him than the endless extension of those forces which seemed to be inherent and self-sustaining properties of matter.

Strong as this tendency was in Laplace's day, it is even more widely prevalent in ours. Educated men are apt to assume that a knowledge of the laws of nature is antagonistic to a belief in God; in other words, that belief in divine agency is dependent on the interference with such laws — that is, upon miracles; but as belief in miracles fades away before the high lights of advancing science, the obvious conclusion is apt to be that, given Matter and Force, the properties of both, if different, or of either if the same, must have resulted in the existing Kosmos. Enough, however, has been said to show that the word miracle must henceforth have exactly the opposite meaning to that which it formerly possessed; instead of interference with the laws of Nature, it may more properly signify the co-ordination and maintenance of such laws without further interposition.

No language in support of this view can be more emphatic than that in which Laplace expresses his ultimate conviction: "Des phénomènes aussi extraordinaires ne sont point due à des causes irrégulières. En soumettant au calcul leur probabilité, on trouve qu'il y a plus de deux cents milles milliards à parier contre un qu'ils ne sont point l'effet du hasard."[1] A milliard, we must remember, is a thousand millions; multiply this by 200,000 and you have the odds against one in favour of *design*. Let the atheist make a note of the figures; and let him not forget what the man was who made the calculation.

The degree of religious consciousness varies with

[1] *Système du monde*, liv. v. c. 6.

the temperament and mental constitution of every individual. Where it is present, one may almost say the appeal to reason is superfluous. Where it is absent the appeal is of small avail.

We will begin our task with a candid presentment of the facts and opinions which religion has to contend with. The two strongholds of Atheism are Materialism and the existence of Evil. Concerning the first, I have but little to add. The second is a far more formidable difficulty. In the absence of immediate revelation, it is the one serious obstacle which obstructs the path of the believer.

The morbid bitterness of Schopenhauer, the specious logic of Hartmann, the pathetic despair of Leopardi, are answerable, and may be stripped of their persuasiveness by arguments at least as cogent as those they adduce. But the bold and severe impeachment by John Mill of the reckless cruelty of Nature is the statement of a fact which no dialectic subtlety can refute, nor honest thinker dare to ignore. Theologians, as a rule, slur over the evidences of a mitigated evil by such phrases as "seeming imperfections," and "terrible anomalies of the present system of things." (*Philosophy of Religion*, by Principal Caird.) Or, in the bitter spirit of the *Odium theologicum*, vituperate those who cite such evidence. "The late Mr. John Stuart Mill," writes Dr. Flint, Professor of Divinity in the University of Edinburgh, be it observed, "for no better reason than that childbirth is a painful process, maintained that God could not possibly be infinite. I shall not say what I

think of the shallowness and self-conceit displayed in such an argument." (*Theism.*) Can such pitiful and impotent personality, such vitriol-throwing, alter the fact that "Nature impales men, breaks them as if on the wheel, casts them to be devoured by wild beasts, burns them to death, crushes them with stones like the first Christian Martyr, starves them with hunger, freezes them with cold, poisons them by the quick or slow venom of her exhalations, and has hundreds of other hideous deaths in reserve, such as the cruelty of a Nabis or a Domitian never surpassed"? (*Three Essays on Religion*, J. S. Mill.)

Nor, alas! is it man alone who suffers: "If there are any marks at all of special design in creation, one of the things most evidently designed is that a large proportion of all animals should pass their existence in tormenting and devouring other animals. They have been lavishly fitted out with the instruments necessary for that purpose." (*Op. cit.*)

"If," says Huxley, "our ears were sharp enough to hear all the cries of pain that are uttered on the earth by men or beasts, we should be deafened by one continuous scream." These are terrible words—terrible because of their inexorable veracity.

I have seen a photograph by an African hunter of two dead lions and a dead antelope. The hunter had stumbled on them in the course of his day's sport. The trio told their own story: the antelope was half devoured by the lion that had killed it, a second lion had fought for a share of the carcase, one

lion had killed the other, and the victor was dead of a large bone which had stuck in his throat and choked him. This is no La Fontaine fable, but a faithful picture of Nature "at home."

What boots it to shut one's eyes to a staggering fact like this? Are such horrors part of the evil entailed by Adam's fall? No wonder that scepticism is gnawing the heart out of our old nursery tales. It is time they were revised, if our creed is to keep pace with the age. "If the maker of the world can all he will, he wills misery; and there is no escape from the conclusion." (J. S. Mill.)

Yes, there is one, and, humanly speaking, only one way of avoiding the otherwise necessary inference. The heinousness of Mill's sacrilege, the "shallowness and self-conceit" displayed by him, consist in the assertion that infinite power is not compatible with such atrocious consequences of its exercise, unless the possessor of that power willed misery. Never could anything be farther from Mill's thoughts than the imputation of this alternative. Without disputing the religious explanation of the order of nature, he does emphatically question the *omnipotence* of the Supreme Being. Yet, as his words plainly show, his purpose is not to impair religious belief, but to aid it; and to save divine benevolence, by the substitution of a possible for an injurious and self-contradictory hypothesis. "If we are not obliged to believe the animal creation to be the work of a demon, it is because we need not suppose it to have been made by a Being of Infinite

power." "The only admissible moral theory of Creation is that the Principle of Good cannot at once and altogether subdue the powers of Evil, either physical or moral; could not place mankind in a world free from the necessity of an incessant struggle with the maleficent powers, or make them always victorious in that struggle, but could and did make them capable of carrying on the fight with vigour and with progressively increasing success." According to this explanation of the order of Nature, "man's duty would consist, not in simply taking care of his own interests, but in standing forward a not ineffectual auxiliary to a Being of perfect beneficence."

Surely this is a more rational, a more comforting, a more ennobling belief, than the orthodox creed, which is utterly repugnant to reason and to every idea of goodness. It is no use to say the ordinary belief is above, but not contradictory to, reason. It is just a case in which the intellect and the moral sense are at one. Conscience may be forcibly silenced; we may turn a deaf ear to its pleadings; but no healthy mind, not warped by false teaching in the sacred name of religion, could hesitate as to the relative merits of the two doctrines.

Why should religious belief stand or fall by this one word Omnipotence? For that is what it comes to. "Leibnitz, in his endeavour to reconcile God's infinite power with Evil, tacitly assumes an abstract possibility and impossibility, independent of the divine power: he so explains the term of Omnipotence

(as Mill points out in support of his own views) as to make it mean power extending to all that is within the limits of that abstract possibility." It was the sincere piety of Leibnitz that led him to this interpretation. Shall we refuse to believe in God because He cannot do what is impossible? if infinitely good, is it possible for Him to choose evil?

By Power of Evil, Mill does not mean an intelligent Evil Being antagonistic to God. Mill had no strong proclivity to Manicheism. With him the limit of possibility meant an intractable material. What if matter be eternal, and needed no cause for its existence? "Both matter and Force (whatever metaphysical theory we may give of one or the other) have had, so far as our experience can teach us, no beginning." ("Argument for a First Cause.") This simple and unassailable hypothesis "allows it to be believed that all the mass of evil which exists was undesigned by, and exists, not by appointment of, but in spite of, the Being whom we are called upon to worship." "Grant that creative power was limited by conditions the nature and extent of which are wholly unknown to us, and the Goodness and Justice of the Creator may be all that the most pious believe."

We cannot conscientiously omit to notice the comment of Mr. James Sully upon the theory of a benevolent Creator limited in power: "A Being of such a nature, and circumstanced as this supposition implies, would clearly resolve not to fashion any world whatever." (*Pessimism*, p. 161.) But according

to Mill's supposition — it was also Plato's — the Supreme Being did not "fashion"—that is, create —the world. His fashioning may be exclusively limited to the conversion of evil into good, by the process of Evolution which never ceases.

CHAPTER XIX

PESSIMISM

THE impartial mind must, I think, admit the force of Mill's argument. Theological writers and most apologists have striven to explain away suffering by showing that its effects may, in the end, be beneficial. This is as much as to say that God does harm that good may come of it. Something no doubt may be said on this score that is plausible. It cannot be denied that the lessons of adversity have their uses,—though adversity is no synonym for torture. But it is not possible to believe that an infinitely benevolent Being could have willed the suffering of animals, with any design for *their* advantage. What may be urged is that we are indebted to the Spirit of Good, first, for the law of Progress, as above suggested; which includes the principle whereby the survival of the fittest compensates, in a measure, for the ruthless destruction of the unfit; secondly, for the spiritual power, which most of us assuredly possess, to turn our sufferings to good account; and in some degree control the intractableness of human nature. This being the case, we may, without violating our moral conscience, assume that God has done, and is for ever

doing, all that infinite Goodness can, with material which, for aught we know, may be co-eternal with Himself.

I have deemed it advisable to grapple at the outset with the positive evil in the world, which no sophistry can ignore or extenuate. Unless the theory of an *infinite* Power be relinquished, the arguments of the Atheist are certainly colourable; and every attempt to rebut them must smack of subterfuge.

The impossibility of proving the existence of God is one thing; the task of proving the impossibility of His denial is a much easier one; but even this could not be undertaken till the crude theory of evil, as part of the divine scheme, was strenuously denounced.

That "the world is as bad as it can be, in order to exist at all," is the fundamental doctrine of Pessimism. Although a philosophy of Evil, it is less hostile to religious belief than Materialism; inasmuch as Schopenhauer and his followers are pronounced idealists. Far from materialising Spirit, they spiritualise Matter. In the next place, their theory is too recondite for the multitude; while the facile picturability of Realism is a standing aid to its popularity.

Schopenhauer's great work, *The World as Will and Representation*, proclaims relativity of Knowledge to be an essential principle of his system. He was an ardent disciple of Kant; adopting, with a few exceptions, unimportant to our discussion, the Kantian analysis of pure Reason. Including the subjectivity of the law of Causation as a function or

regulative principle of the intellect, having no objective value for things in themselves, he accepted the reduction of Space and Time to *a priori* forms of thought. No Object without Subject was for him, as for Kant, an axiom applicable to all knowledge,—a principle directly opposed to materialism. "The world we perceive is evidently a cerebral phenomenon —*ein Gehirnphänomen.* As such, it is a contradiction to suppose that it can be independent of all brains. This dependence of the object, as related to the subject, constitutes the ideality of the world as a mental representation." (*Parerge und Paralipomena*, Band ii. 33.)

The ideality of Time, according to Schopenhauer, is established by the law of inertia. "Time does nothing. By itself it produces no physical action; by itself it changes nothing in the repose or movement of a body. Time passes without leaving the faintest trace on anything; for that which acts are causes which develop themselves in the course of time; never the time itself. The mammoth in the glaciers of Lena, the flies in amber, a metal in perfectly dry air, the antiquities of Egypt, even the hair of mummies in their closed sepulchres—thousands of years do not change them." The reality of body is absolutely different from the ideality of time; the one manifests itself objectively, the other is purely subjective.

"The clearest and simplest proof of the ideality of Space is, that we cannot divest ourselves of the thought. We can conceive Space as void of all

content, a complete vacuum; but Space itself—in no way can we get rid of the notion. Do what we will, it is there, everywhere, without limit, for it is the ground and first condition of our representations. This proves that it belongs to Intelligence, and is an integral part of it." (*Loc. cit.*, Band ii. 29.) Time and Space are empty frames, something must fill them; this something is Causality; for, with Schopenhauer, Matter and Movement are synonymous with Causality. "Matter from one end to the other is nothing but causality, its being is action. It is impossible to think of any other. Its necessary activity fills time and space." This is subjective Idealism. It is only through our percipient minds that the diversity of phenomena becomes known in unity, as an external world. Time, Space, and Causality, are valid conceptions for the world of the senses, but for nothing beyond.

But there must be something beyond, of which the world is, for us, only the appearance—*Erscheinung.* Kant calls it the *Dinge an sich* (the thing itself); Schopenhauer calls it "Will." "I have chosen this word for want of a better as a *denominatio a potiori*, giving to the concept Will an extension wider than the ordinary one." The greater extension is this: Will is the ultimate of ultimates; the materialists say Matter; and the modern idea or equivalent of Matter is Force. Virtually the Will of Schopenhauer, as in Hartmann's *Philosophy of the Unconscious*, is little else than a metaphysical equivalent of Force.

Schopenhauer objects to the identification: for

him, Will means the genus of which Force is but a species. All Force, he maintains, comes under the concept Will, and is a manifestation of the universal Will. We erroneously limit the term Will to the voluntary actions of organised beings because, in organised beings of the higher order, Will becomes conscious. This is a mistake. "The Volition, and the action of the body, are not two; it is an error to suppose that in voluntary acts there are two things —Will and Force; they are one and the same thing; only given in two different ways: on the one part, immediately, through conscience; on the other, by intellectual intuition. . . . In reality they are one." (*Die Welt als Wille*, Band i. cap. x. 18.) "Hitherto," he elsewhere says, "the concept Will has been brought under the concept Force. I do the reverse, and consider all natural force as Will. Force is known to us in its manifestation as phenomenon. The concept Will, on the contrary, is the sole one which has not its source either in the phenomenon, or in the pure intuitive representations; but which comes from within, and springs from the consciousness of each one."

This metaphysical abstraction "Will" is the God of the Pessimist, as Matter is the God of the Materialist. In both cases it is an absolutely blind and unconscious Creator—up to a certain point. Its being is Action. An eternal *Drang* or *nisus* compels it, somehow or other (!), to direct the forces of Nature to combine and express themselves in conformance with certain types of existence,—in

this or that form of crystallisation, as protoplasm, as plant, and so on, according to the typical character of each. So, too, with gravitation, repulsion, elasticity, heat, etc., till, in its highest development, *Der Wille zum Leben*,—the will to live,—asserts itself, and consciousness and intelligence are the outcome.

This is a sudden leap from darkness to light. With some plausibility he says: "If we place in the human head a 'spirit,' or mind, as a *Deus ex machina*, we ought to endow every stone with a spirit. If, on the other hand, we admit that dead, inert matter can act as weight, as electricity, we ought just as well to admit that it can think as a cerebral mass. In a word, to all pretended Spirit, we may attribute a material substance; to all Matter a spirit. Whence it follows that the opposition established between the two is false."

At this point we have the origin of Evil; Intelligence is an evolution of Consciousness, needed for the conservation of the individual and the species. With this mechanism is suddenly born *die Welt als Vorstellung*,—the World as Representation,—with all its forms, Subject and Object, Time, Space, Causation, Plurality. The world has henceforth two faces: what was before pure Will, is now at the same time Representation—object and conscious subject. The incessant striving of Will in the conscious being means ceaseless desire; and the only result of every effort born of a want, so long as it is not satisfied, is pain. If satisfied, the satisfaction being necessarily

transient, a new desire arises, and so a new pain. To will is to suffer; and as to live is to will, all life is essentially suffering. "Will and effort, which constitute the very essence of man, are like an insatiable thirst. The very Essence of his being is need, desire, pain. Being the most complete objectivation of Will, man is consequently the most dissatisfied of all beings. His totality is a concrete desire, the aggregate of a thousand wants. His life is nothing but a struggle for existence, with a certainty of defeat."

CHAPTER XX

PESSIMISM—(*continued*)

It would not edify the general reader were I to criticise the pessimistic doctrine in detail. All that concerns us is its bearing upon the religious question. As a philosophical system, pessimism, could we grant its premises, would be less illogical in its explanation of Evil than is our orthodox creed. As a negation of theism, however, it cannot be overlooked. Moreover, it is an outcry of suffering humanity; and, as such, comes within the scope of our theme.

Before criticising it as a whole, we must notice its later development by Hartmann in his *Philosophy of the Unconscious*. The first principles of the two writers are as nearly as possible the same. Starting with the Atom, Hartmann asks: "What, then, is the striving of the atomic Force if not Will; that striving whose content, or object, is formed by the unconscious representation of that which is striven after?" The implied answer is: It is nothing else; nothing but unconscious Will.

When we come to look into it, it turns out that there is a vast deal more than that. The unconscious Will is gifted with a considerable dash of intelligence.

It is curious to see how Hartmann accounts for the evolution of inorganic changes, which start from the atom. These changes are not effected by chemical action, or gravitation, repulsion, electricity, and such like. "The manifestations of the atomic forces are the acts of individual volitions, the content of which is the unconscious representation of the result to be produced. It is, in fact, Matter expressed as Will and Representation. Hence vanishes the radical opposition of Spirit and Matter; the only difference is in the various forms exhibited by the same Being —the eternal Unconscious. Their identity consists in this: the Unconsciousness expresses itself in Matter as well as in Spirit. . . . The notion of the identity of Spirit and Matter is no longer a postulate, incomprehensible and undemonstrable, . . . it is raised to the dignity of a Scientific idea. It is not by killing Spirit, but by animating Matter that this result is reached. This avoids a suicidal dualism, in which materialism looks upon spiritualism as a delusion; while the spiritualist regards Matter as an appearance without reality. Both must be absorbed in a comprehensive unity." (*Die Materie als Wille und Vorstellung*, p. 479.)

The unconscious representation, or idea of the effect to be produced, corresponds exactly with the "Idea" of Plato, and is about as easy for the plain man to understand. Well may Hartmann exclaim, "Anderseits kann man die Weisheit des Unbewussten nicht genug bewundern." (One cannot sufficiently admire the wisdom of the Unconscious!)

As with Schopenhauer, Hartmann makes Evil begin with consciousness, the blind and uncontrollable impulse of which labours irrationally, and without purpose, to express itself in higher and higher forms; till at last it produces sentient beings whose conscience tells them of the gross miscarriage of which they are the victims. Hartmann somewhat extends this idea of Schopenhauer's by insisting on the fact that from this moment an incessant fight wages between the unconscious and the conscious Will, through the struggle of the latter to emancipate itself and "subdue that power of which it has been the slave." The negation of the universal Will now becomes the burden of existence. It is an internecine war, a house divided against itself; for this new Will, born of acquired representation, is, after all, like the atomic wills of inorganic matter, nothing but the offspring of the unconscious parent.

Hartmann agrees with Schopenhauer as to the excess of pain over pleasure, and holds with his master that pleasure in the main is but the absence of suffering. The attempt to prolong pleasure destroys it. *Ennui* is the misery equally of the rich and the unemployed; it is the commonest of ills. It means forced inactivity of the unconscious, without the deceptive pleasure of pursuit. As proof of the negativity of pleasure, he bids us take any acute pain —neuritis, headache, hunger, thirst—when relieved from these we at first feel pleasure. As soon as the pain is forgotten the pleasure passes into indifference. We have no positive pleasure in the air we breathe

any more than from habitual health. Deprived of either we suffer. In all cases the suffering incomparably outweighs the enjoyment. A healthy child is overflowing with boisterous activity and apparent happiness, yet the child is never conscious of that state as *happiness*. Take away its toy and it screams. If youth, health, freedom, and competence, are but negative pleasures, what must we say of pleasures violently sought after, such as wealth, ambition, revenge, and sexual love? Each one of these is dearly paid for by restless travail, remorse, wearisome disenchantment, and satiety. The obligation to work is an evil apart from the want which begets it.

Hartmann foresees no remedy, no promise of a brighter future. On the contrary, the farther man advances in civilisation, or in whatever direction his progress may be, he only increases his sensibilities. Education teaches him, as primary conscience taught him, in a growing degree, how inadequate are his means to his wants. Its only result is to beget more rebellious discontent, and the sense of his wrongs leads to his wrongdoing. Science, it is true, improves his general conditions. At the same time this improvement aggravates his desires by continually raising him above the dull passivity of a mere animal. Progress lifts him to a height only to enable him to look down upon his own abasement. The pretensions of the pessimistic doctrine depend not so much on its conclusions as to the prevalence of Evil over Good, and the worthlessness of Life, as upon its metaphysical basis. Each individual's estimate of life's worth varies

probably according to his inborn nature and personal experiences. The validity of pessimism as an interpretation of Evil rests on its ontological assumption of an unconscious Will. Considering the idealism of its authors, and the significant declaration of Schopenhauer, that "All that is known is *ipso facto* phenomenal," the assumption is suicidal. Whatever strength the objections to the ontological proof of a God may have, it is immeasurably greater as applied to this phantasm of an Unconscious Will. At every step this pure phantasm has to resort to more and more extravagant demands on our credulity, for which there is no excuse save the weakness of the scheme which necessitates support.

Referring to this topic, Mr. Sully makes the shrewd comment, that "In glancing back at the successive World Principles which have seemed to offer a solution of the problem of existence, we are met by the very curious fact that ontology has exhausted psychology; that all the main activities of the human mind have one after another been objectified and erected into principles of being. Not only Intellect and Will, Feeling itself has been put in requisition. . . . Is there, in verity, any essential difference between this hypostatising of separate activities of mind and the lower forms of anthropological interpretation of nature as tenanted and inspired by an integral conscious mind?" (*Pessimism*, p. 172.)

What superiority has such a hocus-pocus philosophy over the theism it professes to supersede? Were it not for this tendency, notified by Mr. Sully,

it is difficult to see what pretext could be found for such a scheme, or what apology could be made for it. Schopenhauer himself says, "If the question were put to me—'What, then, absolutely is this Will which manifests itself in the world, and by the world?'—there is no possible answer to the question; for to be known is in contradiction with to be-in-itself; and all that is known is consequently phenomenal." Nevertheless, though this unknowable entity is a thing—the thing in itself—its activity is phenomenal. Its stirrings beget change, and changes must be successive; that is, they must take place in Time; yet, according to Schopenhauer and to Hartmann, Time has only a phenomenal reality. Thus the usual discrepancy inconveniently crops up.

"To conclude, we have called the universal and fundamental essence of all phenomena—Will; but by this word we understand nothing more than an unknown X. As a set-off we consider it infinitely better known, and more sure than all else." (*Die Welt als Wille*, Band ii. cap. xxv.) So then the Will of pessimism is avowedly unthinkable; it amounts to no more than a veiled confession of our irremediable ignorance.

For an exhaustive examination of the Pleasure and Pain question, I must refer the reader to Mr. Sully's valuable work on *Pessimism*. With calm impartiality he discusses in turn each assertion of the predominance of Evil, and with admirable skill exposes their fallacies. The conclusion one is brought to is, that the pessimistic estimate is entirely one-

sided. It insists upon the actual miseries of existence; but either ignores its actual happiness, or, by perverting the meaning of desire, effort, work, and many of our best feelings, sees with jaundiced eyes nothing but ill in all alike;—though in a vast number of cases these give life its zest, save us from the *ennui* upon which Schopenhauer and Hartmann lay such stress, and, when animated by sympathy, lead to the noblest actions and the highest elevation of our moral natures.

Desire, and the effort it induces, often pleasurable in themselves, are incitements to prospective pleasure. If desire is followed by effort, even when a consequence of suffering, the effort implies hope and faith in a change for the better. Renan is never tired of preaching this doctrine. "Well-being begets sloth and inactivity; discomfort is the principle of movement." (*Dialogues philosophiques*, p. 23.) "La douleur est l'incitation à tout progrès. La douleur crée l'effort; elle est salutaire." (*Feuilles détachées*, p. 378.) The life of an oyster is a stagnant one. All advancement from bad to better comes of discontent with a present state. Striving, with this object in view, contributes far more than actual possession to the enjoyment of life. As Voltaire scornfully exclaims: "The sweat of the brow a curse! The necessity to work is God's best gift to man." Who amongst us is a stranger to the reward of a hard day's toil, when it has been for a virtuous aim? From the humblest labourer, who has earned his bread and his rest, to the professional man of art

or science, or whatever he may be, who has benefited himself or others by his toil, can there be a sweeter pleasure than the accomplishment of his irksome duties?

The pessimist is far too apt to gauge the value of existence by its external conditions, without due regard to its internal states. He makes these depend too exclusively on outward circumstances—upon wealth and poverty, health and sickness. Yet the lives of countless men and women belie this averment. A vast proportion of mankind are driven by one cause or another to seek consolation in religion. The majority of those who do so, believe in their inmost hearts that their Deity will take pity on them. Who can calculate what unspeakable solace, hope, faith, and patient endurance, these millions all the world over derive from trust in the goodness and mercy of their God! How could their misery be borne if destitute of reliance in a Spirit of Good—conscious of their wretchedness, and of their prayers for its relief? The owner of boundless wealth and power, with all else needful to enjoyment, yet hourly reminded of life's bankruptcy, no pleasure left unsatiated, possession staling all desire, and having lived solely for the world which he is weary of,—such a man, if utterly devoid of religious belief, is less to be envied than the most abject sufferer who confidently relies on the commiseration of a Divine Being whose love is infinite. Whatever life's outward conditions may be,—it would, of course, be nonsense to deny the advantages of health and wealth,—happiness is a

subjective state. Sakya Mouni was happier as a mendicant than as heir to a mighty throne.

It is with sincere deference that I venture to criticise the words of such a thinker as John Mill; but when he writes, "The scheme of Nature regarded in its whole extent cannot have had for its sole or even principal object the good of human or of other sentient beings,"—I must say this seems inconsistent with the views repeatedly expressed in both of his other Essays on Religion. Defending the doctrine of Plato and, in a measure, that of the Manicheans, Mill irrevocably resigns, as they do, the idea of an *omnipotent* Creator, and regards Nature as a struggle between contriving goodness and intractable Material. Now, if the contriving goodness be limited in power by an intractable material, we have no right whatever to assume that the good of human and other sentient beings is alien to the purposes of the contriver. Want of power would amply account for the apparent indifference.

Mill himself fully endorses this in a passage which cannot too often be quoted and read. "A creed like this . . . allows it to be believed that all the mass of evil which exists was undesigned by, and exists not by the appointment of, but in spite of, the Being whom we are called upon to worship. A virtuous human being assumes in this theory the exalted character of a fellow-labourer with the Highest, a fellow-combatant in the great strife; contributing his little—which by the aggregation of many like himself becomes much—towards that progressive

ascendency and ultimately complete triumph of good over evil which history points to, and which this doctrine teaches us to regard as planned by the Being to whom we owe all the benevolent contrivances we behold in Nature. Against the moral tendency of this creed no possible objection can lie; it can produce on whoever can succeed in believing it no other than an ennobling effect." (*Utility of Religion*, p. 117.)

Prayer

I have spoken of the consolations of prayer to the believing millions; though somewhat intrusive upon the theme in hand, the deep concernment of the subject will, I trust, justify more special reference to it.

The efficacy of prayer to an all-wise and perfectly beneficent Being is a matter which necessarily troubles the conscience of those who venture to reflect on what it means. To appeal to Omniscience to revoke its ordinances, and interfere perpetually with the laws of Nature, which the believer holds to be in accordance with the Divine Will, seems not merely puerile, but blasphemous. Yet I cannot but think that if correctly viewed, the efficacy is demonstrable from the accepted principles of psychology. Speaking empirically even, it may safely be said that prayer actually is—not seems to be—answered by the realisation of the earnest request. Millions will bear witness to the fact. Nor is the fact annulled by its common misinterpretation.

Take the prayer of the religious man, in the best and broadest sense of "religious"; what is its character? Simply stated, it implies a sincere desire to be aided in the effort to bring his mind into harmony with the Spirit of Good. Take the case of the ordinary man or woman who with like sincerity prays for strength to resist temptation, or bear the ills of life with fortitude, supported by Divine assistance. Are such petitions unheard, unheeded, useless? Assuredly not. These are initiatory steps in obedience to those mental laws upon which the fulfilment of the prayers depend. God has anticipated the prayer by providing these ordinances for its accomplishment.

Suppose the desire be for Evil instead of for Good. If, for example, a man passionately longs to commit a crime, the perpetration of that crime will depend upon the chances of opportunity. The end, in this instance, as well as in the others, becomes probable in proportion to the strength of the wish, and the strength of the will to carry it out.

Every voluntary act is, first, an idea, a desire, an intention. These states of mind affect the character. If persisted in, they modify the character permanently. A man craves ardently and continually for the opportunity to satiate a violent passion,—hatred, revenge, avarice, lust,—whatever it may be. He will do all in his power to bring about the opportunity to accomplish his purpose. Needless to say, his fervour, if steadfast, will tend to realise its aim.

Prayer, in every case of this kind, is the surest

means to the attainment of its ends. But mark the proviso "of this kind," by which I mean a moral and subjective influence,—an influence which pertains strictly to the laws of our mental constitution. To pray for rain or sunshine, for abnormal consequences of a fatal disease, for the miraculous subversion of any law of Nature, is, so it seems to me, mistrust rather than recognition of a benign Providence.

It is always objected to this subjective interpretation of prayer, that it is tantamount to an imputation of God's indifference to human sufferings; and, if nothing but this, a mockery and delusion. If, however, we take the view I have striven throughout to inculcate, that Nature's laws are God's laws,—at least such of them as make for good,—then the guerdon which certainly comes of obedience (however blind we may be to the spiritual *modus operandi*, however hidden from us the way in which prayer becomes a true, not illusive source of happiness) remains nevertheless a positive proof of God's care for the well-being of mankind.

The complete absence of supernatural interference is a prescriptive argument of the Atheist. Even Renan, in a dejected hour, reminds us that never has God vouchsafed a sign of His existence. We may infer, we may speculate, but God is and ever has been silent. That is so. History knows no instance of God's capricious meddling. But what sort of God would it be that was always correcting his own work at the instigation of man's importunity? If a hundredth part of our supplications were acceded

to, we should soon have good cause to hate Him. Fortunately the complexity of conditions frustrate our reckless impulses. And what if He did manifest Himself directly? How often would such evidence be needed to convince those who had not witnessed the revelation? If repeated till conviction were established, what would be the moral consequence to the race? Here is an able writer's answer:

"If the universe were to be incessantly expressive and incessantly communicative, morality would be impossible: we should live under the unceasing presence of a supernatural interference, which would give us selfish motives for doing everything, which would menace us with supernatural punishment if we left anything undone. We should be living in a *chastising* machine of which the secret would be patent, and the penalties apparent. True virtue would be impossible. . . . A latent Providence, an existence broken short in the midst, on a sudden, are not real difficulties, but real helps. They or something like them are essential conditions of moral life." (Walter Bagehot, *The Ignorance of Man.*)

No, God does not visibly interfere to help us. May it not be that He leads us by our sufferings and our needs to help ourselves and one another; and so reveals Himself through the good we do?

CHAPTER XXI

PESSIMISM—(*continued*)

NOTHING is more unfair and misleading than to judge an author by his writings, or writings by their author; yet, as I have more than once observed, the views men take of speculative problems, such as religious belief, the existence of evil, the Destiny of mankind, the freedom of the Will, the hopes of a future state, depend far less on their general abilities or their power of reasoning, than upon the individual nature and superinduced character of each one.

Without disparagement of the genius of Schopenhauer, one cannot forget the idiosyncrasies of the man. He seems to have inherited an unhappy disposition from his father who committed suicide. Ribot describes him as *riche en haines.* He detested women. "The cuttle-fish, in order to kill its enemy or escape from it, squirts its ink and darkens the water. Here we have the veritable analogue of woman. Like the cuttle-fish she envelops herself in a cloud, and is happy in her dissimulation." "Their only thought is of marriage; nothing for them is serious but that which speaks of love, the novel, and the prayer-book, the priest and the lover."

"Love is evil; all its troubles and delights are the secret workings of the genius of the race, an agency whose sole aim is productiveness. It is governed by one thought, a positive thought, devoid of poetry,—the duration of the human race." "It is not through mere depravity, nor by divine attractions that men are impelled in their amatory passions; they work without knowing it, with the genius of their kind. They are at once courtiers, tools, and dupes."

His hatred of men was hardly less bitter. Witness a specimen of its acrimony in a conversation with Challemel-Lacour: "I am firmly persuaded that if two men only were left in the world, the strongest, if he wanted suet to rub on his boots, would not hesitate a minute to kill his sole companion for the sake of his grease." (*Études et réflexions d'un pessimiste*, p. 91.) From such an unhappy disposition one must not look for resplendent views of life. He saw the world (as each one of us is forced to see it) represented through his own personality; but forgetful of his Kantian principles, he transgressed the limits of experience, and churned his ontological explanation of existence out of his own cantankerous liver.

Setting aside the individual estimate of life's worth, one of the first answers that suggests itself to the average mind is the self-evident progress obtrusively patent to all of us. The pessimist admits the onward movement; but, as above noticed, denies its beneficial effects. "I ventured," said Challemel-

Lacour, "to declare that for my part, life seemed to me endurable; and that progress would so far ameliorate its present mediocrity, and so attenuate its imperfections as to enable us to live contentedly." "Nous y voilà!" exclaimed Schopenhauer, "Progress is your chimera; it is the dream of the Nineteenth Century. The resurrection of the dead was that of the Tenth. Every age has its own." (*Loc. cit.* p. 277.) He then instances the delusions of its supposed advantages—the discoveries of science, the invention of printing with movable type, and "vos steamers." "What are your chemists, your engineers, compared with those who gave you fire, the plough, and metals?"

Any one is competent to judge for himself of the worth of such diatribes. Think for a moment of "vos steamers"—as he calls them. The one simple fact of facilitated intercourse is pregnant with consequences impossible to overrate. Can it be doubted that in course of time,—at no distant period,—mankind in every part of the globe will recognise the community of its interests? Sheer utilitarian considerations alone must eventually unite the race in one human family. Can any one suppose that civilised nations will go on for ever wasting their substance in monster armies and navies, risking freedom, sacrificing their best energies, endangering their autonomy and life itself, for the purpose of destroying their fellow-creatures? Think of the wealth thus shamefully flung away; and reflect on the incalculable good that might be done with these fruits of laborious industry. One need

not live in Utopia to foresee with certainty,—despite the envy, hatred, and selfishness, which may still persist, — that the free communication and direct intercourse between all the peoples of the earth, rendered possible by electricity, steamers, and railroads, must, through mere self-interested motives, lead to that greater contentment which the pessimist refuses to believe in.

Hartmann, taking his cue from Schopenhauer, repeats that "Manufactures, steamboats, railways, and telegraphs have achieved nothing positive for the happiness of mankind. They have only lessened a part of the obstacles by which man was heretofore hemmed in and oppressed." He goes so far as to disparage the advance of medical science; disease, he declares, increases "in a more rapid progression" than its remedies.

One not infrequently hears people who are no pessimists express doubts as to the future benefits of remedial science. Does it not promote the survival of the unfittest, and tend to visit the taints of the parents upon the children to the third and fourth generation? In reply to this misgiving we may ask: Will mitigation or eradication of the causes of ill-health not benefit the entire race? Do epidemics spare the nobler specimens of humanity? Is not cultivated genius often swept away in its prime by the same malady which afflicts the sickly in every grade? If the advancement in biology, chemistry, pathology, retard the general improvement of the race, then all the rules of sanitation must equally do

so. Let sewage impregnate our springs, and food be polluted; abolish ventilation and every artificial mode of preserving health; for these things help to prolong the lives of the diseased as well as those of sound constitution.

Listen to the words of an eminent living scientist: "Within the past few years the knowledge of the causes of disease has become so far advanced that it is a matter of practical certainty that by the unstinted application of known methods of investigation, and consequent controlling action, all epidemic disease could be abolished within a period so short as fifty years." (Sir E. Ray Lankester, *The Kingdom of Man.*) Can it be questionable that congenital diseases would share the fate of epidemics? And would not this compensate for any supposed harm done by prolonging the life and alleviating the sufferings of the sick? No, we need not trouble ourselves about the dangers of medical science; we may rest assured that its progress, like that of every branch of knowledge, will be nothing but beneficial to the race.

There is one serious danger in neglecting it which as yet we pay very little heed to. I refer to imprudent marriages. "It is more than probable," says E. Ray Lankester, "that humanity will submit to a restriction by the community to the right to multiply . . . with as good a grace as it has given up the right to murder and to steal." It is not only the right to multiply that needs the protest of public opinion; it is the baneful consequence of promiscuous marriage. The principle of heredity is as familiar to

every breeder of stock as to the professed physicist; yet the young man and the young woman marry without a thought of congenital diseases or hereditary taints of any kind. The only exception is an occasional objection by parents to a family in which lunacy has been strongly exhibited. But what lover ever inquires about the temper or physical constitution of the family into which he or she hopes to marry?

The time will surely come when some smattering of physiology will be an enforced part of ordinary education; and when public opinion and individual knowledge will gradually conduce to as much precaution respecting the health and characteristics of a life-partner's lineage as is now usually taken for the means of subsistence. When this comes about, a more enlightened sexual selection is sure to follow. There is no one consideration so essential to the physical, and hence mental, improvement of the race as is this: there is not one so recklessly disregarded.

CHAPTER XXII

PROGRESS

In the *Fortnightly Review*, January 1908, there is an article by Mr. R. A. Wallace, remarkable in many ways, but especially pertinent to what Schopenhauer calls the "Chimera of Progress." Everything relating to this subject from the pen of such an authority demands respectful attention. There is, moreover, a charm in all Mr. Wallace's writings which attracts us even when we fail to follow implicitly his deductions from assumed knowledge to debatable conjecture. The conclusions set forth in this article seem to me untenable for reasons presently to be submitted.

It is hardly necessary to say that Progress depends upon Heredity. The Problem of Heredity is a vexed question. Volumes have been written on the subject, and it would be quite beyond our range to do more than notice such features of the controversy as bear directly upon Progress itself, and indirectly upon Religion.

Roundly speaking, a line of cleavage parts the two illustrious propounders of Evolution. Darwin

advocated the doctrine that all the mental, no less than physical, qualities of man are products of Evolution. Mr. Wallace, while accepting this account of man's physical development, denies its adequacy as an explanation of man's psychic attributes. According to him the human mind has no earthly prototype. Here is the question he sets himself to answer: "Is there any evidence of progressive improvement in character?" "Though it is admitted that man has arisen from a lower animal form, we have still to inquire whether his whole intellectual, aesthetic, and moral nature has been produced by the action of the very same laws and processes as led to the development of animal forms and animal natures. Does variation and survival of the fittest explain man's mind as well as his body? Does he differ from the lower animals in degree only, or is there an essential difference in his mental nature?" Mr. Wallace believes in the essential difference, and is confident that "the higher mental or spiritual nature of man is not the mere animal nature advanced through survival of the fittest." (*Loc. cit.* p. 22.)

That man's rise above his fellow-animals was due to his "mental superiority" is indisputable. But whence the superiority? This is what especially concerns us. If man's mental nature has not been produced by the ordinary laws of evolution, he must have been exceptionally endowed upon his first appearance in the world. This, so it seems to me, would militate against man's indefinite advance in the future, and is incompatible with his immense

progress in the past. It is somewhat surprising to be told that the superiority "was perhaps as great fundamentally in paleolithic man as it is now." (P. 15.) The advance of civilisation, the works of genius in all directions are misleading. "The general idea that our enormous advances in science, and command over nature, serve as demonstrations of our mental superiority to men of earlier ages, is totally unfounded. . . . We find in the higher Pacific types men who, though savages as regards material progress, are yet generally admitted to be physically, intellectually, and morally our equals, if not our superiors." (P. 21.) "That a people without metals and without written language, who could, therefore, leave few imperishable remains, may yet possess an intellect and moral character fully equal (some observers think superior) to our own is demonstrated in the case of the Samoans and some other tribes of the Pacific." (P. 17.) "As Mr. Archdall Reid well argues, if a potential Newton or Darwin were occasionally born among savages, how could his faculties manifest themselves in that forbidding environment?"

But if primitive man was as highly gifted as he is now, what hindered his "continuous advance" for such enormous periods? How is it that although "his higher faculties did not become atrophied by disease, as would physical characters under similar conditions, . . . they appear to have persisted undiminished in power . . . ready to blaze out in a Homer or Socrates, a Pyramid designer, . . . a

Buddha, an Archimedes, or a Shakespeare?" (P. 20.) My answer is, that while the demands upon his physical energies, and upon such faculties as he possessed in common with the lower animals, brought him up to the then existing standard of his requirements; the absence of any "selecting agency" kept him, in prehistoric times, as it still keeps the savage, on a level a little above the brutes.

The mainspring of natural selection is utility; and, as Mr. Wallace ingenuously observes, "It is by no means easy to see how natural selection alone, which can only produce modifications in accordance with an animal's needs . . . could have led to that mental superiority which at once placed man so far above all other animals, and have endowed him with such capacities for advancement as he actually possesses." (P. 21.) The "mental superiority" implied is a pure assumption.

Before going farther, let us examine the above statements. In the first place, we seek in vain for any shadow of proof that prehistoric man was in any sense whatever the equal of his civilised successor. Mr. Wallace points to the Aryans of Northern India, the builders of the great pyramid, the Romans and the Greeks; but what are 5000 or 10,000 years in an estimate of this kind? We might as well compare the Elizabethan era with the Victorian to show that in the course of three or four centuries there has been no advance in dramatic genius. The vast remoteness of the Stone Age is quite another affair. Yet, because the Greeks and Romans were our equals,

it is asserted,—solely on the absence of evidence to disprove it,—that primordial man was also intrinsically on a par with us.

The following passage seems strangely illogical: "The undoubted absence of any selective power of 'survival value' adequate to the evolution of the higher intellectual, aesthetic, and moral faculties, indicates that the very earliest men of whose existence we have certain knowledge must have possessed these faculties." (Pp. 21, 22.) It is impossible to imagine any state in which continuous advance in intellectual power would not be of "survival value" to man. The undoubted absence of any power of survival value was neither more nor less than the absence of intelligence. So that the only translation of the words quoted is—the absence of the intellectual and moral faculties indicates that the very earliest men must have possessed these faculties. We might as well say that Mars must be inhabited by beings who can see our cities with their naked eyes, because we have no proof to the contrary; or rather, that the absence of eyes is a proof of sight. Surely Mr. Wallace's words convey a perversion of his meaning.

It is quite clear, however, that he believes the very first man was equipped with all the faculties which the highest civilised races now possess; and that the only reason why these faculties were dormant for hundreds of thousands of years is that there was nothing to call forth their activity or preserve it if elicited.

When Mr. Wallace says, "It is by no means easy

to see how natural selection alone, which can only produce modifications, could have led to mental superiority," the word "produce" is obviously inappropriate, though frequently used as it is here. Natural selection, of course, produces nothing; it merely selects from the various products. The question of moment is—What is the productive power? This brings us face to face with the great problem of Heredity.

The Darwinian theory of Man's Descent is, that his progress in evolution is due to natural selection of such variations as were advantageous to him in his struggle for existence; *i.e.* in the adaptation to his environment. What, then, is it that produces variation? Here we have another cleavage; this time amongst the Darwinians themselves. Spencer strenuously contended that evolution could not be explained without allowing for transmission of acquired changes. Such illustrious zoologists as Virchow, Haeckel, and Francis Darwin, with others scarcely less notable, champion the same opinion. The opposite side under the distinguished leadership of Weismann, including Sir Ray Lankester, Sir Francis Galton, Mr. Archdall Reid, Mr. J. A. Thomson, and not a few living biologists, look upon the Lamarckian principle, and whatever savours of it, as false and obsolete. So much depends on the issues of the dispute that the arguments of both factions will have to be attentively survised.

Meanwhile, we must go back to Mr. Wallace's proposition, that there was nothing in the countless

ages which introduced civilisation, to call forth man's higher faculties. Surely this is far more difficult to credit than that there has been no essential difference between the process of man's development and that of the lower animals. Variation and Natural Selection, which are in accordance with the universal law of continuity, amply account for everything. Mr. Wallace explicitly admits that man "has arisen from a lower animal form." Why, then, ask for an exceptional cause of his superiority? The infraction of continuity would in no wise strengthen the hypothesis of design. To say that, amongst the very earliest of Simian-men, potential Homers and Shakespeares may have existed; and that the only reason why they left us no *Iliads* or *Hamlets* is, first, because they could not write, and secondly, because of their "forbidding environment," is like saying that the almond is a potential peach, and the lizard a potential ostrich; but that almonds and lizards did not become peaches and ostriches until their environment favoured the change. There is nothing adduced to show that man is an exception to the rule. It merely asserts that organisms depend on adaptation to the conditions of their existence. Given a permanent change in these conditions, and we get, through variation preserved by selection, a corresponding change in Species.

It is almost presumptuous in a mere "outsider" to differ from Mr. Wallace upon a subject with which he is pre-eminently conversant; yet when in support of his views he refers to the Pacific Islanders, the

Papuans, and the Australians, as examples of savages intellectually and morally our equals, one cannot reconcile so favourable an opinion with facts which are beyond dispute.

Referring to Mr. Wallace's description elsewhere of the Papuans, Dr. Tylor writes: "It is remarked as to these very Papuans, that Europeans, whose intercourse with them has been hostile, become so impressed with the wild-beast-like cunning of their attacks as hardly to believe in their having feelings in common with civilised man." (*Primitive Culture*, vol. i. p. 30.) "The lowest savages have not even the ideas of justice or mercy; they have neither words for them nor can they be made to conceive them. . . . Savages delight in giving pain rather than pleasure — are almost devoid of sympathy." (*Ibid.*) "Language," says Haeckel, "the chief characteristic of genuine man, has, with them (Polynesians, Bushmen, Hottentots, and some of the negro tribes), remained at the lowest stage of development, and hence also their formation of ideas has remained at a low stage. Many of these wild tribes have not even a name for animal, plant, colour. . . . In many of their languages there are numerals only for 1, 2, and 3. In no Australian language beyond 4. . . . They have barely risen above the lowest stage of transition from man-like ape to ape-like man." (*History of Creation*, vol. ii. p. 364.)

As for the moral nature of the savage, take an example of it as related by Darwin in his *Voyage of the "Beagle"*: "Was a more barbarous deed ever

perpetrated than that witnessed on the west coast of Tierra del Fuego by Byron, who saw a wretched mother pick up her bleeding, dying infant boy, whom her husband had mercilessly dashed on the stones for dropping a basket of sea-eggs?" (P. 216.) Again: "It is certainly true that when pressed in winter they kill and devour their old women before they will kill their dogs." (P. 214.) Of their language he says: "It scarcely deserves to be called articulate."

In 1849 I passed through the then unexplored country of the Root-diggers, between the Flatheads and Snake Indians, near the south fork of the Columbia River. This tribe, when the winters were severe, killed and ate their own children. Turning to the southern hemisphere, I have listened to Bushmen whose only vocal communications were by clicks of the tongue against the palate, or by shouts and shrieks very like the noises and cries of monkeys and parrots, which re-echo through the tropical jungles.

We know what the condition of primitive man must have been. His first "rise" was in becoming carnivorous; to which he was probably driven by dearth of vegetable aliment. He killed other animals for food, and clothed himself with their skins. For an incalculable length of time, his environment remaining suitable, his progress would be almost stagnant.

Slowly geographical changes took place; and with them, changes of climate and of all the conditions of life. The increase of his species, with its concomitant competition for sustenance, would bring

evolution into play; every advantageous variation would be selected by Nature; and heredity would do the rest.

Spencer has noticed that development of intellect was mainly due to tactual and prehensile abilities. The elephant is the most intelligent of quadrupeds, the anthropoid apes of quadrumana, the parrot of birds, the ant, with its forceps, of insects. So, likewise, man's intelligence would have grown with his ability to meet the demands of his manual dexterity. Doubtless, the more frequent use of his hands was mainly conducive to his erect form. He learnt to use, then to copy, split flints; and fasten them or sharp splintered bones, with the sinews of his prey, to clubs or poles, for war and the chase. Regard to safety would teach him to congregate with his kin; and the maternal instinct, common to all animals, would account for coherence and division of labour in the family. Utilitarian considerations would thus give birth to sympathetic alliances, if not to unselfish altruism; and these simple beginnings would naturally develop into ethical systems, according as each race determined its notions of right and wrong.

The necessity of intercourse must have led to intelligible sounds. The poverty of these, as above instanced, shows an absence of ideas uncalled for by the barest needs of life and its preservation. As such interests increased, so also would the complexities of speech; and the improved powers of communication would inevitably result in the extension of intelligence.

It is safe to assert that with the growth of language there must have been a growth of brain. The increased functional power must have produced—well, let us say, until we have examined the question of heredity,—must have been accompanied by a greater complexity of structural power. Whether the demands on the intellect led to a higher cerebral development, or whether the better brain was a product of spontaneous variation, and consequently the cause of the better intellect, does not affect Mr. Wallace's doctrine. Either supposition is antagonistic to his opinion that man's brain was, from the first, fundamentally as good as it is now.

Apart from *a priori* grounds for rejecting belief in the exceptional creation of the human species, late discoveries of fossil remains are unequivocal proofs of a closer morphological relation between man and the apes, than had hitherto been met with. The skull found in Java by M. Dubois is distinctly that of an animal intermediate between the anthropoid apes and man. The skull dug up in 1908 by Kloatsch and Hauser in a grotto at Le Moustier—supposed by capable judges to be 400,000 years old,—is equally remarkable as an intercalary type. To the first of these two, M. Dubois gave the name of Pithecanthropus; the latter is placed by Professor Schwalbe nearer in order to present man; he consequently calls it a skull of the *Homo primigenius*.

Whatever may be thought of these remnants, we have more positive proof of man's lineal descent from lower animals than any bones could give us, in

his genetic history as recorded by the successive changes in the human embryo. If the rudimentary gills are not inheritances of a water-breathing ancestor, then the transformation of the fore-limb of the whale into fins, and the abortion of its hind-limbs, are not evidence that the progenitors of the mammal fish must have lived on land. With such data enabling us to trace our progressive descent step by step, Mr. Wallace's hypothesis of a spiritual leap seems to be gratuitous. I am also utterly unable to share his creed that "the final law and purpose of the whole universe was the development of so marvellous a being (as man) who has been deemed 'a little lower than the Angels,' and 'in apprehension, a God.'" I believe in the indefinite advance of human nature; but the belief is based on a conviction that man has, and always has been, subject to the laws of evolution, exactly as other beings are. The past is a guarantee for the future. I accept unreservedly the reasoning of Spencer, which concludes with these encouraging words: "The modifications mankind have undergone, and are still undergoing, result from a law underlying the whole organic creation; and, provided the human race continues and the constitution of things remains the same, those modifications must end in completeness. As surely as . . . *so* surely must the human faculties be moulded into complete fitness for the social state; so surely must the things we call evil and immorality disappear; so surely must man become perfect." (*Social Statics*, ch. ii.)

Mr. Wallace asserts that "there has been no general advance of character," save in the skill with which man uses the faculties he was furnished with from the very first. In other words, though born of an anthropoid ape, he left the simian womb with spiritual endowments of so high an order that they do not admit of advancement in kind. I would rather believe, for the sake of his future, that his faculties have been, and will be, subject to the economic law of demand and supply; that they are called into existence by the more and more complicated conditions of life; a complication which his growing faculties will themselves tend to augment. If an instrument itself be destined to remain for ever the same, the work it does must be limited to its possible uses. Chronometers could never be made with flint implements.

CHAPTER XXIII

PROGRESS—(*continued*)

We will leave the fuller discussion of man's descent for the moment, to say a parenthetic word concerning its relation to the accepted dogma of every genuine pessimist, that "all progress is evil."

The statistics of Sir Francis Galton are so startling and so terrible, that the gloomy-minded may well be excused if they overlook the good results of heredity, which more than counterbalance the bad. If such transmissions of parental qualities as Sir Francis records in the case of the Jukes family, where crimes and vices have been persistently inherited for three generations, were only on the side of evil, it would be hard indeed for the believer in a beneficent Deity to find any apologetic plea, save that propounded as the explanation of all evil; but it is only through heredity that genetic advancement is secured. The preservation of betterment is a stepping-stone to further improvement. It is impossible to think of any other method, reducible to a natural law, by which advantageous progress could be handed down. The maladies transmitted are almost exclusively limited to individuals. The good effects extend to

the race. And as I shall by and by endeavour to show, despite Sir Francis Galton's belief in our present deterioration, heredity and advancement go hand in hand.

"The most civilised people," says Caro, in his exposition of Leopardi's opinions, "are the most unhappy . . . the misery of men and of nations develops in proportion to their brain. The more perfect the nervous system, the more delicate the instruments, the more susceptible are the organs to feel the evil, to aggravate its intensity, to eternalise it —*pour l'éternaliser*—by prevision and remembrance. All that man adds to his sensibility and to his intelligence is an addition to his sufferings."

Here again we must discount this by allowance for the individuality of the writer. The sensibility of the unhappy Leopardi may certainly be called morbid; yet what Dr. Richet states is doubtless the case: "La douleur est une fonction intellectuelle, d'autant plus parfaite que l'intelligence est plus développée." The degree of suffering largely depends on the degree of intelligence. This, however, cuts both ways. We must bear in mind that if sensibility increases with civilisation, it diminishes as we descend the scale of sentient beings. That the lower animals should suffer at all is, and remains, an irrefragable evil: still, it is some comfort, however slight, to feel assured that, as self-consciousness and brain activity diminish, suffering diminishes proportionately. It is well known that the Negroid and Mongoloid races endure, with comparative apathy, operations which would acutely

torture Europeans. If such marked difference obtains between the higher and lower races of man, how incomparably greater must it be between man and the most intelligent ape; and again between warm-blooded animals and reptiles, between vertebrates and invertebrates.

There is another consideration which may be alluded to incidentally as helping to lessen our horror of animal suffering; it is that the absence of prevision and recollection are inestimable advantages to the animal world. When we think of an antelope struck down by a lion we transfer to the antelope our imaginations, our ideas of what our terror and our agony would be were a lion suddenly to spring upon us. This is doubly delusive. The animal's instinctive struggle for life would countervail all else. There would probably be no consciousness of physical suffering. Dr. Livingstone relates how, when unexpectedly attacked by a lion, he knew neither fear nor pain, although his arm was crushed by the lion's jaws. (With apologies) I can confirm this statement by personal experience. A couple of years ago I was run over by a hansom cab going at full speed. I did not see it till the horse's collar struck me on the head. I got a broken rib and was cut to the bone just over the eye. I was flung clear of the wheel by the force of the blow. I lay on my back till picked up, perfectly cognisant of what had happened, and even of the blood that blinded me, but without the slightest pain, or even discomfort. As to fear, there was, of course, no time for it. The soldier in the midst of a maddening

fight, though aware of his danger, is unaware of his wounds. Fancy grossly exaggerates the horror of death when sudden. The prayer in the Litany notwithstanding, sudden death is the most desirable of ends. The writhing of the worm, when cut in two by a spade, is due mainly, if not wholly, to reflex action; just as are the struggles or groans of the human subject when operated upon under anaesthetics.

"If," says Schopenhauer, "we would ascertain whether pleasure outweighs pain, we have but to compare the sensations of the beast that devours with those of the beast devoured." As shown in the case of the lions, the devourer has not always the best of it. Nor would it be reasonable to regard the antelope's life as a state of mere hebetude—a state destitute of pleasure, because the only amenities of its existence were health, freedom, and abundant grass. See how animals romp and frisk for joy; look at the colts in a pasture; look at the lambs at play—puppies, kittens, and every young thing, wild or tame. Listen to the woods in spring throbbing with jubilant melody. I have watched fish even, darting about in a clear pool, chasing one another in wanton superfluity of life's delight. All nature has its optimistic seasons. Who shall say where happiness begins, or—what may be its ending?

That pain is intensified by brain development, and that the man of genius suffers more than the dullard, may be admitted. But shall we pity the man of genius, with the rapture which his art, his science, his creative powers are wont to yield him?

What countless resources the superior intellect possesses over the inferior for self-forgetfulness,—the first thing needful to happiness,—to say nothing of the acquired discipline which meets misfortune with resignation. Is it not contradictory to think despairingly of Progress because it is Progress? Let it be granted that Progress implies the recognition of every source of evil. Is not this the necessary step to the discovery of means to combat and subdue the evil? Take the simple example of the knowledge and observance of the laws of heredity; instead of voluntary extinction of the human species, or the abominations of the Skopsy sect, or the chimerical and morbid fantasies of a Weininger, see what lasting benefits heredity confers on man as well as beast. That which in their blindness may appear to some a curse, is in verity a blessing. Instead of imputing to God the perpetuation of Evil, we have in heredity a law of nature which conquers evil, and perpetuates Good.

Mere existence is a sufficient answer to Pessimism. The predominance of evil must have resulted in disorganisation, or rather no systematic world could ever have come into being. As Sir Oliver Lodge puts it: "Given existence of a non-stagnant kind, and ultimate expansion or development must be its law." (*The Substance of Faith.*) So, too, Renan: "Un monde, où le mal l'emporterait sur le bien, serait un monde qui n'existerait pas, ou qui disparaîtrait." (*Feuilles détachées*, p. 387.) The prevalence of good over evil, which thus becomes

demonstrable, means, in a world of incessant change, *progressive* Good; and this in turn means that imperfection, or evil, is good in the making.

The fact of progress lends a strong support to the argument from design,—is indeed an essential part of it. At the same time, it is another effective argument against the Omnipotence of the Deity. "It is not too much to say that every indication of design in the Kosmos is so much evidence against the Omnipotence of the Designer; for what is meant by Design? Contrivance; the adaptation of means to an end. But necessity for contrivance—the need of employing means—is a consequence of the limitation of power." (J. S. Mill, *Essays on Religion*, p. 177.) Still, if Design makes against the Omnipotence of God, it thereby relieves Him from the responsibility of evil, and is a cogent plea for His beneficence. If God created the material of the Universe, it follows that He created evil. The contrary supposition—that the material is eternal and had no Creator—favours the belief that a supremely benevolent Power is eternally guiding the forces—of which matter is the symbol—in the direction of perfect good. The idea of a Creator who remains inactive outside His work, is, moreover, too anthropomorphic to be thought of; while the eternal activity of a supreme Spirit of Good commands our love and adoration. If man is the outcome of the contrivance of such a Being, how admirably adapted he is to aid and profit by the great progressive scheme. Gifted with reason, and the power of controlling nature by

obeying her laws, his happiness must go on increasing as he advances in the moral scale.

Goodness is a relative term; if there is good there must be evil. Constituted as we are, we should not know happiness if we could not contrast it with unhappiness. If this world were perfect, there would, as Bagehot argues, be no motives for action of any kind; there would be no wants to gratify. Even Diderot, the professed atheist, declares: "Si tout ici-bas était excellent, il n'y aurait rien d'excellent." Though Evil cannot be willed by the Deity as a schooling for virtue,—as is often contended,—the fact that we are endowed with capacities for converting it into Good, is a notable indication of the beneficence of that Power to which we owe those capacities.

No theocratic interference with Nature on man's behalf is the atheist's vindication; yet is not man always interfering with and controlling Nature on his own behalf? What if his intelligence be God's gift —be a spark of the Infinite; would not this be the interference which we are too blind to recognise? May it not be a part of the Divine scheme to enable man, and teach him, thus to work out his own elevation?

If it be objected that some of us have very limited endowments, such, *ex hypothesi*, only suffer in proportion. If, again, some misuse their abilities, how could this be otherwise if we are not automata, and have any modicum of freedom at all? Fatalists deny freedom *toto caelo*; but they do not deny

reasoning power in the sane; and if we were entrusted with no other capacity, is the Giver of this one to be blamed because the gift is abused?

As the world is ordered, everything has to adapt itself, or be adapted, to the conditions of its existence. With sensitive and intelligent beings this is furthered by their own efforts. To ephemera such as we are, the process seems lamentably slow; man seems to require a long course of training—training which entails severe unremitted discipline. It is true to a certain extent, as Huxley observes, that it is not "a word and a blow," but quite as frequently the blow first. Yet how often is the blow first a consequence of what is called "tempting Providence." Take the typical cases of earthquakes and volcanic eruptions, when whole cities are swallowed up or destroyed; how wantonly cruel, or heedless, Providence appears to be! Yet, is not the "word" here given before the "blow"? Science warns us in vain of the frequency of such disturbances in certain quarters of the globe. Large towns and villages are always rebuilt upon the very spots subject to such catastrophes—Lisbon, San Francisco, Messina. Still, as with all our experiences, the lessons they teach are neglected. It is ever the old story:

Passato il pericolo, gabbato il santo.

The great laws of progress know no rest. It is reasonably certain that these and other scourges such as the plague, the cholera, and epidemics generally, will in course of time be expunged from the list of

ills which so ruthlessly afflict us. Slowly yet surely are we being educated.

Why were we not born wise? Why our limitations, their necessary imperfections, and our consequent suffering? Why is a part not the whole? Why is this puny planet not the Universe? And why is that Universe not ruled as man would rule it? Shall we say there is no God because there is no answer to such idle questions? Perfection means absolute harmony with the All; and since any change would disturb such a state, its attainment would be Stagnation. This is the unconscious rest:

> From hope and fear set free

—the Nirvana of the Buddhist. Eternal progress from lower to higher, though it postulates imperfection, is assuredly preferable to some of us, and conforms more agreeably with the idea of Divine beneficence.

Apologists have striven by many expedients to save Church dogmas, and consort Evil with Omnipotence. "It would be no disproof of Benevolence in the Creator if pain in the creatures tended simply to perfection and not to happiness." "Physical evil may be a relative good which God can easily be conceived of as *causing and approving*." (Flint, *Theism*, p. 253.) The flagrant casuistry of this is at once transparent when we ask what imaginable good can pain be to the infant, the insane, or to dumb animals? To avoid danger is the usual plea. But could not instinct teach this without inflicting pain? The

mistake is to make God the Contriver and Approver of suffering; instead of making Him the Contriver of means to convert suffering into good.

The only other theory worth notice is that of Sir W. Hamilton and Dr. Mansell. Mansell admits that evil is repellent to our idea of goodness, but maintains that God's goodness must be different in kind to man's. Mill replies: "Language has no meaning for the words Just, Merciful, Benevolent, save that which we predicate of our fellow-creatures." It is one thing to refrain from the denial of God because our ignorance cannot fathom the existence of evil; quite another to deny that Evil is Evil, and bid us worship a Being who, although Omnipotent, "causes and approves it."

CHAPTER XXIV

HEREDITY

We may return to a closer consideration of the conflicting theories of Heredity. Its importance cannot be overestimated. There is no speculative question in the whole realm of Science that more intimately concerns the progress of man than the retention and transmission of his acquired advancement. Heredity is as inseparably connected with man's destiny as it is with his origin. "A right answer," says H. Spencer, "to the question whether acquired characters are or are not inherited, underlies right beliefs not only in Biology and Psychology, but also in Education, Ethics, and Politics."

It would occupy far too much space in a work of this kind to do more than sketch the outlines of a subject upon which so much has been written, and help the plain man to pick his way amidst subtleties which, if short of time, he might turn from in despair.

The first question before us is: What is the origin of species? We need go no farther back than Lamarck. His answer was that change of structure is due to use or disuse, and to the general effects of Environment. Long-continued efforts in a given direction gradually

modified, first the habits of a species, and then the organism of its individual members.

Mr. Wallace refuted this theory, in its crude form, by showing that similar results must be produced by the action of principles constantly at work in Nature. "The Giraffe did not acquire its long neck by desiring to reach the foliage of the more lofty shrubs and by constantly stretching its neck for the purpose, but because any variety which occurred among its antitypes with a longer neck than usual at once secured a free range of pasturing over the same ground as their shorter-necked companions, and on the first scarcity of food were thereby enabled to outlive them." (*On Natural Selection*, p. 42.) This is the principle of Natural Selection as first advocated by Wallace, independently of its enunciation by Darwin.

This simple theory of Evolution, to which Spencer afterwards gave the name of "Survival of the Fittest," was an immense advance on the archaic belief in special creation; but it was only the first page of a volume of puzzles, which are as yet a long way from solution. That the fittest should supplant the unfit is a self-evident proposition. But whence the fitness? Whence the adaptation? In Weismann's words: "How does it happen that the necessary beginnings of useful variation are always present? How could insects which have lived upon or among green leaves become all green, while those that live on bark become all brown? How have the desert animals become yellow and the Arctic animals white? Why were the necessary variations always present?"

Further,—and this is a no less cardinal point,—how is the adapted structure passed on by heredity to the descendants of those who have acquired it? Has environment or use and disuse no share in the permanent changes? Weismann is of opinion "that there is room for much doubt as to the co-operation of this (the Lamarckian) principle in evolution." The Neo-Darwinians emphatically reject the doctrine of use-inheritance. "Modifications acquired as a result of use and disuse," says Mr. Archdall Reid, "are clearly never transmitted." (*The Principle of Heredity*, p. 34.) To Spencer the contrary is equally clear: "Either there has been inheritance of acquired characters, or there has been no evolution." Haeckel is just as confident: "Transformative heredity—transmission of acquired characters—is one of the most important principles of evolutionary science. Unless we admit it, most of the facts of comparative anatomy and physiology are inexplicable." (*Darwin and Modern Science*, p. 139.) While Darwin, to whom the inadequacy of Natural Selection was patent long before Weismann and his followers insisted on it, writes to a friend: "If, as I must think, external conditions produce little direct effect, what the devil determines each particular variation." (*Life and Letters*, p. 32.) These are samples of the salient outworks of the impregnable enigma of heredity.

It is admitted that like tends to beget like. A barnacle begets a barnacle, not a goose. Yet no two barnacles are exactly similar, variation is a law of Nature. In dealing, then, with the Origin of Species,

the first question is: Whence the variation? We have heard what Lamarck, and Wallace, and Spencer, and Haeckel, and Mr. Reid have to say. Darwin's affections were long divided between the two doctrines. In his latter days, however, he confidently avowed that external influences must be regarded as puissant factors of persistent mutation. The Neo-Darwinians, unable to get over the difficulty of neutral insects, and rejecting the transmission of acquired habits as a cause of racial changes,—on the ground that the germ-cells are inaccessible to outward influences,—assume that all variations arise *spontaneously*, and that natural selection rejects such as are not beneficial to the race. Weismann, discrediting (somewhat half-heartedly) the action of environment on the germ-plasm, offers an account of variation which cannot be summarised without repetition to his own words.

Within the nucleus of the germ-cells Weismann supposes the existence of the minutest granules, which form the *germ-substance* or *germ-plasm.* These individual granules he calls "*ids.*" "Each 'id' contains the primary constituents of a whole individual. . . . In every being of a complex structure, thousands of primary constituents must go to make up a single id; these I call *determinants.* I mean by this name very small individual particles far below the limits of microscopic visibility. Vital units which feed, grow, and multiply by division." They vary in the course of their growth. "Their variations give rise to *corresponding* variations of the organ, cell, or cell-group,

which they determine." (*Darwin and Modern Science*, p. 36.)

As the statement is somewhat abstruse, let us try to read it deductively. Variations of the organ, cell, or cell-group result from variations of certain invisible and hypothetical particles. On these particles, which grow and multiply by division, depend the preponderance of any variation of an organ, cell, or cell-group; hence the variation of a species, which natural selection accepts or rejects; the particles are therefore called "determinants." These determinants exist by thousands in individual granules, which Weismann names "ids." The habitat of these ids or granules is the germ-plasm or nucleus of the germ-cells. Such is his explanation of "hereditary individual variation." Nutrition is the principal cause of the strength and prevalence of the determinant. (One is tempted to ask, by the way: is not nutrition an external influence?) If the variation happens to be a useful one, Nature forthwith selects it.

All this is highly ingenious; but we must not forget that the determinants are visible to the mind's eye only. Moreover, how does "the nutritive stream, which, according to our hypothesis, favours determinant N by chance . . . How does this stream affect determinants in other members of the species in exactly the same way?" Under any theory of variation, it would seem as if conditions which affect the whole species—conditions outside each individual —must be taken into account.

Supposing the above theory did explain individual variation, it does not account for its hereditary character. This is what we want to get at. Even in the ordinary process of generation, we are confronted with the difficulty of transmitted variation; but in the case of sterile animals the maze becomes inextricable. Weismann meets it thus: "There is one character of the determinants that greatly facilitates this complex process of selection, that after a certain limit has been reached they go on varying in the same direction." But the determinants, as we have seen, are purely conjectural entities which are themselves in need of explanation.

An analogous proposition of Weismann's is the "continuity of the germ-plasm." This supposes two distinct kinds of plasm, a persistent germ-plasm and a modifiable soma-plasm which develops into the organs and tissues of the body generally. As Weismann puts it: "In every development a portion of the specific germ-plasm, which the parental ovum contains, is unused in the upbuilding of the offspring's body, and is reserved unchanged to form the germ-cells of the next generation."

The continuity of the germ-cell is a clever invention to account for the heredity of a given type of organism; but it leaves us where we were with respect to transformative heredity. It does not explain how the unchanged reserve of germ-plasm transmits a newly acquired variation. Commenting on Weismann's theory, Haeckel says: "In its entirety it is a finely conceived molecular hypothesis, but is devoid

of empirical basis. The notion of the absolute and permanent independence of the germ-plasm, as distinguished from the soma-plasm, is purely speculative, as is also the theory of germinal selection." (*Darwin and Modern Science*, p. 40.) The germinal selection we shall speak of presently; for the rest, one cannot help comparing the "speculation" with that *Diabolus ex machina*, the "Will" of Schopenhauer and Hartmann. It is the elephant standing on the tortoise, and the tortoise upon ——?

Germinal selection is the last resource to overcome the sterility puzzle. There are many castes of ants. Each caste has its special functions. There are workers and non-workers; there are slave-making ants that can do nothing else for themselves. They cannot make their own nests, nor feed their own larvae. When they migrate the slaves carry them in their jaws. Another species of slave-makers carry their slaves in like manner. The captured slaves provide their masters with the sweet secretions of aphides. There are also soldier ants that fight for and defend the colony. Now the working ants, just like the working bees, are neutral; they cannot transmit their wonderful specialities, nor could they have acquired them, for they are distinct species, differing from birth in structure and in colour—some red, some black, some yellow. The soldier ant has enormous jaws and teeth, and is as big again as the little fellow who rears and milks the aphides. Yet the big soldier and the little milker are sterile.

Darwin declares that this "Special' difficulty at

first appeared to me insuperable, and actually fatal to my whole theory." Weismann's germinal selection, in spite of Haeckel's criticism, seems to offer a plausible, if not the only, solution. "There remains nothing for it," he says, "but to refer all their adaptations, positive and negative alike, to processes of selection which have taken place in the rudiments of the workers, within the egg and sperm-cells of the parents. There is no way out of the difficulty except the one Darwin pointed out. . . . It was only after it became clear to him that it was not the sterile insects themselves, but their parents that were selected, according as they produced more or less well-adapted workers, that he was able to refer to this very case of the conditions among ants in order to show the power of natural selection." (*Darwin and Modern Science*, p. 35.) Thus Weismann's germinal selection becomes a corollary of Darwin's parental selection; and at least vindicates the boldness of his speculations.

Obvious as it is that neither environment nor functional acquirements can have any direct action in the reproduction of neuter animals, this is no proof that Weismann and his school are justified in their rejection—absolute with some—of every tinge of Lamarckism. We want better evidence than we have for the postulate of the Neo-Darwinian, that the germ-cell is insensible to outward conditions. Mr. Archdall Reid's confident assertion that "it is now denied by the vast majority of biologists that modifications are ever inherited," involves the

assumption that outward influences do not reach the germ-cell. I am unable to speak for the majority, with the assurance of Mr. Reid, but it is certain that many of the most eminent biologists entirely disagree with him. And, as we shall see, Mr. Reid's logical consistency is often difficult to discover.

In his address to the British Association, 1901, Professor Cossar Ewart said: "There is a considerable amount of evidence in support of the view that changes in any part of the body or soma, which affect the general welfare, influence the germ-cells." "It is probable," says Professor De Vries, "that environment may play the chief part in the decisions ascribed to Natural Selection." (*Darwin and Modern Science*, p. 77.) Dr. Klebs, Professor of Botany in the University of Heidelberg, writes: "In all circumstances we may recognise as a guiding principle the assumption adopted by Lamarck, Darwin, and many others, that the inheritance of any one character, or in more general terms the transformation of one species into another, is, in the last instance, to be referred to a change in the environment. . . . The *internal* structure of a species must be essentially altered by external influences." "All these observations," and he cites many, "show that the action of environment certainly induces such *internal* changes, and that these are transmitted to the next generation." (*Darwin and Modern Science*, p. 242.) Dr. Jacques Loeb, Professor of Physiology in the University of California, succeeded in fertilising the eggs of Strongylocentrotus with the sperm of Mytilus. "We thus

see," he says, "that by increasing the alkalinity of the sea-water it is possible to effect heterogeneous hybridisations which are at present impossible in the natural environment of these animals." (*Ibid.* ix. 249.)

Haeckel relates how he visited Darwin at Down, and on three occasions discussed with him the main principles of his system. He found Darwin "just as convinced as Lamarck of the transmission of acquired characters. . . . On each occasion we were fully agreed as to the incalculable importance of what I call transformative inheritance." In his *Variation of Plants and Animals under Domestication* Darwin says: "Variability of every kind is directly or indirectly caused by changed conditions of life." So late as 1870 he writes: "In my opinion, the greatest error which I have committed has been not allowing sufficient weight to the direct action of the environment, *i.e.* food, climate, etc., independently of natural selection." (*Life and Letters*, vol. iii. p. 159.) It must be remembered that this avowal is the outcome of a lifelong investigation of the subject; and, so far from any predilection for the conclusion he had come to, his early bias was wholly the other way. He spoke of the Lamarckian doctrine as "nonsense," as "absurd." "I attribute very little to the direct action of climate." (*Ibid.* vol. ii. p. 82.)

It would be easy to add to this list of illustrious biologists who maintain that Lamarckism, however diluted, must be taken in conjunction with natural selection to account for the origin of species. Explain

heredity by what theory we may, the variations that make a new species must be traced back to the germ-cells. It follows, unless the above high authorities grossly err, that these particular variations are inward changes due to outward changes, that is, to environment. This, I think, will become more apparent as we examine the arguments of the other side.

CHAPTER XXV

HEREDITY—(*continued*)

As one of the voluminous writers on Heredity, we may give precedence to Mr. Archdall Reid. His first principle, which he lays down as axiomatic, is, "Only inborn traits are transmitted. Inborn traits, or characters, are those which take origin in the germ-plasm. Acquired characters do not take origin in the germ-plasm; they are modifications of inborn characters caused by the play of forces from the environment on those characters *after* (as a rule) they have developed from the germ-cell." (*The Principle of Heredity*, p. 7.)

A word or two at the outset to show the significance of these assertions, and in what perplexities they land us.

All transmitted qualities must be *inborn*. Just so; but, mind you, these inborn traits are the accumulated modifications of countless generations crystallised into persistent variations, which have finally taken "origin in the germ-plasm." How did they get there? How did the inborn become inborn, if the modifications which constitute them, and which were caused by the play of forces from the

environment, had no effect on the germ-cells? How could a species vary and become a new species, if acquired modifications did not thus become transmissible?

Mr. Reid is ready with his answer. Here is his theory of the origin of variations, upon which he builds his doctrine of Heredity: Variations are spontaneous: "they arise through the action of a highly advantageous tendency to vary in all directions about the specific mean." (*Ibid.* p. 165.) Natural selection then confers on the favoured variation the privilege of becoming inborn, and hence transmissible.

There can be little doubt that spontaneous variation has a considerable share in the genesis of heredity; but, that it proves the insusceptibility of the germ-cell, and adequately supplies the requisite material for natural selection to act upon, is not credible. Think for a moment of what is here meant by spontaneous variations within the germ-cell,—variations exactly suited to the external conditions, whatever these may be; ever following these conditions, precisely as an effect follows its cause. It will not do to say they follow, because nature selects them, out of a manifold group, to suit the change in conditions; the point is: they present themselves for choice before selection comes into play; and it is this presentation which follows the outward influences.

Think of the wonderful imitations, the adaptations to climate, the effects of artificial treatment, etc.

Is all this to be ascribed primarily to the spontaneity of the germ-cell, which is assumed to be inaccessible to outward forces? Sometimes Mr. Reid tells us that it is; sometimes he tells us that it is not. For instance, acclimatisation "is popularly supposed to result from the accumulation of acquired traits. It is now sufficiently clear that this is not the case. On the contrary, it is due solely to natural selection. We have already maintained that natural selection can only act when variations are *spontaneous*; that is, where they are not caused by the influence of the environment." (*Ibid.* p. 156.) "Environment acting on, or through the parent, has little or no effect on offspring subsequently born." (*Ibid.* p. 104.) And elsewhere, "From first to last, absolutely no evidence that demonstrates the alleged influence on the germ-plasm has been produced." In some shape his work is full of equivalent assertions.

Compare these passages with the following: "In the first chapter of this work we defined an acquired character as a modification of an inborn character. As a fact, however, all the inborn characters of the individual develop from the germ-cell *in response to stimuli applied to the germ from the environment*—fit and sufficient nutriment, a right degree of heat, moisture, conjugation with another germ-cell, and so forth." (*Ibid.* p. 248.) "The 'extensions' of 'inborn' characters which result from use, and we term 'acquirements,' however, are acquirements in a sense not more real than 'inborn' traits are acquirements. Both sets of traits are acquirements, since

both result from stimuli." (*Ibid.* p. 249.) In other words, "inborn" traits are, in the last analysis, "acquirements"; and since inborn traits are hereditary, their constituents—the acquired adaptations—are also transmitted. In short, as Mr. Reid himself justly concludes, "Logically, all characters are acquirements." (*Ibid.* p. 356.) This concedes everything I have contended for; but how reconcile it with the foregoing passages to the contrary effect?

One objection of Mr. Reid's to the transmission of acquired characters is forcible as far as it goes. "A high organism may make a million different acquirements,—in mind, brain, gland, muscle, bone, skin, every structure." We can hardly suppose that each one can "affect the germ-plasm . . . in such a very special and peculiar way that the extremely remote cell descendants of that germ will reproduce the change, not as an acquirement, but as something very different—as a variation." (*Ibid.* p. 23.) Instead, therefore, of such promiscuous transmission, Mr. Reid offers us the transmission of an ever-increasing power in the highest organism, such as man, of acquiring "fit modifications in response to appropriate stimuli." Well, that is true enough, yet we have to accept the unexplained fact that only such acquirements as have "selection value" find their way to the germ-cell.

But why all these far-fetched and subtle speculations? Why call spirits from the vasty depths of the germ-cell to champion its immaculate conception? If the influences of environment are

not omnipotent, are they therefore to be scoffed at as impotent? What do we really know of the genetic action that goes on in the germ-cell? What do we know of the mechanism of modification even, or how functional acquirements are converted into permanent variations? As Professor Klebs says: "In no single case are we acquainted with the internal process responsible for the production of a particular form. All possible factors may play a part, such as osmotic pressure, permeability of the protoplasm, the degree of concentration of the various chemical substances," etc. (*Darwin and Modern Science*, p. 228.)

The truth is, the history of the process of heredity cannot be written until our knowledge of cytology is far deeper than it is at present. Will it ever be intimate enough to satisfy our curiosity, or be exalted to the rank of an inductive science? For the time being, at any rate, the whole thing is beyond our powers of conception. All sorts of theories have been advanced, but one and all are mere guesses, which cannot be empirically tested. We have no faculties, no senses, that can in any way help us to the discovery. A child has a mole on its left cheek; its mother has a mole in exactly a like spot. What represents this in the germ-plasm? Darwin suggested Pangenesis—gemmules from all parts of the parental bodies collected in the germ-cell. Spencer believed in "constitutional or physiological units"—units endowed with special polarities, which cause them to combine in definite ways, as certain mole-

cules attract one another to form definite varieties in crystallization, just as birds of a feather flock together. Weismann, again, has his germ-cells, and his soma-cells, his ids, and his determinants. We may colour some contents of a cell and make them visible as chromosomes; but who will venture to impugn Professor Bateson's belief that "it is not (as asserted) the chromosomes alone that govern form, or are the sole agents responsible for heredity?" Who shall say what unthought-of, what unthinkable agents, may or may not be essential to the result? Ah! how fond Ignorance is of dogmatising!

It is generally admitted that variations begin with minute changes. The question arises, as Weismann puts it: "Whether the first beginnings, and whether small, I might say, minimal increments, which have led up from these beginnings to this perfect adaptation, have had . . . selection value?" His answer to this query is: "One can only reply: *we must assume so*, but we cannot prove it in any case." The italics are his own. So is it with the rest; assumption must fill the gap of ignorance. We must accept the facts, but account for them—not yet.

Before taking leave of the variation question, let me quote a passage from some valuable contributions to the subject by another distinguished Neo-Darwinian, Professor J. Arthur Thomson. "Even in higher animals we cannot think of the germ-cells as if they led a charmed life uninfluenced by any of the accidents and incidents in the daily life of the body, which is their nurse, though not exactly their parent. No one

believes this, Weismann least of all, for he finds one of the chief sources of germinal variation in the nutritive stimuli exerted on the germ-plasm by the varying state of the body. The organism is a unity; the blood and lymph and other body fluids form a common internal medium; various poisons may affect the whole system, *germ-cells included*, and there are real though dimly understood correlations between the reproductive system and the rest of the organism." (*Herbert Spencer*, p. 172.) Later on, when we come to the all-important problem of the future evolution and destiny of man,—to which our present inquiry is subservient,—we shall see the force of Mr. Thomson's words, and how antithetic they are to the views of Mr. Reid; although the two writers are, in the main, followers of Weismann.

Mr. Thomson sees the danger of the comment: "If acquired characters affect changes in nutrition, then acquired characters or their consequences will be inherited." This, he declares, is a quite illegitimate confusion. It is one thing, he says, to admit that "the germ-plasm has no charmed life," and quite another to admit the "transmissibility of a particular acquired character." "The whole point is this: does a change in the body, induced by use or disuse, or by a change in surroundings, influence the germ-plasm in such a specific or representative way that the offspring will exhibit the same modification which the parent acquired, or even a tendency towards it? Even when we fully recognise the unity of the organism . . . it is difficult to suggest any *modus*

operandi whereby a particular modification in, say, the brain or the thumb can specifically affect the germinal material in such a way that the modification or a tendency towards it becomes part of the inheritance." (*Ibid.* p. 173.)

Intelligible or not, if the germ-plasm is not insulated from bodily influences, and is affected by changes in nutrition in the body,—as Weismann and Mr. Thomson grant,—then those bodily changes or "acquired characters," having permeated the nucleus of the germ-cell, become inborn; and as such may be inherited. Darwin's suggested Pangenesis and Spencer's constitutional units may both be purely hypothetical explanations; but the inconceivability of the *modus operandi* is not a convincing argument. No illustration of this could be more admirable than that which Spencer uses in his own defence: "It is impossible to imagine how in a spermatozoon there can be conveyed 480,000 independent variables required for the construction of a single peacock's feather, each having a proclivity towards its proper place. Clearly the ultimate process by which inheritance is effected . . . passes comprehension."

CHAPTER XXVI

INSTINCT

WHAT are we to say of Instinct? Is it traceable to acquired habits—habits once intelligent, in however inchoate a degree, which have lapsed through repetition into automatic acts? Does it originate in reflex actions, which have become conscious, in the most attenuated sense of the word "conscious"? Has imitation anything to do with it? Or is there any rational account to be given of it at all?

While these questions are pending, no interpretation of instinct can be satisfactory. As a help to investigation, we may take a few definitions which cover the ground to be explored. Mr. Wallace defines it thus: "The performance by an animal of complex acts, absolutely without instruction or previously acquired knowledge." (*Natural Selection*, p. 204.) This precludes the principle of lapsing intelligence, which will be referred to in due course.

Another is from Romanes: "The most important point to observe in the first instance is that instinct involves *mental* operation; for this is the only point that serves to distinguish instinctive from reflex actions." (*Animal Intelligence.*) This postulates an

element of consciousness, but only sufficient to differentiate instinct proper from mere reflex movement. Romanes agrees with Wallace that true instinct "must be exhibited as independent of the animal's individual experience," and in no wise clashes with him in respect of the spice of intelligence.

A third, by Professor Lloyd Morgan, is in accordance with that of Romanes. Having discussed instinct in its reflex sense, he adds: "But the connecting-link between biological and psychological evolution is to be sought—as Darwin fully realised—in the phenomena of instinct, broadly considered. The term 'instinctive' has also a psychological connotation." (*Darwin and Modern Science*, p. 430.)

In his *Origin of Species*, Darwin writes: "I will not attempt any definition of Instinct." But amongst his MSS. Romanes found the following: "I believe that most instincts are the accumulated result, through natural selection, of slight and profitable modifications of other instincts, which modifications I look at as due to the causes which produce variations in corporeal structure. Indeed, I suppose that it will hardly be doubted when an instinctive action is transmitted by inheritance in some slightly modified form that this must be caused by some slight change in the organisation of the brain." (*Mental Evolution of Animals*, p. 264.) The concluding sentence, "caused by some slight change in the organisation of the brain," signifies that the transmission of the modified instinct is due to modified organic structure, which latter change is due, in turn, to environment.

If the modified instinct is affected by environment, its origin must be due to causes which produce variations in corporeal structure. This again refers the origin of instinct, if not exclusively to reflex action, at least to reflex action in combination with incipient consciousness. Quite incidentally we are involved in the old tangle of dualism. How does mere mechanical reaction become an adopted mental action? That way distraction lies.

I have said the above interpretation practically covers the ground we have to explore. By this I mean that our inquiry has a very limited range—limited to the kind of instinct which is either necessary or beneficial to the animal that exhibits it, or to that animal's offspring; further, that it is not due to imitation or instruction; and, finally, that it is innate and transmissible. This distinction can only be made approximately clear by citing illustrative instances of what the distinction includes, and what it excludes; approximately because, in its origin, it is impossible to decide where reflex action ends, and where the element of intelligence distinguishes it from mere stimulation and response.

Take first the kind of instincts which are imperfect and which should be set aside. When stumbling we put out our hands to save ourselves from a fall. We wink involuntarily to protect the eye from an insect or a blow. These and many similar acts, though called instinctive, are nothing but intelligent acts which have become automatic through repetition. They are not primarily innate; all that is here

hereditary is the power of acquiring the habit; their true origin must be sought in the origin of consciousness.

Under the same category are tricks with no profitable bearing,—peculiar movements of the features or limbs,—which have become involuntary. Romanes designates these as "non-intelligent habits of a non-adaptive character." Darwin gives a case observed by himself of a child, between four and five, having "a most peculiar trick of moving her fingers laterally with her hands placed on the side of her face; and her father had precisely the same trick. . . . In this instance there could not possibly have been any imitation." Tumbler pigeons and pouters are notable examples of useless habits or tricks that have become hereditary. That the tumblers' habits are inherited and not results of imitation is proved by Darwin's experiments. "I have bred young birds," he states, "which could not possibly have seen a tumbler in the air." Still, as acquired habits, they do not come within our pale. The only interest they have for us, while dealing with instinct proper, is, that the inheritance of these accidental habits proves that somatic modifications must have acted on the germ-plasm; they could not otherwise have become inborn.

Turn next to the kind of instinct which cannot be taught or learnt, and which is not purely reflex or a mere physical response to stimuli; but which is, in a sense, purposive—that is, necessary, or beneficial, or adapted, to the life of the animal or its offspring.

Amongst the common instances of this class are nest-building, incubation, the habits of the cuckoo, the spider and its web, the various functions of the ant, the dam-making of the beaver, and the provision of the hymenoptera for their larvae which they are never to see. This list will exhaust the space we can afford it.

It is evident, I think, that Wallace is right in rejecting some of the instincts in the above list, as not what they are assumed to be,—as not fulfilling the conditions which he prescribes. We cannot be certain that nests are built by birds without instruction or previously acquired knowledge. Nor is nidification so inexplicable as it might seem. As Wallace points out, each species of bird uses the materials most readily supplied by its habits. The wren, frequenting low thickets and hedgerows, generally builds with moss; rooks, which grub in fields and frequent lofty trees, use roots and twigs; the lark, building on the ground, makes its nest of grass lined with horsehair; kingfishers build with the bones of fish they have eaten; sandpipers lay their eggs on the sand; and so on. The nesting-place is chosen for the advantages of concealment. This is due, no doubt, to a true and innate instinct—the love of life, and self-preservation.

In all cases this principle goes hand in hand with the choice of material and locality, and is analogous in character to protective mimicry. For example, while fishing on a Scotch river, I nearly trod upon an oyster-catcher's nest, containing the usual four

eggs. The nest was nothing more than a slight cavity in the coarse shingle on the low bank of the river. The eggs are a yellowish stone-colour, spotted with grey and dark brown, so like the shingle in colour and size that, although I carefully took my bearings for the future, I always had some difficulty in finding the spot.

What Wallace says of the bee instinct applies to nest-building. "No one can say that bees build without instruction; no one can say that with every new swarm there are no bees older than those of the same year, who may be the teachers in forming the new comb." And, "After a fair consideration of the facts," he comes to the conclusion that birds' nests "are essentially imitation, and a slow and partial adaptation to new conditions." (*On Natural Selection*, p. 229.) As to the bees, Wallace's argument is unanswerable. And yet it is not quite convincing. Réaumur and Swanderdam assert that a young bee, as soon as its wings are dry, will collect honey and construct a cell as efficiently as the oldest inhabitant of the hive. Even if it be true that older bees instruct the new-born, the question is only pushed back to, Who taught the teachers?

A scientific exposition of the extraordinary feat accomplished by the hive-bee would but waste the general reader's time. We may content ourselves with Sidney Smith's humorous estimate of it: "It would take a senior wrangler of Cambridge ten hours a day for three years together, to know enough mathematics for the calculation of these problems,

with which not only every queen bee, but every undergraduate grub is acquainted the moment it is born."

Darwin, while speaking of the cell-making of the hive-bee as "the most wonderful of all known instincts," an instinct which mathematicians tell us has "practically solved a recondite problem," goes on to say: "But the difficulty is not nearly so great as it first appears; all this beautiful work can be shown, I think, to follow from a few simple instincts." (*Origin of Species*, chap. vii.) He then gives lengthy and elaborate details for its solution, the purport of which is that cell-building is the outcome of a gradually modified instinct, examples of which, in various stages, are still extant. Thus "the humble-bees at one end of the series . . . use their old cocoons to hold honey, sometimes adding to them short tubes of wax, and likewise making separate and very irregular cells of wax." Then we have the Mexican Melipona, which is intermediate in structure between the hive- and the humble-bee. "It forms a nearly regular waxen comb of cylindrical cells for hatching the young, and larger cells for holding honey. By such modifications of instincts, in themselves not very wonderful—hardly more wonderful than those which guide a bird to make its nest—I believe that the hive-bee has acquired, through natural selection, her inimitable architectural powers." (*Origin of Species*, chap. vii.)

Incubation may, perhaps, up to a certain point, be made intelligible. "It is quite impossible that

any animal can ever have kept its eggs warm with the intelligent purpose of hatching out their contents; so we can only suppose that the incubating instinct began by warm-blooded animals showing that kind of attention to their eggs which we find to be frequently shown by cold-blooded animals. Many cold-blooded animals, like crabs and spiders, carry about their eggs. . . . And if, as animals gradually become warm-blooded, some species . . . adopted a similar habit, the imparting of heat would have become incidental to the carrying about of the eggs." (Romanes, *ubi supra*, p. 177.) I would suggest as at least as probable a supposition, that the more primitive maternal instinct, which can be accounted for by natural selection, led to the concealment of the eggs by the parent sitting on them.

Either suggestion is, however, inadequate to explain some modes of egg-hatching. Romanes instances as "one of the most extraordinary cases on record" the Australian *Talegalla Lathami*. "This bird scrapes together a great pyramid, from two to four cart-loads in amount, of decaying vegetable matter, and in the middle it deposits its eggs. The eggs are hatched by the fermenting mass, . . . and the young birds scratch their way out of the mound." Another bird, the *Leipoa ocellata*, "makes a pile, 45 feet in circumference and 4 feet in height, of leaves thickly covered with sand, and in the same way leaves its eggs to be hatched by the heat of fermentation." Other species, also Australian —which, by the way, suggests imitation—"make

even a much larger mound." (*Mental Evolution of Animals*, p. 367.) Snakes, as we all know, lay their eggs in hot beds. As none of these animals could possibly calculate on the effects of heat, may not the simpler instinct of concealment have co-operated with natural selection in the evolution of the incubating instinct?

The slave-making of ants is thus accounted for by Darwin: "As ants, which are not slave-makers, will, as I have seen, carry off pupae of other species . . . it is possible that such pupae, originally stored as food, might become developed; and the foreign ants, thus unintentionally reared, would then follow their proper instincts, and do what work they could. If their presence proved useful to the species which had seized them, the habit of collecting pupae originally for food might by natural selection be strengthened and rendered permanent for the different purpose of raising slaves." (*Origin of Species*, chap. vii.)

For those to whom intelligent wonder is a delight, let them make acquaintance with that captivating, yet somewhat repulsive insect, the spider. The female savagely attacks and devours the male after pairing with him. Well, that is a matter of taste; and hymeneal rites are not always the prelude to enduring bliss. With arachnidial morality we are not concerned; but the internal mechanism and the instinctive qualities of the insect are astounding. The construction of the web seems to require almost as much skill as the bee-cell. The apparatus which furnishes the silken thread is more wonderful than

anything of the kind in the bee. These threads are fabricated from a glutinous fluid secreted in glandular depositories. Under the abdomen is a complex organ consisting of from four to six spinnerets. Each of the spinnerets is perforated with a thousand or more tiny orifices through which the secretion issues. These filaments, which are invisible, are so fine that many millions of them combined would go to the thickness of a human hair. By themselves they would be too feeble for their purpose; so, just as a rope consists of separate twisted strands, these imperceptible filaments cohere in a single thread. Reflect, in passing, that the gossamer spider is so small that it is lifted into the air by its own cobweb, and that others are no bigger than a grain of sand; yet they are fitted with this marvellous machinery, and have a brain into the bargain.

Next, for the construction of the web. The framework and marginal threads are first attached to the supports; they are doubled, and this enables them to bear the strain of the entire net; the radii or spokes of the wheel are then spun; finally these are connected, and the spaces between them geometrically filled in. When all is completed the spider builds a snug little chamber at a distance from, but conjoined with the web, in which she cosily lurks, till the struggling captive summons her to execution.

The mason-spider is differently gifted. Here is Kirby's description of some of its performances. Its domicile is a tube about three inches deep which it bores in clayey soil. The walls of the tube are

covered with a kind of mortar "which is as smooth as if a trowel had been passed over it. . . . Before this adroit workman lays it, she covers the coarse earthy plaster-work with some coarse web, upon which she glues her silken tapestry." The tube is closed with a very secure trap-door. It is framed of more than thirty alternate layers of earth and web. "If these layers of web are examined it will be seen that they all terminate in the hinge, so that the greater the volume of the door, the more powerful is the hinge." The greater also is the weight of the door, which causes it to shut more tightly.

Note, now, a beautiful piece of mechanical art. If we examine the circular margin of the door we find that it slopes inwards; so that it is not a transverse section of a cylinder, but of a cone,—that of a reversed cone, like a section of the lower end of a peg-top, "and on the other side the frame slopes outwards," like the mouth of a glass-stoppered bottle, "so that the door exactly applies to it. By this structure, when the door is closed, the tube is not distinguishable from the rest of the soil." The conical shape of the door makes it lighter and easier to open.

But there is yet one of the race that quite eclipses its fellow-species,—the water-spider. The description of it is in Garratt's *Marvels and Mysteries of Instinct.* "This species constructs a habitation as a winter retreat beneath the liquid element. The spider fabricates a chamber in the form of a diving-bell, which she fastens by webs to the leaves of water

plants, and its size is about half that of a pigeon's egg. It is like an oval cocoon and open at the bottom. Here she sits watching for her prey, and stores up a beautiful supply for the season, and then the bottom is closed. But before doing so it is necessary that the structure be filled with air, and the little insect performs this duty in a very remarkable and mysterious manner; for, swimming upon her back along the surface of the water, she continues to attach or attract to her abdomen a bubble of air, something like a soap-bubble, which closely adheres to her body as she descends down the stems of the plants, and, entering the dwelling below, the bubble of air she carries in displaces an equal mass of water; and she ascends for a second lading, repeating the process until her apartment is filled with the atmospheric element. All is then shut in, and her work is finished." What can this little creature know of pneumatics? By what process of acquired modifications did she graduate?

Intelligent as the habits of these spiders seem, blindly purposive as they really are, let me give an instance of the purely instinctive character of web-spinning. While meditating on a passage I had been reading, I had partly closed my book, when my attention was casually attracted by a very small spider busily engaged in the space between the leaves. I quietly opened the book wider so as to watch its operations. This interrupted them. After a brief pause the insect ran backwards and forwards as if exploring, till it reached the inner or bound edge of

the pages. It had been on a page on the right, which happened to be the lower side of the book. Having reached the binding, it ran rapidly along the top edge of the left page, which, as I held the book, overhung the other. Without hesitation it let itself down to the lower page, glued its film to the edge of this, and scuttled back by its invisible ladder. Having reached the upper page it ran along its edge and again dropped to the lower, thus making two perpendiculars for the framework of its web. After watching for some time I reopened my book and went on reading. The little creature vanished, and was forgotten. Presently it reappeared, fussing about as busily as before. I again partially closed the book, and the whole process was faithfully repeated. A third time the same experiment produced the same results. Now it is clear that the mere stimulus of situation—the triangular space—impelled the animal to obey its web-making instinct. I give this as a typical case of instinct proper, in which an animal pursues a purposive or profitable end, without consciousness of its purpose.

Wonderful as these spiders are, the habits of insects which provide, not for themselves, but for unborn larvae they never will see in the larval state, seem still more so. We have only room for a single example—the solitary or mason wasp. The egg is deposited in a hole bored by the parent in stiffish soil. The food of the larva is a small green caterpillar. With a definite number of these, always about eleven or twelve (the wasp, you see, can count

better than the New Zealander), the mother packs the hole. The number must be regulated to suit exactly the needs of the larva till it reaches the pupal stage. But the climax is not reached; the caterpillars must be alive, and kept alive, otherwise they would rot and kill the grub. Mother wasp therefore chooses tough old caterpillars that will stand the test. The grub must not be permitted to take a bite here and a bite there, which it would do if the caterpillars were packed anyhow, for some of the victims would die before their turn and putrefy the lot. Artful mother wasp provides for this contingency; she curls them up, and packs them as neatly as herrings in a cask, or figs in a drum, so that the bottom caterpillar must be consumed before the one above it is got at. Can we have a more striking instance of that blind intelligence which we call instinct?

Buffon somewhat disparages the admiration one is apt to bestow upon the cell-building of bees and the instincts of other insects. He ascribes their apparent intelligence to the combination of numbers, and their obligatory social order. "C'est la morale, c'est la théologie des insectes que je ne puis entendre prêcher." "Which of the two, in effect, has the grandest idea of the Supreme Being, he who sees in Him the Creator of the Universe, the Founder of Nature upon perpetual and invariable laws, or he who seeks and would find Him attentive to conduct a republic of flies—*des mouches*—and much occupied with the manner in which the wings of a beetle

should be folded?" (*Les Abeilles.*) With becoming respect for so great a man, this comment upon instinct reads like misplaced indignation. Certainly it is not upon the instincts that we should bestow our admiration, as we do upon an intellect such as Buffon's; but if he means that the instincts of the water-spider, or of the solitary wasp, are less indicative in their way of a Supreme Being than the vaster domain of Nature, or the infinite magnitude of the universe, I am unable to share *his* "*théologie.*"

To man, with his very limited range, the Great is always more impressive than the Small. The celestial firmament, with its infinite proportions, staggers imagination with religious awe; but the infinitely Small is inappreciable, and leads if followed to sheer nothingness. All that is Great is associated with power: we bow before it with humility. Whatever is small we can put our foot upon, if we choose. But, can anything in Nature be more wonderful than the blind prevision, or vicarious sagacity, of the two last-named insects? Is this the result of Chance? Of spontaneous variation, and otherwise unaided natural selection? If so, Chance and Spontaneity must be marvellously astute agents. For my part, I would almost as readily believe in special creation. Believing, however, as I do, that ants, "*mouches,*" the folding of a beetle's wings, myself even,—nay, all matter and mind, must be traced back to that mysterious and unthinkable entity, the magic atom, —the infinitely Small, quite as much as the infinitely Great, compels me to believe in an Unknowable

Cause of all causes, and a First Mover of all move ments.

It would fill a big volume to deal commensurately with this fascinating subject; and perhaps enough has been said to show its important bearing upon our leading motive; but there are still two cases of instinct which are well worth our while, if only for curiosity's sake, briefly to glance at. I refer to the beaver, and the cuckoo. The cuckoo is a familiar acquaintance; we all love her voice as a harbinger of returning summer, and an associate of rural scenes. The beaver, alas! is threatened with extinction for the sake of its valuable fur. Its habits are rarely accessible to the observation of the naturalist; we must refer to bygone authorities for the most reliable descriptions of them. In addition also to growing scarcity, their natural instincts are completely changed. According to Professor Moseley, who describes what he saw of the animal in Oregon: "What few beavers that remain are too constantly liable to interruption to be able to construct dams. . . . They thus live a vagrant life about the streams."

Probably Buffon's account would be as accurate as any to be met with. The beavers, he tells us, assemble at the water's side in June or July, to the number of from 200 to 300; it is only in rivers, not in still waters that dams are needed. They make an embankment from shore to shore; sometimes from 80 to 100 feet in length, and from 10 to 12 feet wide at its base. This construction seems enormous for

animals of their size; but the solidity with which the work is done is more astonishing than its greatness. The site of the dyke is usually in shallow water. If there happens to be a large tree on the bank that would fall into the water, they begin by felling it for the base of the construction. This tree is often thicker than the body of a man. They gnaw it through with their teeth, and make it fall *in any direction they please.* They then gnaw off the branches to make it lie level.

While some are thus employed, others fell smaller trees, and cut them into suitable lengths for posts. These they convey to the water's edge and float down to the dyke, where they form a pile which is strengthened by interlacing boughs between the posts. To shape these posts and to set them up, they have to raise the thick end against the bank of the river, or against the tree which crosses it, so that their mates, diving to the bottom of the stream, may scratch a hole for the point of the post, to make it stand upright. While this goes on, a pack start in search of earth, which they mix up with their feet and beat with their tails. This plaster is carried in their mouths, and with their fore-feet they deposit it in sufficient quantities to fill the gaps between the piles. Here comes the ingenious part of the contrivance. "The posts are planted vertically on the down-stream side; all the work on the contrary which meets the force of the stream slopes backwards. So that the embankment, which is 10 to 12 feet thick at the base, is reduced to 2 or 3 feet at the top; thus

offering the least possible resistance to the running water, while ensuring the maximum stability of the dam."

There is one addition to be made to Buffon's account which greatly enhances our conception of the beaver's engineering skill. In situations liable to floods, instead of the straight dyke, the embankment is curved so that the convex side meets the stream. The entire construction, in short, is carried out as if planned on approved mathematical principles. And the whole herd seem actuated by a complete understanding of the elaborate task it has to accomplish.

I will close this short dissertation on instinct by a few remarks on that of the cuckoo. We can hardly have a more interesting account of this strange bird than Hartmann gives in his *Philosophy of the Unconscious*. In the chapter on "Das Unbewusste im Instinkt," he defines Instinct, paradoxically enough, as a clear-seeing—*Hellsehen*—of the Unconscious. This *Hellsehen* manifests itself finally in the concurrence of numerous individuals for a common aim of which they are "unconscious." He gives a description of the cuckoo's habits,—for the correctness of which I am unable to vouch.

"The eggs of the cuckoo always resemble in size, colour, and marking, the eggs of the nest in which they are laid." "They are sometimes white with violet blotches, sometimes rose with black spots, sometimes dull red. The egg of the cuckoo always

has a deceptive likeness to the eggs of the other birds; it cannot be distinguished by the structure of the shell. Brehm counts about fifteen species in the nests of which the cuckoo lays."

One might suppose, says Hartmann, that as the cuckoo visits the nests some days beforehand, this would act on the conception of the immature egg;—not a bit of it. "This explanation will not serve where the nests are hidden in the hollow of trees with a narrow access, as in the cases of the *Sylvia phoenicurus* and the *Sylvia rufa*. The cuckoo, in such straits, can neither enter nor see inside. She must drop her egg at the mouth of the hole, and introduce it with her beak. Her senses cannot inform her what is the aspect of the eggs contained in the nest. If, therefore, the deposited egg is like those in the nest, *there is nothing save unconscious intuition* that can govern the formation of the egg in the ovary, in order to give it the suitable form and design."

This is riding one's hobby somewhat hard; or, rather, letting one's hobby ride oneself. If it be a true description of what happens, then if "more" and "less" apply where all is mystery, the thaumaturgy of the cuckoo surpasses everything of its kind. We must look for something beyond "unconscious intuition." It will not help us a jot better than the mechanical response of the organism to the conditions of life. And as to Natural Selection seizing upon a species which develops an unconscious faculty of providing for a future which can never concern its

own existence,—as in the analogous difficulty of sterile insects,—the hypothesis is more extravagant than that which it pretends to supersede,—namely, reference to an intelligent cause.

There is another consideration connected with instinct which militates strongly against the offered explanations of blind force, and the selection of blind variation. It is this: if the ordinary fulfilment of the instinct is obstructed, as it may be experimentally in the cell-building of the honeycomb, bees will resort to the most ingenious contrivances to compensate such obstructions, and so carry out their unconscious purposes. This shows how wonderfully their mental—not their physical—mechanism is provided for contingencies which no experience had prepared it for. If the young learn from the old, the mental ability of the old remains unaccounted for; and one cannot see any solution short of an efficient cause.

CHAPTER XXVII

HEREDITY AND PROGRESS

HEREDITY is again our theme; and Mr. Reid's work is of service to us as an elaborate exposition of a doctrine which, upon the whole, seems to me neither consistent nor tenable; and which scarcely lends itself to so favourable a forecast of human destiny as it is my desire to advocate.

Two vital questions present themselves: Is the continuous evolution of man an assured fact? And, Are the laws of heredity such as to aid or to impair belief in such a fact? "We are told by many biologists that man's evolution has ceased. He has become civilised, and has obtained a mastery over the forces of nature so great that he is no longer stringently selected. In proof of their deductions, these writers tell us that in size of body and brain the moderns were equalled or surpassed by some people who lived during the Stone Age, and were certainly surpassed in intellect by the Greeks who lived 2000 years ago." (Reid, *Principle of Heredity*, p. 106.)

Mr. Reid does not give an unqualified assent to this averment; though he does not fall far short of

it; and since "many biologists" maintain it, their arguments demand further consideration. "It is unlikely," says Mr. Reid, "that there has been much regression as yet; . . . the time has been too short. . . . The truth appears to be that the gradual cessation of the old causes of elimination has caused, or is causing, human evolution on ancient lines to cease; but as yet the time has not been sufficient to permit appreciable regression. Just as hands and feet ceased to evolve hundreds of thousands of years ago, . . . so the evolution of size, strength, *and intelligence*, has probably reached its term." (*Ibid.* p. 107.) Mr. Reid admits that, though it may be true that Man's evolution on the ancestral lines is "*nearing its term*," it may not be true that it has ceased to evolve altogether.

We have seen that Mr. Wallace cited opinions of Mr. Reid's, similar *in tendency* to these, in support of his own. We then gave reasons for dissenting from Wallace's opinion that "the higher mental and spiritual nature of man is not the mere animal nature advanced through survival of the fittest." The gist of our argument was an inability to accede to Wallace's theory; first, because it is at variance with the facts appealed to in support of it; in the next place, which is of far greater consequence, because it answers our momentous question in a way which leaves the issue unfavourable to indefinite and *necessary* advancement.

Mr. Wallace makes man's future depend mainly, if not entirely, on education and sexual selection.

Man may or may not avail himself of the principles of evolution. His present status, he argues, is not the result of its laws, as these act upon the lower animals; he is not a product of natural selection and the survival of the fittest; his brain was as perfect an instrument on his very first appearance as it is now; all it required was to be wound up by circumstances to bring it to its present state of development. This imbues his destiny with a precarious element, which I hardly think Mr. Wallace could intend. Practically, it substitutes development for evolution, and leaves his future more or less in man's own hands. If he neglects to avail himself of the means of elevation, stagnation or regress are the disappointing alternatives.

Though travelling by a very different route, Mr. Reid arrives at a not very different goal. "Man," he says, "is not an evolution but a development." True, Mr. Reid's paleolithic savage is no potential Plato, needing only that philosopher's Grecian culture; yet he has an inborn power to acquire the "modifications" which distinguish a Plato or a Shakespeare, "in response to appropriate stimulation." Wallace's human being is a new self-developing creation; Mr. Reid's, the developed anthropoid ape equipped with unfolding powers of acquiring abilities to supply his wants. This, be it observed—for, as expounded by Mr. Reid, it is the inexorable law of heredity—is man's sole mental inheritance. No other acquirement of his ancestors, whether of body or mind, is ever transmitted. Of this Mr. Reid is very positive, *i.e.* as a rule; we shall presently see that his teaching is

somewhat elastic, or at any rate that his subtlety of definition borders on ambiguity. Take a few examples at random: "Though for many years biologists have ransacked the plant and animal kingdoms, no single instance of the transmission of an acquirement has yet been proved." (*Principle of Heredity*, p. 25.) "Modifications acquired as a result of use and disuse are clearly never transmitted." (P. 34.) "Plainly, then, that which is transmitted to the infant is not the modification, but only the power of acquiring the modification under similar circumstances." (P. 35.)

Compare the two following passages with each other; then with the foregoing. (1) "Now it must be noted that no influence from the environment of any sort, *however effective as a cause of variations*, can, by itself, be a cause of evolution, except as rare coincidence." (P. 43.) (2) "Species undergo evolution because the environment undergoes change; because step by step, by slow adaptive alternations of *particular* structures, the race follows the gradual transformation in its surroundings." (*Ibid.*)

Unless, then, adaptive alterations of particular structures mean something different from modifications, No. 1 asserts that, although environment causes variations, it cannot cause evolution. No. 2 declares that change in the environment causes a change in the species; that is, it does cause evolution. These are dark sayings.

Perhaps Mr. Reid attaches some special meaning to "by itself" in the first statement. But such a qualification must apply equally to both dicta. If it

is meant that the functional change must produce structural change, and that the changes in the body must affect the germ-plasm before evolution can be effected, I quite agree. But this supposition is not admissible in the face of Mr. Reid's dogmatic tenets.

Next compare the last two passages with their predecessors. How do they read? Acquirements are never transmitted, is the pith and substance of the first quoted—as it is, indeed, of the whole of Mr. Reid's philosophy of Heredity. And, Species undergo evolution through the transmission of changes caused by environment, is the plain statement which contradicts it in the last. Mr. Reid is for ever telling us that all variations are, in the first instance, spontaneous; and that these only are selected and become inborn and transmissible; and hence, causes of evolution. Here we are told that, by slow adaptive alterations, the race follows the gradual transformation in its surroundings. Which theory are we to accept: that the transformations are primarily due to the surroundings? or that they are due to spontaneous variations which happen to suit them? I think we can have no more conclusive answer to this question than that of Mr. Reid's great leader. "There must, therefore, be an intrinsic connection between the conditions and the structural adaptations of the organism; and *since the conditions of life cannot be determined by the animal itself, the adaptations must be called forth by the conditions.*" (Weismann, *Darwin and Modern Science*, p. 21.)

Once more let me impress on the reader the

importance of this discussion to our subject matter—Man's future destiny. Wallace, as I humbly interpret him, leaves that future too much to the incertitude of man's own efforts. Mr. Reid thinks, that man having reached a grade of development which is not likely to be greatly surpassed, Natural selection will be less stringent with him than it has been hitherto; and, consequently, that evolution, not only of size and strength, but of *intelligence*, "has probably reached its term." Mr. Reid emphasises the fact that the natural tendency to regress is stronger than the tendency to progress; and that only where selection is energetic can the latter be maintained. He mentions the racehorse as a case in point, and remarks that after a certain stage of development, breeding and selection ceases to be effectual. "Careful breeding from ordinary horses readily evolves a speedier race, for the offspring of ordinary horses in many instances surpass the parents. But in proportion to the success of the breeder further improvement grows continually more and more difficult, till at length evolution practically reaches a standstill." (*Ibid.* p. 77.) When the standstill is reached, reversion sets in. The offspring become inferior to the parents. The foal of a winner of the Derby is worth a large sum as soon as it is born, but statistics show that only about 8 or 10 per cent of such foals turn out winners of great races. "It is plain, therefore, that owing to the increasing tendency towards reversion, rapid evolution quickly slows down, till, even in the presence of stringent selection, it practically ceases."

Applied to man, the illustration is not cogent. To begin with, there is no question here of rapid evolution. Man is the aggregate product of unknown aeons of time. Moreover, the strictness of selection in the case of the racehorse cannot compare with causes which affect the evolution of man. With the horse, biparental reproduction is the only resource of the breeder. With man, the smallest advance in civilisation brings a heavier strain upon his existence, multiplies through incalculable channels the necessity of adaptation, and goes on increasing indefinitely the rigour of elimination. Contrast the fitness of the savage to survive, under existing civilised conditions, with that of the ordinary civilised man; and then imagine what the fittest specimens of this latter will be, compared with the average man,—say, a thousand years hence,—under conditions which will then prevail. It would be risible, but for the irony of truth, to meet with a serious suggestion that the evolution of human intelligence has probably reached its term, because "the race is so well adapted to the environment that the elimination which now obtains merely sustains, but does not add to the antecedent evolution." (*Ubi supra*, p. 107.) I am afraid such optimism is as far from accordance with the views of the sanguine socialist or of the sentimental anarchist, as is the pessimism with which these inspire their opponents.

Pass from abstract principles to concrete details, —"Size, strength, and intelligence." It is quite possible, as Mr. Reid thinks, that size and strength, when fully developed and at their best, are, and will

continue to be, adequate to human requirements, so long as man's terrestrial abode remains pretty much what it is. His fitness to survive will no longer depend, as it did in the past, upon his brute force and his animal ferocity. It will be decided by the superiority of his intelligence, and of those ethical qualities, upon which all social well-being ultimately depends. As the correlate of this superiority, there must be an equivalent superiority of brain. Let us estimate the probability of this.

In a previous chapter, the marked difference between the size and shape of recent and of prehistoric skulls has been commented on; but to reply to Mr. Reid's opinion that man's mind has reached its term as well as his body, we must bear in mind that, although his outward form and stature may remain unaltered, his mental apparatus may undergo changes as vast in the future as it has undergone in the past; and this, quite independently of the size of his skull. Romanes has recorded measurements of brain by competent and reliable authorities, amply sufficient to prove that its dimensions, in relation to intelligence, is never constant. "These observations, which appear to have been carefully made, seeing that casts of the brains were exhibited, went to show that idiocy is compatible with large and apparently well-developed brains, the amount of grey matter in one instance being 'enormous.'" (*Mental Evolution of Animals*, p. 45.) On the other hand, there are abundant instances of exceptional mental powers in connection with small brains; to mention two only

amongst the immortals, Shelley and Descartes both had notably small heads. From close observance, for many years, of the heads of the nineteenth-century celebrities in all walks of distinction, my impression is that a large head generally indicates a capacious memory, but not frequently creative genius. We must look to the chemical constituents of the brain substance, and to the increased convolutions in the cerebrum for the growth of its higher capacities.

As to its ingredients, it is impossible to set a limit to the complexity of their composition or interaction; suffice it to notice the diamond and a morsel of charcoal, both specimens of carbon, though in different degrees of purity. And who can tell what may have been the effect of a single grain of phosphorus on such a brain as Goethe's? *Ohne Phosphor keine Gedanke;* without it there is no thought. But as the structure and constitution of the brain develops with its use, whatever the elements essential to mind may be, they will assuredly be appropriated and combined as Nature alone knows how: the existing skull is big enough for the laboratory.

Certain it is, that the mind's instrument has been evolved by the ever-increasing demands made upon it. Certain it is that severer demands will be made upon it as time goes on. Competition will be between fitter and fitter strugglers; and the work to be done will consequently be of a more exacting standard. Can any one doubt that the demand will be met? Is it conceivable that the same laws which have brought us to our present state will cease to operate?

Is evolution played out? or has it nothing more to do?

What is the history of the brain's evolution? What is the underlying motive power? In the beginning physical needs set up mental needs. Hunger and thirst—the absolute necessities of subsistence—stimulated intelligence to provide for them. In so doing the mind reacted on the organism, and caused structural changes. These were "acquired" changes; and they were transmitted, and became hereditary. This is adaptation; and what else is evolution? Without transmission of changes thus acquired, evolution would come to a standstill; it would degenerate, so to speak, into development. The child would duly develop into the adult human being; but so far and no farther. Like the racehorse, it would ultimately tend to regress. Man could never develop into a superior species, as he has "evolved" from the higher apes of the Old World. This is the argument we have to keep before us throughout; this it is which constitutes the inestimable consequence to us of the transmission problem.

"Three things must have undergone concurrent *evolution*, the evolution of any one being impossible without the others—the hemisphere of the brain, the organs of speech, and language." (Reid, *Ibid.* p. 274.) The interdependence of speech and brain-evolution is here admitted. Its bearing on transmission is manifest. The ability to acquire articulate language, to make sounds which represent certain things, feelings, and ideas, must have been slowly

gained. In its elementary state, speech must have been developed from vocal noises such as the monkey, the parrot, and other animals still make; and the organs for more complicated sounds must have slowly developed by use. This development, thus acquired to meet the growing exigencies of evolving man, gradually became, through hereditary transmission, a permanent attribute of the race; and what in the first instance was a modification of structure, or development due to use and acquirement, became by degrees a persistent, and unquestionably the chief, factor in man's evolution.

This is precisely what Mr. Reid tells us. "Slow evolution of speech and the slow concurrent *evolution* of the structures which subserve speech during innumerable generations, the one generation transmitting that which it acquired from the preceding generation with slight improvements (*that is, with its own acquirements*) to succeeding generations, . . . furnishes us with the means of learning by analogy the process by which some of the more complex traits of man and the lower animals have been developed." Note that *evolved* and *developed* are used here as synonymous terms.

It is the firm conviction of Mr. Reid and of his school, that "the Lamarckian doctrine is not only untrue; it is inherently improbable." (Reid, *Ibid.* p. 157.)

As the surest proof that this is so, we are bidden to consult the history of disease and of immunity. It is, as we know, a fundamental principle with the

Neo-Darwinians, that the germ-plasm is impervious to somatic influences. It is, therefore, doubly surprising to be told that—"Presumably acquired immunity against a disease, since it is a beneficent development arising as a regular consequence of experience, is comparable to, is of the *same nature* as, other *acquirements* which arise in the individual as a regular *result of use*. In other words, presumably it arises because and when the organism 'gets used' to that particular disease." (P. 114.) I say doubly surprising, for we have here two seeming violations of professed Neo-Darwinism. Immunity, as we shall presently see, is, with some diseases, a transmitted acquirement; and therefore its causes must have become inborn,—must have acted on the germ-plasm. Secondly, the "getting used" is sheer Lamarckism.

As instances of immunity thus acquired, Mr. Reid points to measles and whooping-cough amongst English children, and malaria amongst West Africans. "English children, whose race has long been afflicted by measles and whooping-cough, contract those maladies as easily as Polynesians, to whom they were familiarised only during the last century. But whereas English children, as a rule, recover readily, Polynesians perish in great numbers." (P. 135.) So, too, with malaria, which is death to Europeans, but innocuous to the native, who has got "used" to it.

I am well aware that, from Mr. Reid's point of view, there is no inconsistency, no real violation of Neo-Darwinism, in his statement. What he means by "acquired immunity" is "an immunity acquired

through the existence of an inborn power of making this acquirement, which may be enduring, as against measles," etc. (P. 112.) The getting used to the disease merely means an acquirement developed *after birth*, or perhaps by the foetus *in utero*. In short, any supposition you please rather than defile the stainless purity of the germ-cell.

Well, I am afraid I must persist in calling this sheer Lamarckism in spite of its disguise; at all events until the Neo-Darwinians have proved the non-transmission of use-acquirements, and the impregnability of the germ-plasm. This they certainly have failed to do. Indeed, in spite of all the passages I have quoted, Mr. Reid declares that "It has been asserted by no one that germ-cells are inviolate." (P. 158.) And he—naturally with qualified dissent—quotes the "very interesting and valuable address" to the British Association of Professor Cossar Ewart, to the effect that "there is a considerable amount of evidence in support of the view that changes *in any part of the body*, or soma which affects the general welfare, influences the germ-cell." One would think Mr. Reid agreed with this when he elsewhere writes: "Whichever doctrine be true, it is plain that a race long afflicted by any prevalent and lethal or serious disease must undergo change." (P. 114.) But at the end of his book he says: "The principal conclusion we have reached in our study of heredity is the one that variations are very rarely caused by the direct action of the environment on the germ-plasm, so rarely that racial change is *never* due to this cause."

(P. 335). If a race undergoes change through long affliction of serious disease, like malaria, say, that change is due to direct action of the environment on the germ-plasm. Of course, the environment affects the soma first, but the change thus produced on the body affects the germ-plasm. So then we are told, that long subjection to injurious environment *must* cause racial change. But afterwards told that environment never causes racial change; and since no racial change can be caused till the variations are inborn, it is clear that the environment acts directly, or, if you please, indirectly, through other parts of the body on the germ-plasm. Twist these statements as you will, they remain mutually destructive.

Before taking leave of this subject there is one more passage of Mr. Reid's that I must refer to. He uses an argument to disprove the influences of the environment on the germ-plasm as causes of variation, which seems to me to prove those influences as forcibly as any evidence can do. It is this: "The fact that some species which are closely adapted to an environment that has altered little have existed almost unchanged for enormous epochs of time, is proof that the germ-plasm actually does possess a high degree of insusceptibility." (P. 46.) This is strange reasoning. Because the species is closely adapted to its environment it remains unchanged; and the stability of this species proves the insusceptibility of the germ-plasm! But if the equilibrium between a species and its environment be undisturbed, and no new influences brought to bear upon the

germ-plasm through the soma, how could its stability prove the insusceptibility of the germ-plasm? There would be nothing to test that susceptibility one way or another. If a pair of scales were so delicately balanced that the millionth part of a grain would affect their adjustment, would their extreme delicacy be disproved if nothing at all was placed on either scale?

As examples of stability such as Mr. Reid alludes to, take some of the univalves and bivalves of the Paleozoic ages: the Pentamerus of the Silurian period, how like a cockle; the gasteropods of the carboniferous strata, how like many of the small marine gasteropods of our own,—the American Nasas and the periwinkle. How closely the Turbo-helicinas and the Natica Leibnitziana of the Permian resemble our common snail. Why has there been so little change? Simply because these molluscs were "closely adapted to an environment which (for them) has altered little." If any insusceptibility is proved by such cases it is not that of the germ-plasm, but of the molluscan organism as a whole. If there is change of species when there is change of environment, and no change of species when no change of environment, it is pretty evident that the environment is the cause of the change. "In all circumstances," says Professor Klebs, "we may recognise as a guiding principle the assumption adopted by Lamarck, Darwin, and many others that the inheritance of any one character, or, in more general terms, the transformation of one species into another,

is in the last instance to be referred to a change in the environment." "And from a causal-mechanical point of view, it is not *a priori* conceivable that one species can ever become changed into another so long as external conditions remain constant; the inner structure of a species must be essentially altered by external influences." (*Darwin and Modern Science*, p. 242.)

CHAPTER XXVIII

MAN'S DESTINY

Say I—let doubt occasion still more faith.
BROWNING.

PROGRESS and "improvement" may have very different meanings where Evolution or Natural Selection is concerned. Improvement, as Darwin has pointed out, when applied to a species, merely means better adaptation to its condition of life, and this is compatible with forms "fitted for simpler conditions remaining unaltered or being degraded." Commenting on this, Professor Höffding remarks: "Pessimism would not only be the consequence if suffering outweighed happiness, but also if the most elementary forms of happiness were predominant, or if there were a tendency to reduce the standard of life to the simplest possible, the contentment of inertia or stable equilibrium." (*Darwin and Modern Science*, p. 463.)

Man's ultimate destiny depends on the issue. Professor Höffding puts the question "whether there will be always a possibility for the existence of an impulse to progress, an impulse to make great claims on life, to be active and to alter the conditions of life, instead of adapting them in a passive manner.

There is a holy fire which we ought to keep burning if adaptation is really to be improvement."

We need not be alarmed. The holy fire will be kept burning, burning upon the altars sacred to religious faith. The history of man's Evolution, and the history of his religions, record the fact that the fire, though periodically threatened with extinction, has only consumed its old fuel to be replenished with fresh supplies. The sacred fire of religious faith may blaze in one age, may smoulder in another, but its vital spark is as essential to the living man as life itself. To the living man—no. There are savage races all round the globe utterly destitute of any vestige of religion; but we are thinking of the man of the future, of the man who will have passed, as we are slowly and surely passing, to a higher grade of progress, and of improvement in its most elevated sense. It is this that I would impress upon the reader; it is this which constitutes the difference between development and evolution; it is this which gives its serious import to heredity. Man's destiny, his advancement, do not depend on him; they were not left to the blind brute-brain, the barbarity of his remote ancestors. The Eternal law of Evolution leaves nothing to Choice or Chance. Its own action, so far as man is concerned, is productive of more and more complex conditions, which inevitably call forth a higher order of adaptation; and hence ensure advancement. The movement is for ever onward in the direction of "harmony between cosmic order and human ideals." Let each one of us recognise the

solemn truth, and do his best to conform to it, if for no nobler motive, at least for his own sake and for that of others.

If we think of Evolution as the greatest and surest manifestation of a supreme Designer, we are at once reminded of that phase of it which most nearly affects the living inhabitants of this planet. Natural Selection involves necessarily a prominent share of the existence of Evil. The struggles and sufferings of the unfit, and their elimination, are the essential conditions of progress.

"This very old argument, from the existence of suffering, against the existence of an intelligent First Cause seems to me a strong one; whereas . . . the presence of much suffering agrees well with the view, that all organic beings have been developed through variations and Natural Selection. In the battle of life with other species," those which suffer least survive: so that "an animal may be led to pursue that course of action which is most beneficial to the species by sufferings, such as pain, hunger, thirst, or fear." (*Life and Letters of C. Darwin*, vol. i. p. 310.)

Looking back to his early life, Darwin describes the feeling of wonder, admiration, and devotion which filled and elevated his mind amidst the grandeur of a Brazilian forest. "Now," he says, "the grandest scenes would not cause any such convictions and feelings to rise in my mind." He confesses "the extreme difficulty, or rather impossibility, of conceiving this immense and wonderful universe, including man with his capacity of looking

far back and far into futurity, as the result of blind chance." "Yet even this conclusion has very gradually become weaker. But then," and here is the pith of the whole confession, "but then arises the doubt, can the mind of man, which has, as I fully believe, been developed from a mind as low as that possessed by the lowest animals, be trusted when it draws such grand conclusions? . . . The mystery of the beginning of all this is insoluble by us." (*Life and Letters*, vol. i. p. 311.)

What does the wise admission come to? Nor more nor less than this: Blind Chance is but another phrase for Blind Humanity.

It is we who make God responsible for Evil, and then deny Him. Man is for ever sitting in judgment upon the Deity whom he has created in his own image; when was it otherwise? "Si les triangles," says Montesquieu, "faisoient un Dieu, ils lui donneroient trois cotez." The habitual use of metaphor, applied as it is to the Supreme Being, exercises an irresistible influence on our minds. The attributes of the Infinite and Eternal Spirit are described and hence thought of in an anthropomorphic sense. God *sees*, God *hears* our prayers, God is pleased, angry; will reward or punish. The God of the Christian, to say nothing of other religions, is the God of the Israelites, human in every aspect. He takes part in the quarrels of nations; interferes, if piously besought, with the meteorological or any other of the laws of nature. The rejection of belief in a personal God is with both Deist and Theist tantamount to Atheism.

How can we worship mere abstract omniscience unless endowed with personality? "The less of determinate personal character God is regarded as having, the less is it possible to love and trust him." (Flint, *ubi supra.*)

Yet, if we think of space, how can we reconcile the idea of a personal Being with its infinitude? What is there compatible between personality and omnipresence? We may imagine an omnipresent ether pervading space, but an omnipresent person—No. "A thing—an object, an attribute: a person, or any other term signifying one out of many possible objects of consciousness, is by that very relation necessarily declared to be finite. An infinite . . . attribute, a *person*, is therefore in the same moment declared to be both finite and infinite." (Dean Mansel, *Limits of Religious Thought*, p. 60.) The very word "God," when thus associated, is fraught with lying limitations. Every name for That which IS must ever be so. What name shall man give to a conscious and omnipresent Force, the Soul of the Universe, the infinite Spirit of Good, the ever-active Principle of Progressive Harmony? Only by the help of some such futile words can we think even of the Supreme Object of adoration. If we use the name "God," what can it be but a poor symbol for some such vague and dreamy conceptions as these?

Can the mind of man be trusted when it draws such grand conclusions about the mystery of the unknowable? We will turn to the metaphysical answer to that question presently: meanwhile, by

way of diversion, let us look into the mirror of Facts; and let its reflections, flattering or the reverse, tell us plainly what is worth the verdict of such as we are, touching the beginning, middle, or end, of "all this," and of everything else besides.

For those who have the courage to see themselves as they are, a glance at the stereotyped facts of Astronomy will serve as a salutary tonic to their humility. Let them examine with a lens the recent photographs from giant refractors, revealing as estimated about twenty-five millions of stars which happen to be within our visual range,—all suns, mind! with their planetary systems; the whole whirling through space at the rate, say, of 600 miles a minute.

Speaking of the bright star Vega, Sir Robert Ball informs us, that if it were blotted out it would be eighteen years before we made the discovery. But there are many of the more distant stars within our sight, "which are fully a thousand times as far from us as is Vega; hence we arrive at the startling conception that the light they emit has been on its journey for 18,000 years before it reached us. When we look at those lights to-night we are actually viewing them as they were 18,000 years ago." (*In Starry Realms.*) Eighteen thousand years at 185,000 miles a second—that is the rate at which light travels!

And the "fixed" stars—what are they doing? "Arcturus is travelling at the rate of *at least* fifty-four miles a second, or three times faster than our

Earth travels round the sun, which is a thousand times faster than an ordinary railway train." (Sir Norman Lockyer, *Lessons in Astronomy.*)

What is the distance of the farthest star we can see? And if transported to the farthest, what is the farthest beyond that? And so on *ad infinitum.* A little thought,—too much makes the brain reel,—but just a little may moderate perhaps the pride of human intellect.

Another view of things, no less impressive in its way: "The microscope teaches us that there are animals so minute that if a thousand of them were ranged abreast, they would easily swim, without being thrown out of line, through the eye of the finest cambric needle." (Ball, *In Starry Realms.*)

The scientist's fact authorises the fantasy of the man of genius. "Take for the object of our meditation some atom lost in the masses of granite which form the substance of our coasts. It has existed for millions of centuries, and if in that atom there be thinking beings, their opinion would be that their world, so small for us, so great for them, is impenetrable, infinite, autonomous, self-existent. They would, however, be mistaken. Opposite to the coast of Brittany where I write these lines, I saw in my childhood an island—L'Île Grande—which has now disappeared. It is M. Hausmann who did away with it. The masses of granite which composed it form at the present hour the pavements of the Paris boulevards. . . . When the mining began to be felt in its

depths, the astonishment of the millions of millions of little worlds which were there hidden in a darkness, absolute for us, must have been great. . . . In the interior of the paving stones which we tread under foot at Paris, myriads of universes sleep as tranquilly in their erroneous belief in the autonomy of their world as when they were part of the rocks of Brittany." (Renan, *Examen de conscience philosophique.*)

Was Renan scoffing at faith in God's care for so insignificant a thing as man? I do not think it. The pregnant thought underlying his sceptical philosophy was ever "Au point de vue de l'infini, rien n'est impossible"; nor does the present writer for one moment imply more than Renan's fable. Agnosticism is its moral. We cannot understand, we do not know. But therein lies the vindication of our trust. It is only for us, that there can be Great or Small. For the Ruler of a Universe such as telescope and microscope reveal, where all is equally regulated, where all is equally unintelligible, equally miraculous, equally natural or supernatural,—whichever you please to call it,—nothing is neglected, neither man nor the atom from which he sprung. Shall we, then, despair? Shall we fold our hands, and sigh: "What is man that Thou art mindful of him?" That is not the teaching of the Seers we reverence, of those whose spiritual flights have soared highest above this earthly sphere, and who yet were conscious of its pettiness. Gifted with visions of man's destiny which far transcend this seeming insignificance, their creed has been:

The Ever-working moves us;
We know not how, now here, now there, as if
By chance, for our good, to advise, resolve,
And to achieve; and so, as if borne on,
We reach the goal.[1]

Shall we not believe in "a Divinity that shapes our ends, rough hew them as we will"?

Faith in man's illimitable advancement, no less than his trust in a Providence divine, are denounced by many agnostics as optimistic assumptions unwarranted by any arguments we may regard as rational. Two of our greatest thinkers—John Mill and Herbert Spencer—both inexorable Empiricists, both devoted seekers and fearless confronters of Truth, after depicting Evil with implacable severity, and admitting the perplexity and the awe with which it depressed them, do yet end their lives and their philosophy with a vigorous protest against the gloom of pessimism.

According to Spencer, the perfectibility of the human race is an indisputable corollary of the doctrine of Evolution. Mill, after commenting on "the Mass of Evil which exists," goes beyond Spencer in another direction. He dwells with confident emphasis on the wisdom of cherishing the loftiest hopes for man's future, as tending to elevate the mind, and promote a cheerfulness of spirit, which no other source of happiness is so fitted to secure.

[1] Das ewig Wirkende bewegt
Uns unbegreiflich, dieses oder jenes—
Als wie wir von ungefähr, zu unserm Wohl,
Zum Rate, zur Entscheidung, zum Vollbringen,
Und, wie getragen, werden wir als Ziel.
GOETHE.

Criticising this opinion—that we should indulge (to use Mill's words) "hopes in a region of imagination merely, in which there is no prospect that any probable grounds of expectation will ever be obtained," —Lange writes: "The slight, rapidly disappearing probability that the dreams of our imagination can be realised, is at least a weak tie between Religion and Science . . . for it is opposed by a greatly preponderating probability the other way; and, in the sphere of morality of thought, demands from us that we shall not cling to vague possibilities, but shall prefer the greater possibility. If the principle is once conceded, that we should create for ourselves in imagination a fairer and more perfect world than the world of reality, then we shall be compelled to allow validity to Mythus as Mythus."[1] In other words,—once permit ourselves to hope for the best, we open the door to fanatical credulity; and end by offering sacrifices to Moloch, and flinging ourselves under the wheels of any Juggernaut.

Clifford takes the same line. Referring to Mill as "that noble thinker to whom we of this generation owe more than I can tell," he deprecates the notion that life should be made easier by encouraging hopes in excess of evidence: "as if we should not lose infinitely more by nourishing a tendency to falsehood, than we could gain by the delusion of a pleasing fancy." (*Essays*, vol. ii. p. 176.)

One is surprised to hear Lange, who is no materialist, thus express himself; and no less at the reasoning

[1] *Hist. of Materialism*, vol. iii p. 364.

of both writers, who take it for granted that the hopes which Mill would encourage are "delusions," against whose realisation there is preponderating improbability. Even if the aspirants have no adequate grounds for their hopes, it is far more certain that such hopes cannot, in this instance, be proved delusive. Suppose them to be false, what then? Death comes; and there's an end of it.

Delusions that are never dispelled are no delusions; they are as substantial as realities. No one can deny that we may lead better lives, and be happier for the mistake,—if mistake it be. Shall we, then, reject these advantages for fear of a future we may never know? and all for the sake of a heroic, if you will, yet cheerless and baneful, stoicism?

Doubtless there is a semblance of common sense in Lange's and Clifford's caution. To seek a fool's paradise is to court the penalties of folly. Visionary prospects are poor foundations for practical life; they are apt to be rudely shaken, and so engender ugly habits of mistrust. Credulity is often disastrous, and often cowardly. But to set up a materialistic realism as sole guide and guarantee, not for our conduct merely, but for our spiritual life, is to dogmatise on a question which transcends its narrow limits. Once more the poet's inspirations discover a deeper truth:—

> And feel'st thou not an innate force propelling
> Thy tide of life to head and heart,
> A power that, in eternal mystery dwelling,
> Moves visibly invisibly beside thee?
> Go fill thy heart therewith, in all its greatness,

And when thy soul exulteth in this feeling,
Then call it what thou wilt,
Heart! Happiness! Love! God!
I have no name by which I might denote it!
Feeling is all in all!
Name is but smoke and sound,
Enshrouding heaven's glow.[1]

[1] *Faust*, Blackie's translation.

CHAPTER XXIX

NATURAL OR SUPERNATURAL?

I WAS looking the other day at a case of humming-birds in the S. Kensington Museum, and called the attention of my companion to the exquisite ruby colour of the neck feathers of one of them. "Ruby!" exclaimed my friend. "Are you colour-blind? The neck feathers are a brilliant emerald."

"Change sides with me," said I, "you will see what I see."

My friend was astonished to find the same feathers a sparkling red.

"Come behind the bird," said I. "What colour are the neck feathers now?"

"How curious! Their brilliancy is gone. They are but a blackish-brown."

Truth is a diamond with many facets, every one of which reflects a different-coloured ray. From each point of view the vision may be correct, and yet but a one-sided truth. Men hate, fight, torture, massacre one another, because they differ as to what they see. Nevertheless, it may be that both sides are right; wrong only because they cannot see with other eyes. The very wisest are not exempt.

Newton, we are told, found by passing a ray of light through a glass prism that it split into rays of various colours; and announced the proportion in which it was spread out to be the law of prismatic dispersion. Another eminent physicist (I forget his name) soon after declared that Newton was mistaken; and showed experimentally that the proportion was quite different. Both were absolutely certain of the correctness of their own trials. As it turned out, both were right, though disagreeing; their prisms were made of different kinds of glass. So, divers minds will act as unlike prisms.

The brain is our mental eye. As is the brain, so is the intellectual sight; and, like the eye itself, has its colour-blindness. It was a wise saying of Diderot on his death-bed: "Le premier pas vers la philosophie c'est l'incrédulité." So, too, honest Bishop Blougram's "With me, Faith means perpetual unbelief."

If "unbelief" be mistrust of arrogant positivism, if it be impartial doubt, open-minded receptivity and tolerance of all sincere opinions—save intolerance—let us too, adopt it.

Restricting ourselves to the more civilised races of our own times, whether we take Christianity, Buddhism, or Mahometanism, we find the golden thread of religious sentiment running through the woven fabric of them all. If we turn to the historic religions of the past, the Egyptian, the Vedas of the Hindoos, the mythology of the Greeks or Romans, it is the same. The one idea common to the lot is that

of a supra-mundane Power or Powers to which Man and his destiny are subordinate; and which he worships through love or fear, or both combined, according mainly to his racial and geographical origin.

Any attempt on my part to aid the seeker of Truth by the faintest glimpse of the futile guesses by which one and all strive to read the secret of the Infinite, or to compare the relative demerits of these guesses, would be idle. The very utmost I dare essay is to skim with swallow flight the surface of prevailing doctrines. Criticism, though impartial, may still expose such obvious fallacies as obscure the path to clearer thinking. The palpable sophistry of Materialism, to wit, cannot be too strenuously insisted upon; for, self-refuting as are its principles, it is hardly too much to say that, at the present hour, it is decidedly gaining ground: and threatens, for some time at least, to preclude a truer and more ennobling philosophy. This is due to the shallow interpretation with which the unthinking may construe the rapid advance of Science; as if every progressive step, and every new discovery which Science makes, did not tend to demarcate the limits of the knowable, and establish that "unbelief" which generates enduring Faith.

In the preceding chapters on the Relativity of Knowledge, and the Freedom of the Will, enough, I hope, has been said to satisfy an unbiassed judgment of the flagrant speciousness of Materialism. So vital, however, to the whole of our dissertation is this one topic that, at the risk of being tedious, I must further dilate upon it. The one great truth to be kept

before us is this: the three paramount questions we set out to discuss—Responsibility, Immortality, and belief in a Supreme Being—are absolutely beyond the pale of Realism. Reasoning based on the evidence of the senses is all but worthless when brought to bear upon ideas with which empiricism has nothing to do. The physical world is the province of Science. Here it is lord of all it surveys; here it can, and does, help us; but,—so far as regards the unknowable, —solely by proving its own impassable bounds, and thus driving us to the wider realm of metaphysics. Something in this way has been attempted. It behoves us now to turn our attention more completely in this direction.

When Protagoras formulated his maxim as to the Relativity of Knowledge, that "Man is the measure of all things," he provided philosophy with the germ which finally developed into the *Critique of Pure Reason*; an immortal work, which is, and will remain, the proem of speculative philosophy. The *Critique* has many translations and many expounders. No one has more lucidly epitomised its fundamental argument than Lange. Before referring to it in detail, its general bearing must be clearly understood. Here is the Kantian principle in a sentence: "Our ideas do not order themselves in accordance with things, but things in accordance with our ideas." The physiological limitations of our faculties of knowing need no further demonstration. It is not necessary to return to the self-evident fact, that between the external world and the sensations it

produces through atomic movements in our nervous system, there can be no resemblance. It is not our bodily organism,—our five senses,—it is our ideas, our mental constitution, that we are now concerned with. Here, too, we must be made to confess that we are but human and finite beings, not simply liable, but by this very fact compelled, to ignorance and error. If our ideas do not regulate themselves according to things, but things according to our ideas, it follows, as Lange says, that "objects of experience altogether are only *our* objects; that the whole objective world is, in a word, not absolute objectivity, but only objectivity for man and any similarly organised beings; while behind the phenomenal world the absolute nature of things, the 'thing in itself,' is veiled in impenetrable darkness. Our whole experience is conditioned by an intellectual organisation which compels us to feel as we do feel, to think as we do think, while to another organisation the very same objects may appear quite different. The thing in itself cannot be pictured by any finite being." If the physiological proof of our disabilities were not conclusive, the psychological would clench it.

It should be noted that the Idealism of Kant is not the Idealism of Leibnitz, or of Berkeley; the external or phenomenal world of Kant is not a mere product of our mental conception; our perception of it is both subjective and objective. We see the world, not as it is, but as it appears to us. Our knowledge is nothing but a knowledge of appearances;

it is entirely devoid of truth, save for us and such as we are.

The Materialist of our day no longer questions this. It is impossible to deny it. His answer is: "With the world as it is in itself—whatever that may be—we have nothing to do." Why, then, does he persist in dogmatically denying God, and asserting material monism to be an irrefutable truth,—as if he knew? The Materialist confidently assumes Matter to be the sole principle of all that exists. He is by no means favourable either to the persistence of Force doctrine, or to the tendency of recent Scientific research to resolve Matter into Force. If Matter is what it does; if, as Helmholtz puts it, different kinds of Matter means the difference of their effects, or in other words a difference of forces, then Matter apart from its forces is a mere abstraction, a personification of the forces to account for, and enable us to understand, them. If "we can perceive matter only through its forces, never in itself," then its *esse* is *percipi*, which savours too much of idealism for the Materialist; the existence of Matter *per se* would then have no guarantee beyond our mental exigencies.

As to the assertion that we are not concerned with the world as it is in itself, but only with the world we have to live in, surely the habitual consciousness of the necessary existence of a different world is of the highest value as mental discipline,—prohibitory as it is of dogmatism, and compelling us, as it does, to believe in something which surpasses possible knowledge.

Before resorting more directly to the metaphysical treatment of the difficulties which beset religious belief, let me utter a last word of warning against materialism. One of the most alluring attractions of this "canker of the brain" is its picturability. The ordinary man has no love for metaphysical abstractions; his apprehension requires the realistic help of his senses. Thus picturability is the charm of Roman Catholicism. Its images, everywhere apparent, of the Crucified Saviour, of the compassionate Virgin Mother of God, its dramatic ceremonials, its mystic sacraments, its incense and its gorgeous robes, and the solemn grandeur of its magnificent temples, appeal far more persuasively to the emotions than the closest reasoning, or even the most eloquent rhetoric. So, too, is it with Positivism. The physical forces build up a crystal before our eyes; why may they not build up a living cell? There is no reason that we know of why life should not be generated in the laboratory. Why then resort to miraculous intervention, to supernatural agency—to a God? Why seek causes beyond those which we actually know matter to possess? Is not gravitation a force which pervades the universe? Do we not know exactly how it operates, and what it is? It is an ultimate fact. What avails it to ask the explanation of an ultimate fact?

Well, this sounds plausible, and, for many, goes far enough. But others in turn may ask: Is it not a deeper truth that the "ultimate fact" is the very point where the mystery begins? Newton, in a

letter to Bentley, in which he speaks of gravity as a property of matter, writes: "That gravity should be innate, inherent, and essential to matter, so that one body acts upon another at a distance through a *vacuum*, without the mediation of anything else, by and through which their action and force may be conveyed from one another, is to me so great an absurdity that I believe no man who has in philosophical matters a competent faculty of thinking can ever fall into."

The Materialist is resolutely averse from the supernatural. We may appreciate his honesty and his fortitude; but let us try to look a little farther than he does, and see, what he fails to see, that natural and supernatural are as monistic as his notion of mind and body. What is supernatural? It is that which is behind the ultimate fact, masked by its appearance, and for ever inexplicable.

Consider for a moment the kind of discoveries which are just beginning to fascinate our greatest scientists. I am not speaking of the uses of radium, or of the transmutation of metals, or even of the sentient properties of plants. I allude to the psychophysical forces; to telepathy, to thought-transference. I allude to hypnotism, and to experimental psychology generally. What is the bio-magnetic force which deflects the needle of the ergometer when a man approaches it? Who shall explain—not describe, but account for—give the why and wherefore of the magnetic influence which enables M. Émile Boirac, Rector of the College of Dijon, to attract a man whose

back is turned to him, against the man's will, by extending his—the Rector's—hand, yet without touching the object of his experiment? (Vide *La Psychologie inconnue*—Paris.) Is the secret of life more beyond our present reach? Yet most people draw the distinction; and think of the first as natural, and of the latter as supernatural; simply because we can produce the magnetism but not the life.

Suppose our chemists were Frankensteins, and had mastered the secret of abiogenesis. There is nothing inconceivable in the supposition; there must be countless latent forces in the universe which await the necessary conditions to manifest themselves, and which remain unknown to us until we have discovered those conditions. Why may not Life be the product of such as yet unknown causes? Is it not conceivable that science may some day make the discovery; and come to manipulate this special mode of energy, as now it deals with magnetism and electricity? The hypothesis that all matter, from the atom onwards, may be animated, renders the possibility more probable. What, then, should we say of the supernatural? The genesis of life would thenceforth be regarded as no less natural than that of an electric current.

We may go a step farther. Suppose, for illustration's sake, we should ever have indubitable proof of a spiritual existence after death—proof, be it understood, very different from that which so easily satisfies the impressionable Spiritualist of our day;—should we not come to regard immortality as perfectly

natural, as an ordinary law of nature? The supernatural is, for us, simply the category of the unknowable; and passes into the natural when it becomes knowable.

When Tyndall, in his Belfast address, said, "A time may come when this ultra-scientific region may offer itself to human investigation," he was speaking of the origin of life. In so far, his words are justifiable; but he did not mean that our finite intellect could ever cease to be circumscribed by ultimate facts, and thus become infinite. So long as this planet lasts, and so long as man inhabits it, Goethe's words will remain true: *Wir wandeln alle in Geheimnissen.* (We are all wandering amongst mysteries.) He might have added: Without a suspicion of the truth. Familiarity blinds us with its realistic dust. But we shall grow wiser by degrees; progress never halts. "There will come a day," says Renan, "when belief will give place to knowledge; when the moral and metaphysical world will be known, as the physical world is already known."[1] Yes, Faith will pass into conviction. Science has dispelled some poetic fantasies of our childhood,—its belief in miracles which never happened; but only to teach our maturing age that every event is equally miraculous. This is the goal to which all knowledge is securely leading us.

[1] *L'Avenir de la science.*

CHAPTER XXX

TRANSCENDENTAL SOLUTIONS

Reason stretches its wings in vain, if it tries to soar beyond the world of sense, by the mere power of speculative thought.—KANT.

MAN'S conscience of his finiteness necessarily implies its converse—the Infinite; just as inside implies outside, or as a consciousness of self carries with it an implication of that which is not self. This is an essential condition of religious belief, but does not amount to religious belief in itself. There is no reason why we should worship the infinite or the absolute as such. The necessity of religion springs from the moral and emotional nature of man. It is this which demands satisfaction; and it is just this which the mechanical explanation of the world utterly fails to yield. Where is that satisfaction to be found? In what direction are we to seek it? What evidence have we that anything exists which answers to our requirements?

We are dealing, be it observed, with the whole subject from a purely philosophical point of view. The question of a divine revelation forms no part of our inquiry.

We have seen that realism is an emphatic negation

of that which we are in search of. It tells us, that mind is a function of matter subjected to special chemical and dynamical energies. It has also been made apparent, that this very negation supplies us with grounds for its own reversal; for it is solely through Mind, through conscious sensation, that we have any acquaintance with matter at all. Every property of matter, *as we know it*, is dependent on our sentient and thinking faculties. Its very existence, therefore, can only be thought of as a cause, unknowable in itself, to account for our perceptions. The whole hypothesis of Realism is built upon the presupposition of Mind. To use Kant's words: "It is surely impossible that we should feel outside us, and not inside us; and the whole of our self-consciousness cannot give us anything but our own determinations."

We must then start with Mind—the *cogito ergo sum*—as the only certainty. How does this mind work? And whither does it lead us? Kant has shown that there are certain forms of thought, certain categories under which all thinking must be brought, and which we cannot escape from. It signifies little how we come by them; there they are. We cannot, for example, think of the finite but in relation to the infinite. The term cause has no meaning but in its relation to effect; and this category of causation compels us to pursue this relation without ever getting to the end of the regress.

By this process we are led not directly, but indirectly, to religious belief. We are as forcibly

constrained by our psychological constitution to postulate a cause of the universe, as we are to assume an antecedent to every ordinary phenomenon. Having reached this stage, in obedience to the laws of our intelligence, we pass, in accordance with the laws of our emotional nature, to the notion of a Supreme Source of our moral and spiritual being. This it is which finds its satisfaction and expression in religious belief and religious worship. How far it may be justified, and what impediments are in its way, have still to be considered.

The proofs for the existence of a Supreme Being are three, and only three,—the *physico-theological*, the *cosmological*, and the *ontological*. The first of the three is also called the teleological, or Design Argument. The cosmological is based upon the notion that the world must have a cause. Its existence does not explain itself; and the regress we are impelled to gives no satisfaction to Reason. We are forced, therefore, to seek a Cause that is self-existent. "If the conditioned is given, the whole sum of conditions and therefore the absolutely unconditioned must be given likewise."[1] This proof is met at the outset by an insuperable objection,—indeed, the root-principle of the objection underlies all three arguments. We may conclude from a higher to a higher; and, while adhering to the same category, may continually widen our generalisations. But what authority have we for leaping from the finite, which is all we are

[1] The quotations from Kant's *Critique of Pure Reason* are from Max Muller's translation.

conversant with, to an infinite which can never be reached? Clearly none whatever beyond the laws of thought begotten of our mundane experience. The alleged proof is a strong inducement to belief; but its weakness cannot be ignored.

Kant examines the ontological proof first, because, although experience gives the first impulse, the proof depends on the validity of what he calls a "transcendental concept"—in plain language, a fabrication of the reason, which cannot be applied without reserve to the world as known to us. "It is, in short, a mere idea, the objective reality of which is by no means proved by the fact that reason requires it." This last sentence is a standing proviso of the *Critique*. Does not the cosmological argument depend entirely upon a requirement of the reason? "That everything that is contingent must have a cause, is valid in the world of sense only, and has not even a meaning outside it," becomes a truism in the hands of Kant; and the spirit of the maxim affects the whole range of speculative thought.

At first sight such a conclusion is discouraging. We are, however, soon made to see that the scepticism which it seems to foster, itself exorcises the ugly phantoms which are apt to terrify us. Before closing with its application to religious faith, mark how Kant brings his transcendentalism to bear upon the other two great problems, which we had to abandon as hopelessly beyond solution—the problems of the Will and Immortality.

The difficulty regarding our freedom comes of "the

conflict of reason venturing beyond the limits of possible experience; the problem is not *physiological*, but *transcendental*."

There is no disputing that "the principle of the unbroken connection of all events in the world of sense, according to the unchangeable natural laws, is firmly established, and admits of no limitation." How, then, is freedom possible? "Here," says Kant, "the common but fallacious supposition of the *absolute reality* of phenomena shows at once its pernicious influence in embarrassing reason. For if phenomena are things by themselves, freedom cannot be saved. . . . If, on the contrary, phenomena are taken for nothing except what they are in reality, namely, not things by themselves, but representations only, which are connected with each other according to empirical laws, they must themselves have a cause which is not phenomenal." This cause Kant calls "*an intelligible* cause," and although its effects become phenomenal, itself is not caused or determined by phenomena. "That *intelligible* cause, therefore, with its causality is outside the series, though its effects are to be found in the series of empirical conditions." This is the substance of the metaphysical conception by which he reconciles nature and freedom.

We have here two distinct ideas in connection with causality—two sides of the same thing; the one *intelligible*—that is, transcendental—in its *action* as a thing in itself; the other *sensible*, or phenomenal, as an *effect*.

It may naturally occur to his reader that Kant is

here taking the forbidden leap in the dark. The answer to that may be found in what is said elsewhere touching his idealism; he is no Berkeleian, but a believer in noumena. He therefore supports the above assertions by adding: "As all phenomena, not being things by themselves, must have for their foundation a transcendental object, determining them as mere representations, there is nothing to prevent us from attributing to that transcendental object . . . a *causality* which is not phenomenal, although its effect appears in the phenomenon."

In our discussion on the Freedom of the Will it was suggested that man's responsibility lay in his exceptional attributes as a reasoning being. He is subject to all the laws of nature just as much as any inanimate object; but his actions are partly determined by qualities which differentiate him from such objects; and these qualities have their transcendental side as well as their natural side: "Man is thus to himself partly a phenomenon, partly, however, namely with reference to certain faculties, a purely intelligible object, because his actions cannot be ascribed to the receptivity of the senses. We call these faculties understanding and reason. It is the latter in particular which is entirely distinguished from all empirically conditioned forces or faculties, because it weighs its objects according to ideas, and determines the understanding accordingly, which then makes an empirical use of its concepts."

When we blame, and hold ourselves or others responsible for conduct, we unconsciously ascribe a

transcendental causality to reason by an assumption of freedom. Yet at the same time, we are compelled by the category of causation to impute an empirical, and hence irresponsible, character to human actions.

What proportion the one bears to the other, no one can ever know; nevertheless, an *intelligible* and transcendental share of freedom, where reason is unimpaired, must be conceded. Kant's point is, that Reason acts with freedom, "because it is not determined dynamically in the chain of natural causes," and "may have relation to a very different kind of conditions from those of nature; so that the law of the latter does not affect the former, and both may exist independent of and undisturbed by each other."

Turning to the metaphysical aspect of Immortality, similar objections hold good, either as to assertion or denial. We cannot hope to fully realise this till we have purged our minds of the crude fallacy of realism. That the soul cannot exist apart from the body, involves the illusion that body is the reality in itself which we take it to be. "The pretended association of two kinds of substances, the one thinking, the other extended, rests on a coarse dualism, and changes the latter, though they are nothing but representations of the thinking subjects, into things existing by themselves. Thus, the physical influence may be entirely upset by showing that the proof which was to establish it was surreptitiously obtained, and therefore useless."

When once we are thoroughly convinced of the

illusive character of dogmatic realism, we must see, that "if that kind of sensibility through which transcendental and, for the present, entirely unknown objects appear to us as a material world should cease, it would not follow that thereby all intuition of them would be removed, it being quite possible that the same unknown objects should continue to be known by the thinking subject, although no longer in the quality of bodies."

It is perfectly true, as Kant goes on to say, that we cannot do more than presuppose the possibility of this; but quite as clearly, no dogmatical objection can be raised against it on the score of experience, since man "cannot pretend to know on what the reality of external phenomena in our present state (in life) really rests, neither can he know that the condition of all external intuition, or the thinking subject itself, will cease after this state (in death)."

We must never forget that we inevitably labour under the illusion, that the subjective conditions of thought give us a true knowledge of the object. The oblivion of this illusion warps all our reasoning concerning matters which transcend possible experience.

CHAPTER XXXI

TRANSCENDENTAL SOLUTIONS—(*continued*)

AT last we are in a position to sum up the conclusion of critical Reason against, and for, belief in a Supreme Being. It comes to this: self-evident proof of God—we have none. Whether we seek it in the ontological, or in the cosmological, or in the physico-theological argument, we are face to face with the insurmountable objection that the principle of causality, upon which all three depend, "has no meaning and no criterion of its use," except in the world of sense. That it has a transcendental validity is a mere *idea*, which may or may not be a true one. But, however logical the possibility of the concept, it remains a fabrication of the intellect, based upon sensuous experience.

Notwithstanding this deadlock, the teleological argument, viewed in its widest bearings, still possesses irresistible sway. That Kant, after all his elaborate warnings, should earnestly insist upon this, must have a persuasive influence on those who still suspend their verdict. No plea is wanted for the full repetition of the great thinker's utterance.

"The present world presents to us so immeasurable

a stage of variety, order, fitness, and beauty, whether we follow it up in the infinity of space or in its unlimited division, that even with the little knowledge which our poor understanding has been able to gather, all language with regard to so many and inconceivable wonders, loses its vigour, all numbers their powers of measuring, and all our thoughts their necessary determination; so that our judgment of the whole is lost in a speechless but all the more eloquent astonishment. Even where we see a chain of causes and effects, of means and ends, of order in birth and death, and as nothing has entered by itself into the state in which we find it, all points to another thing as its cause. As that cause necessitates the same further inquiry, the whole universe would thus be lost in the abyss of nothing, unless we admitted something which, existing by itself, original and independent, outside the chain of infinite contingencies, should support it, and as the cause of its origin, secure to it, at the same time, its permanence." "It reveals aims and intentions, where our own observation would not by itself have discovered them, and enlarges our knowledge of nature by leading towards that peculiar unity, the principle of which exists outside nature."

Kant calls special attention to this unity which pervades the arrangement of the whole. "The nature of different things could never spontaneously, by the combination of so many means, co-operate towards definite aims, if these means had not been selected and arranged on purpose by a rational disposing

principle according to certain fundamental ideas." The unity of the "sublime and wise cause may be inferred with certainty from the unity of the reciprocal relation of the parts of the world, as portions of a skilful edifice, so far as our experience reaches, and beyond it, with plausibility, according to the principles of analogy."

Conclusion

My task is ended—ended, because it is endless. The subjects to which it is addressed are inexhaustible. The remaining pages may not inaptly be devoted to a cursory review of the theological opinions which are most widely extended in the present day.

By far the most interesting of these is Pantheism. In the metaphysical conception of the term it has a strong hold upon many master-minds; under the name of Mahometanism it is professed fanatically by millions. Such being the case, it may seem strange to ask, What, then, is Pantheism?

In his conversations with Eckermann, Goethe speaks of people who button-holed him, to talk of Pantheism. "I have not yet met one," he says, "who knows what the word signifies." For his part, he declares that he cannot content himself with any special mode of thought. As poet and artist he is polytheist. "As naturalist, on the contrary, I am pantheist." The cosmic unity, which Kant lays stress upon as evidence of a supreme directing intelligence, had a large share in the pantheistic unitary philosophy of Goethe. For him, a God outside the

world, who "only impels" it, was inadmissible. Equally repugnant was the idea of a self-sufficient mechanical dynamism.

Alluding to the atheism of Holbach: "How hollow and empty," he writes, "did we feel in this melancholy, atheistical half-night, in which earth vanished with all its creatures, heaven with all its stars; there was to be a matter in motion from all eternity, and by this motion right and left, and in every direction, without anything further, it was to produce the infinite phenomena of existence." (*Dichtung und Wahrheit.*) We see here his accordance with Kant, at least as to a necessary cause for the order of nature throughout the universe. Goethe would have said with Thales, "The divine soul mingles with the mass of things, with the universal substance. The world is animated and living, it is replete with the gods." (*Philosophie de Goethe*, ch. viii., Caro.)

Hear what Heine has to say of Goethe's Pantheism. Heine's own definition of it is, "Alles ist nicht Gott, sondern Gott ist alles." (All is not God, but God is all.) Paralogistic in form, it still has a meaning; this he makes somewhat clearer. "God manifests Himself, not uniformly in all things, as Wolfgang Goethe believed, who thus adopted indifferentism and apathetic agnosticism, and busied himself, not with the highest of human interests, but only with the pastimes of art,—*Kunstspielsuchen*,—anatomy, the structure of plants, and observation of the clouds.

"God manifests Himself in some things more than others. He lives in this incessant manifestation.

God is in Movement, in Action, in Time. His holy breath—*Odem*—stirs through the leaves of history; this, rightly speaking, is the Book of God." Goethe's own words show that Heine's criticism is but a one-sided reading of the great master's creed. It serves, however, to illustrate Heine's own.

Hegel's coincidence of absolute thought with absolute existence is but Pantheism in disguise. What man recognises as the True, the Good, the Real, are such for all thinking beings that do, or can exist. The "magnificent absurdity" of this "delirium of revelation, which elevates thought to a divinity," as Lange describes it, is patent to the student of Kant. The identity of thought and being has, however, a latent significance, which gives it another character. The unity of the human spirit, and of all possible spirits, with the soul of the cosmos—the inclusion of the particular in the universal—is no creation of Hegel's genius, it is as old as the earliest Greek philosophy. In Hegel's hands, enshrouded though he is in that mystical obscurity, which so fascinates those who have no passion for clear thinking, it is still little else than a travesty of the Pantheism from which it really emanates.

The objections to Pantheism, from the religious point of view, are transparent. Schopenhauer repudiates it on *a priori* grounds. "Only so far as you start from a God, that is, so far as you possess him as something with which you are already familiar, can you end by identifying him with the world; and your purpose in doing so is to put him out of the

way in a decent fashion. In other words, you do not start clear from the world as something that requires explanation; you start from God as something that is given, and, not knowing what to do with him, you make the world take over his rôle. This is the origin of Pantheism."

A more serious embarrassment for the seeker of religious faith is precisely that which obtains against Deism. The Deist who holds that God created the world, and is also omnipotent, makes God responsible for all this world's evil. Pantheism, although it obviates the antinomy involved in the notion that the infinitude of God is limited by His relation to the finite, still, by identifying God with the world, equally ascribes its imperfection to the All. We still have the Jahveh of Isaiah, "I form the light, and create darkness. I make peace and *create evil.* I the Lord do all these things." (Ch. xlv.) There is but little comfort in a belief so terrible as this.

The "La Ilāh illa Allāh" of the Mahometan, "There is no god but God," is to all intents and purposes what Palgrave calls it: "the Pantheism of Force and Act," which is identical with the conception of Heine. It is as fatalistic as the grossest materialism. The full sense of the words, "There is no god but God," is not only to deny absolutely and unreservedly all plurality, whether of nature or of person, in the Supreme Being; not only to establish the unity of the Unbegetting and Unbegot in all its simplicity and uncommunicable Oneness; but, besides this, "the words in Arabic imply that the one Supreme Being is

also the only Agent, the only Force, the only Act existing throughout the Universe, and leave to all beings else, matter or spirit, instinct or intelligence, physical or moral, nothing but pure unconditional passiveness, alike in movement or quiescence, in action or capacity." [1]

Heine is right; the history of our little planet is the Book of God. This is the book of revelations for us. Here, in the recorded progress of the ages, we have visible proof of His design. The earth itself and all that ever lived thereon proclaim the glorious truth. Here we have the certain promise of man's ennobled destiny, when he shall come to *know* there is a God. Herein is the answer to Lessing's heartfelt cry:

"Is the human race never never to arrive at this highest step of illumination and purity? Never? Never? Let me not conceive such blasphemy, All-merciful! Education has its goal in the race no less than in the individual. What is educated is educated for something. No, it will come; it will assuredly come,—the time of perfection when man, his reason convinced of a better future, will nevertheless not need to borrow from the future the motives for his action; when he will do good, not for the sake of arbitrary rewards that were intended chiefly to fix and encourage his unsteady gaze, but in recognising the inner better rewards of well-doing." [2]

And Christianity: whatever belief we may profess, however indifferent to traditional doctrines, will any

[1] W. G. Palgrave, *Central and Eastern Arabia*, vol. i.
[2] *Die Erziehung des Menschengeschlechts.*

one of us venture to deny the influence for good which, in the main, Christianity has exercised during nearly two thousand years? What is understood by its preternatural element will pass away in the coming enlightenment; but the best of its moral and spiritual teaching,—its aid and encouragement to self-renouncement, and cheerful resignation to active duty and benevolence, to charitable judgment, to purity of heart, to hope and peaceful trust,—these are its permanent bequests; and they will abide with us till they become as hereditary as our natural instincts.

As a last word let us take Herbert Spencer's speculations—representative as they are—for our final text:

Until nearly the end of his life, so Spencer himself tells us, he had "a pronounced aversion" from all forms of religious belief. "The creed of Christendom is evidently alien to my nature, both emotional and intellectual. To many, and apparently to most, religious worship yields a species of pleasure. To me it never did so." (*Autobiography.*)

An able reviewer of the man and his works remarks: "He was born too good to be troubled by a sense of sin, and as he had a somewhat lukewarm emotional nature, and was singularly devoid of any poetical or mystical sense, he was not likely to approach religion by either the practical or the emotional path." (J. Arthur Thomson's *Herbert Spencer.*) We have here a striking instance of the influence of inborn temperament upon acquired

knowledge. The imaginative and poetical element was notably wanting; its presence is essential to religious belief; its want was a defect. The highest order of mind—take Goethe's, for example,—combines the greatest intellectual activity with exceptional creative power and emotional susceptibility. The most complete spiritual development implies a balanced possession of all the better mental attributes. The man who by nature is deficient in intelligence is not more imperfect than the man who is devoid of feeling. The absence of either denotes incompleteness.

We must not look to Spencer for sympathy with religious faith; yet, in spite of his own avowal, there is, in my opinion, no stronger support to a lasting belief in religion than is to be found in Herbert Spencer's philosophy. He has been assailed by theologians for substituting so vague an abstraction as the "Unknowable" for the anthropomorphic conception of a personal God. But although he consistently declines to predicate anything whatsoever of the Unknowable, he rigorously refrains from all denial. Every conceivable supposition lands us in inextricable difficulties. "An uncaused God is as inconceivable as an uncaused universe." This is indisputable; but it is not Atheism, nor is it Materialism. Materialism is for Spencer an absurdity. He repeatedly asserts in varying language that "the reality underlying appearances is, and must be for ever inconceivable to us." He declares, in his autobiography, that he has "an ever-increasing consciousness of its (Science's) ultimate value as a transfiguration of things which,

marvellous enough, within the limits of the knowable, suggests a profounder marvel than can be known." Which comes to this: the more we know, the less we understand. As for Materialism, again and again he declares, "that a unit of feeling has nothing in common with a unit of motion, becomes more than ever manifest when we bring the two in juxtaposition." (*Principles of Psychology*, i. 158.) And, "were we compelled to choose between the alternatives of translating physical phenomena into mental phenomena, the latter alternative would seem the more acceptable of the two."

Such a philosophy might be entertained as agnostic theism by any one not a materialist. Nor is it incompatible with the firmest religious convictions.

The doubts which could not fail to rack a great mind like Spencer's, are, as he gives expression to them, the natural accessories of such a temperament. There is something terrible in the eloquence with which, at the close of life, he depicts the desolating possibility of "Everlasting Nothingness." "In which way," he impressively asks, "are we to interpret the lifelessness of the greater celestial masses—the giant planets and the sun,—in proportion to which the habitable planets are mere nothings? If we pass from these near bodies to the thirty millions of remote suns and solar systems, where shall we find a reason for all this apparently unconscious existence, infinite in amount compared with the existence which is conscious—a waste Universe as it seems?"

Not always could this have been his mood; he was not a believer in an "Absolute commencement of organic life." In connection with the above passage, he speaks of the inscrutable mystery of "consciousness which during the development of every creature, makes its appearance out of what seems unconscious matter; suggesting the thought that consciousness in some rudimentary form is omnipresent." Surely this is far easier to believe in than the awful alternative—a *waste universe.* Besides the possibility of omnipresent rudimentary forms of consciousness, which we have considered in our discussion on atoms, why may not these thirty millions of remote suns be the laboratories in which nebulous matter is prepared for new-born life? Why may not every solar system throughout the universe be what ours is—a nursery for the evolution of progressive spiritual being? And why, having fulfilled this purpose, should not each be dissipated, as we are told ours will be, to recombine its forces in another sphere?

Is it an exaggeration to suppose, that what we believe to have happened in our system may happen elsewhere? When we think of the millions of solar systems, and think of them as of so much unconscious existence, infinite in amount as compared with conscious existence, the thought is certainly staggering. Yet, what is a solar system in magnitude compared with infinity? An expensive apparatus for the development of life? Would it appear so to supreme and Omnipresent Consciousness—if such there be? Possibly to IT, spiritual development may be all,

and the means of production—nothing. Compared, not with millions, but with the infinity of solar systems, the greatest of them may be less than a truck of coal to drive an engine for an hour or two, —worthless, in comparison with the result; certainly not wasted, if indestructible, and capable of renewed combination. Last, and most appalling of fears, rises the paralysing thought—"What if, of all that is thus incomprehensible to us, there is no comprehension anywhere?"

This reminds one of an equally striking exclamation of Tyndall's in his *Musings on the Matterhorn.* The whole passage is imbued with eloquence. As he surveys the mountain in its "savage strength" from its higher crags, he describes the wonderful scene with poetic force; its terrors and its glories enhanced by partial mist. "Did that formless fog contain potentially the *sadness* with which I regarded the Matterhorn? Did the *thought* which now ran back to it simply return to its primeval home? . . . When I look at the heavens and the earth, at my own body, at my strength and weakness of mind, . . . and ask myself *is there no being or thing in the universe* that knows more about these matters than I do; what is my answer?"

May we not reply—The question is its own answer?

The bare idea of such a possibility as Spencer and Tyndall dreamed of is indeed paralysing for any human being to whom "religious worship yields a species of pleasure." Such a thought is a shock

which converts every pleasure, not only that of worship, into distress. Peace and Hope suddenly shrivel into blank despair. There are and always have been good men and women whose ethical code is, or was, apart from any religious cult; who have, or had, no belief in immortality; nor dreamed of reward or punishment beyond the natural consequences of their behaviour to others and to themselves: men and women whose moral intuitions impelled them to love justice, mercy, self-renouncement, and all we mean by goodness, for its own intrinsic worth. To such as these, the sweetest solace for suffering, the greatest encouragement to bear patiently the ills of life, and fight bravely against them, is and ever has been the trust that Something *knows*,—Something sympathises with their sorrows and their resignation, their trials and their efforts. Deprived of this belief,—death for them, indeed for a large proportion of mankind, were incomparably better than life.

Is there no rational argument (not to establish the existence of an Omnipotent Consciousness, still less of a sympathising God which, as we have seen, is unprovable), but, is there no probability of a Being whose spiritual attributes are in a remote sense analogous to ours? An answer seems to lie (1) in the suggested omnipresence of consciousness; (2) in some form of idealistic monism,—or spiritual Reality underlying all sensuous appearances. The latter supposition, though partly subject to logical treatment, —the relativity of knowledge being scientifically

demonstrable,—resolves itself into a metaphysical one; for the postulated Reality belongs to the realms of the Unknowable.

The omnipresence of some form of consciousness, on the other hand, is a supposition arrived at inductively. Assuming, as we must, that consciousness has been evolved in other parts of the universe under conditions similar to those which have obtained here; assuming that evolution is continuous, and that its course is progressive, as we know it to have been here; having, moreover, no ground whatever for the supposition that advancement is anywhere arrested until stable equilibrium is reached; we are entitled to conclude that there must be planets in other solar systems incomparably more matured than in ours; and that their inhabitants are proportionally superior to ourselves.

If this is so, where are we to demarcate the ascending scale? The range being infinite, the imagination refuses to stop short of the highest possible. To say: whatever is finite must have a limit, is but tautology; yet, this highest-possible finite is inconceivable to so trivial a thing as man. And when reached, are we to say there is no infinite above it? Or shall the Whole fail to be conscious of what the parts are conscious? If every atom is a form of rudimentary consciousness, can we believe that the Infinite unity of atoms results in infinite nescience?

How could Spencer, who preferred idealistic monism to monistic materialism, have really allowed

himself to be paralysed by the thought that Space, Time, Motion, Force, and Matter, were infinite,—yet "wasted," because Mind alone, in all the universe, was finite! The Pantheist is more reasonable in thinking otherwise.

THE END

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