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EVOLUTION-PHILOSOPHY

BY

M. E. CAZELLES

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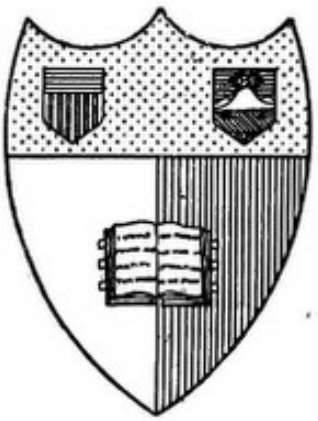

OUTLINE

OF THE

EVOLUTION-PHILOSOPHY.

BY

DR. M. E. CAZELLES.

TRANSLATED FROM THE FRENCH,

BY THE

REV. O. B. FROTHINGHAM

WITH AN APPENDIX

BY

E. L. YOUMANS, M. D.

NEW YORK:
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1875.

INTRODUCTION.

In France, nowadays, few works of dogmatic philosophy are produced.

The writers who belong to the school of Auguste Comte endeavor, by means of useful monography, to spread positive knowledge. By the analytical character of their studies, and by the efforts they make to avoid the construction of systems on metaphysical ground, they do homage to their master's ideas.

The school of materialism which still holds to the dogmatic method of metaphysics, bears too plainly the stamp of its origin to possess a developed doctrine. Its adherents, graduates mostly from the laboratories of the chemist and the physiologist, are indifferent to departments of knowledge that are inaccessible through these two sciences. When they speak of thought and of society, they simply carry over to the facts indicated by these two terms an induction drawn from their own special studies.

The authors and professors who are concerned with the teaching of official doctrines mainly devote themselves to the defence of certain authorized credences, and to the

demolition of the rival opinions of positivism and materialism. Their labors are, therefore, almost exclusively critical.

Among the thinkers who belong to neither of these categories, but who have distinguished themselves by special works of great philosophic depth and reach, some take pleasure in tracing the outlines of a treatise on the nature of things; they would, perhaps, undertake such a treatise, if they could detach themselves from researches that profoundly interest them, or could be satisfied that they had collected a sufficient number of incontestable data.

The stage of patient analytical research, at which the French mind of our time is halting, must necessarily be succeeded by an epoch of synthesis, as the period of incubation is followed by a period of birth. But, while with us only rough draughts appear, in England a bold scheme of construction is submitted.

Mr. Herbert Spencer, in a work of great compass, a revised edition of the first volume of which has recently been published, offers to our consideration a synthesis of the universe, as apprehended by an intellect enriched by all the treasures won by science.[1] The friends of philos-

[1] The name of Herbert Spencer, though unfamiliar to the public, cannot be unknown. His full discussion of objections to Auguste Comte's classification of the sciences, which may be read in the sixth chapter of a work by M. Littré ("Auguste Comte and the Positive Philosophy," 1863); then an interesting article on the first edition of "First Principles," published by M. Laugel in the *Revue des Deux Mondes* (February 15, 1864); a rapid review of Mr. Spencer's theory of the *unknowable*, in the preface, by a disciple, which M. Littré prefixed to the second edition of the "Cours de Philosophie" of Auguste Comte, must have given us to understand with what a vigorous thinker we have to deal. Since then, divers notices in philosophical writings, too brief and incidental to recall, have kept the name in remembrance. Finally, this very year, a professor

ophy must devoutly hope that the author's health, already shaken by intellectual toil that would try the most robust constitution, may permit the completion of a work that crowns a life of consecration to lofty studies.

To pass judgment at present on a work which is to comprise ten volumes, and of which but five have appeared, would be rash. Nevertheless, as Mr. Spencer, before undertaking his "System of Philosophy," has submitted his views by fragments, in volumes or in contributions to reviews, we are able to follow the author through the successive passages he traversed before finally arriving at the synthesis we find in the "First Principles." It should not, however, be forgotten that in the previously-published books nothing is conclusively stated; and that the author, by connecting them with the principle of evolution, proposes in the course of his work to complete views which, by his own confession, are but an imperfect expression of his actual thought.[1] Making this allowance, we shall attempt a description of the character of Mr. Herbert Spencer's philosophy, and shall indicate the part which, in our judgment, every synthesis of the kind is called, under actual circumstances, to fill.

in the university, M. Th. Ribot, published a carefully-elaborated book on "Contemporaneous English Psychology." There will be found a clear summary of the "Principles of Psychology" (first edition), and of some essays by Mr. Spencer. We ought also to mention a pamphlet by our friend M. Grotz, pastor, on "The Religious Sentiment." There one may read an admirable exposition of Mr. Spencer's opinions on the function of religion and the significance of the religious sentiment.

[1] *See* the preface to the stereotyped edition of "Social Statics," 1868.

CONTENTS.

CHAPTER VII.

CHAPTER VIII.

CHAPTER IX.

APPENDIX.

OUTLINE

OF THE

EVOLUTION-PHILOSOPHY.

CHAPTER I.

THE PROBLEM OF THE UNIVERSE.

THE universe, whether regarded as a whole or in the marvellous variety of its details, presents itself before us as an enigma. The mightiest intellects are, by an irresistible force, constrained to seek its explanation. In all eras of history, doctrines religious or scientific, initiations into mysteries, or treatises *de natura rerum*, have been put forward as explanations of the phenomena which at the time composed the world of experience. The number of attempts ventured thus far, and the attempts that are still continually made, clearly enough declare that the problem is not solved yet. Can it be solved? There have not been wanting those who put the question in this formidable shape. The constantly-renewed attempts at explanation, the systems proposed by thinkers who, undaunted by the failure of their predecessors, cherish a firm conviction that they have found the magic word, compel us to believe that these incessantly-renewed endeavors proceed from an unsatisfied craving of our nature. But skeptical doctrines

periodically recurring come forward in their turn, and deny the apparently-established results of speculation, sap their foundations, and repress the enthusiastic flights of dogmatism; dissipating even the possibility of gaining a knowledge of such matters, they haughtily pronounce the search vain. The past is a pledge of the future, say the friends of metaphysics; the need that has impelled former generations will not allow coming generations repose; humanity will never be indifferent to these noble and salutary researches; if it ever could be, it would be punished straightway by an irreparable loss; such a need could not have been planted like a germ in our nature simply to lead us forever astray. The past is a pledge of the future, say likewise the enemies of metaphysics; where the human mind has always failed, it always will fail. Doubtless, its efforts have not been quite sterile; if it has not found the truth it looked for, it has often found truths it did not look for. But what might it not have accomplished for the happiness of mankind, if its efforts had been brought steadily to bear on problems within reach of its faculties; if, abandoning the hope of explaining the universe, it had applied itself solely to the task of exploring the world within which it was confined! An experience, grand though it may have been, which thus furnishes an argument to both the philosophic parties that contend together, is yet not decisive in the case. The question whether the human mind is to pass forever through these alternations of metaphysical fervor and faintness—is to be condemned to an endless and profitless toil—must be referred, not to beliefs more or less cardinal which the mind contains, but to the constitution of the mind itself.

All that we know is the result of experience: this tells us that things change, that is to say, present themselves to us in different successive states. We regard them from a human point of view, according to the idea, correct or oth-

erwise, that we form of our own actions, and attribute to them causes and ends. Whatever meaning the metaphysician may attach to these two words, we always mean by "cause" that one thing stands in sequence to another thing to which it is bound by an invariable relation—a law in accordance with which the first term being given, the second is immediately conceived of as necessarily following; by "end" we mean that every thing is represented to us as a middle term—a middle term between an initial term known or supposed, and a final term equally known or supposed. We are always led to generalize our experience; and, as we see things always change, we conclude that all things, considered as a defined whole, though of unknown outlines, are submitted to a law of change—that there are a cause and an end; in other words, a first state and a last, separated by a number of indeterminate states, each one of which is held to be cause and means in regard to the state that follows it, effect and end in regard to the state that precedes. But, although we conceive the world as traversing in its duration an infinite number of points, all composed of innumerable correlated phenomena, as none of these points are completely known to us, and as all that we can grasp of them is limited to the relations of coexistence between phenomena of the same class, and to the relations of sequence between phenomena which we refer to two consecutive classes, it is only by the boldest anticipations of experience that we assign to the series of groups a law of succession, and to their mass laws of causality and finality. Three questions are raised, therefore: What is the primary cause, or what are the primary causes, of the world? What is the end, the final cause of things, severally and collectively? What are the means, the secondary causes, of things, separately and collectively; in other words, what is the order after which the successive states are coördinated?

If, leaving out of view the successive stages of the world, we confine our attention to the forces which impel them to succeed one another, we are led to the supposition of a primitive force which precedes and introduces the first stage. But, is there one only primeval, homogeneous condition, or is there, rather, a coördinated system of conditions; or, yet again, an indefinite number of independent conditions? In other words, is there one single primitive force, or are there many primitive forces united by one law; or, again, is there an indefinite number of forces independent of each other, which would make indeterminateness the true law of the world? If there is but one, how shall it be represented? Is it associated with a consciousness in which a preëstablished purpose and an indefinite series of means are present at the same instant, or are there different conscious forces, representing diverse orders of means, and each tending toward different ends? The derived forces that produce on our minds the phantasmagoria of successive states which represent things to us, are they portions or products of the first cause? If portions of it, how and wherefore did they become separated from it? If products, how and wherefore their creation? These and many other questions have always exercised philosophers. As they have been put in rapid succession, and, as the greedy mind demanded an instant solution, the solution has been given by generalizing the views of the mind, by condensing abstractions. In the same way the solution is given now. Between the explanations of ancient and those of modern metaphysics the difference is merely in form, not in substance. In the place of facts rudely heaped together, we have now facts well observed, that are adduced to explain what can be called a fact only by a manifest departure from the ordinary sense of the word. The accessories—what we may call the scientific dress of the solution—must not conceal from us the true substance of it, namely, the interpre-

tation. The interpretations are ever the same, and the same things remain to be accounted for.

It is easy for us to see that no actual advance toward an explanation has been made. Intelligent criticism discloses the reason. Every thing known, being known in the consciousness, is composed of actual states of consciousness. A primary fact, posited without an antecedent, cannot be represented in consciousness, where all facts are antecedent and subsequent; it passes its comprehension; it is inconceivable, unintelligible, unknowable. It is not reason that posits at the head of a series a primary fact, it is an act of faith; it is by an act of faith that we admit a first cause; by an act of faith just as plausible we might admit several first causes. It is, again, an act of faith that endows them, when posited, with personality, with human attributes, intelligence, feeling, and even with sensible form. Intellect gives place to imagination. But philosophers have always shown great repugnance to confess the insufficiency of reason, to openly avow an act of faith. They will not even acknowledge that they are reduced to that. They rush eagerly off in search of a new basis, leaping from abstraction to abstraction, in hope of discovering behind a general name a more solid material. They will borrow the materials for a new structure, sometimes from intellect, sometimes from sentiment. They bring into service harmony, love, perfection — very intelligible things in a limited sphere, when considered as laws of a group of concrete facts; but, when applied to the whole mass of things, incapable of designating other than an indeterminate order, a pure tendency, an assemblage of contradictions, a continuous being, supporting all modes of existence, himself no mode in particular; in a word, the Infinite and Absolute, who is distinguished only by name from the formless and indefinite substance of the ancients.

Criticism has, we think, clearly demonstrated the in-

competency of science to throw light into these regions. All who are acquainted with the actual state of philosophy know very well that it is not passing through a crisis from which it may issue with new forces. It is summoned to admit the radical powerlessness of the human mind to know the truth on questions in all time regarded as fundamental. It can no longer evade the obligations of resorting, for the satisfaction of the mind, to a greater or less number of acts of faith.

As soon as this decisive step is taken, we find ourselves on other ground entirely; we are no longer dealing with science, but with religion. The problems which general science is unable to solve, religion takes up; she has always had them in charge. To the questions we have raised, as to many others we have left unmentioned, the different forms of religion have offered different replies. If there is no absurdity that has not found a philosopher to defend it, as little is there an absurdity that has not found a place in some dogma of religion. Religion, as well as science, must face criticism. Upon what foundation will it support the truths it announces? Will it appeal to experiment, and to induction based on experiment? When the cause of a thing was represented as an animated being, so long as a universal anthropomorphism spread a human vitality over all Nature, first causes might be represented with human attributes. Being persuaded, moreover, by personal experience or by witnesses deemed worthy of credit, that the gods held palpable relations with created beings, and intervened in the concerns of the lower world, men might believe that supernatural beings had built up the universe, so far as known, by means more marvellous but similar in kind to those that artists employ in the construction of the works of art they fashion with their hands. It was possible to believe, then, that they had a sufficiently good idea of the method as well as of the causes of things, even if they did

not comprehend their final object, and felt that the motive was shrouded in mystery. But since anthropomorphism, though not abolished, has lost credit so far that the supernatural beings no longer manifest themselves directly in material fashion, except it be to the entranced mind of a miraculously-assisted person, here and there; since the religions of civilized people recognize but one God, whose glory the heavens declare, or who reveals himself to the heart—a God stripped of all the lower attributes of humanity, preserving only its intellectual and moral qualities —appeal can no longer be made to experience; the images which are indispensable as explanatory symbols cannot be supplied. Reason can give none of them except by the help of this or that system of metaphysics, the upshot of which we know too well. The ideas of reason, whatever their origin, are simply the laws of experience, they do not furnish experience; they give us no help in representing to us what we are to believe. Even if we imagined that we represented well enough the cause of the universe when we posited it by an act of faith, we have no representation of the way in which this Supreme Being communicates with what are called his works; it must be confessed that nothing is known of the why or the how of the universe, and that neither of them is conceivable. The act of faith does not keep its promise, the temporary device fails to effect a complete illusion. One step beyond, and the Divine Being himself will cease to be conceivable, from the lack of intellectual and moral attributes which imply no contradiction; religious minds will then see clearly the truth apparent already to not a few. At this point every show of explanation must cease, and it must be admitted that religion is in no better condition than science is, to tell us what the human mind would give every thing to know. On the one side, scientific generalizations, more and more comprehensive, result in expressing nothing but the connection

between two terms united by their relative place in time; by dint of abstracting and classifying, we arrive at an irreducible abstraction which cannot be classified. On the other side, the symbols of religion, becoming more and more vague, come at length to signify nothing but pure Being; by laying stress on mystery, we reach the point of taking as our object a Being who cannot be so much as conceived of. Either way, speculation is in danger of losing its object. Religion tends to self-absorption in the contemplation of its mystery, and science confesses her inability to penetrate it.

But religious minds, and particularly theologians who speak in their name, are very far from being convinced that their mystery may not be represented in a way to seize powerfully the imagination. Hitherto, their attempts to give some sort of image to that which cannot be faithfully depicted have succeeded for a time, at least with the masses of mankind, in imposing on the craving for knowledge, just as in science the attempts at general explanation, however fallacious they may have been, appeared plausible enough at the moment when they were proposed. If men of science, or metaphysicians availing themselves of scientific abstractions, still hope to produce satisfactory syntheses, why should the theologians, whose success in the past has been far less disputable, all at once abandon the hope of rallying intelligence by their symbols, imperfect as these are in the judgment of the most enlightened among them, idle as they are in the regards of criticism? The philosophers have, therefore, a duty to discharge. It is not for them any more to engage in new metaphysical speculations; but since, in the name of religion, people will pretend, for a long time yet, to offer solutions of the problems of a first cause and a motive of the world, they must offer solutions that are credible—in harmony, that is, with the sum of truths that we regard as otherwise established.

Religion, in fact, will do well not to contradict what we know of the series of laws of experience; in telling us about the wherefore of the universe as a whole, or merely about any one of the entities that compose it, she must not do violence to the order which science has fairly proved. In a word, religion must treat the problem of which it is its duty to furnish the provisory solution, under the fixed control of organized and classified experience.

CHAPTER II.

HOW FAR CAN THE UNIVERSE BE EXPLAINED?

THE old antagonism, we do not say between religion and science, but between theologians and *savants*, is not, then, finally healed; nevertheless, it has changed its character. Science is no longer a rival of religion, but an independent power, with another work to do, a special function to perform, the limits whereof must be precisely defined. It is the true function of science to systematize knowledge. To systematize knowledge is to classify it; it is to link together, according to common principles, all its known or knowable series, and to connect them all with the most general principle; it is to resolve abstractions into one another until, in a final abstraction, a general formula be arrived at, a condensed symbol of the immense variety of changes that are revealed to consciousness; it is the reduction of variety to unity. But, this end attained, we must not think the mystery explained. The highest abstraction that can be found by analysis, and that may afterward serve as basis for a system, represents something which is still unaccounted for.

Since the success of Newton's marvellous generalization, which explains the movements of the great celestial bodies as well as of bodies terrestrial, by the laws of gravitation, it has been possible to start a scientific theory of the genesis of the solar system, and to extend it, from the farthest planet to other stars, surrounding it with so

many guarantees that the later discoveries, as well in astronomy as in physics, have but added confirmation to it; so that we are forced to believe that, from the moment when the cosmical matter began to collect about a centre, things have gone on as the theory describes. Nevertheless, two points remain unexplained: the existence of cosmical matter and the cause of the concentration.

When Lamarck derived the two kingdoms, the vegetable and the animal, from brute matter, through the intervention of gelatinous substances formed in water-courses, and brought back the animal kingdom, ranged in series, to the primal monad spontaneously engendered, he explained the production and transformation of living beings by a concurrence of external circumstances and of interior movements, which were as far from being conceivable as from being proved. The fame that has attached to the ideas of Lamarck, since recent works have made them familiar, and the discoveries of the microscope, which have, so to speak, modified the notion of being into biology, ought not now to delude us. We know that the old adage, "*Omne vivum ex ovo*," has given place to a more general axiom, "Every living creature proceeds from a cell;" that from a minute cell, an essential part of the egg, have issued all organizations, which, after all, are but groups, more or less considerable, of cells more or less modified. We know that in both the kingdoms of life there are organisms composed of a single minute cell, which live separate and reproduce themselves, as the cellules that make part of more complicated organisms do. The formation of the first cellule, and the chain of imperceptible movements the succession whereof produces life in this elementary being, always remain unexplained.

There is a recent theory that is destined to a great distinction. It is the theory known as correlation, equivalence, unity of forces, according as one has a lingering regard for metaphysics, or keeps strictly to the scientific view. Labors

which rank among the most admirable of contemporaneous science have spread abroad the idea that the mechanic, electric, magnetic forces, heat, light, chemical processes, vital processes, are, so far as we can see, so many manifestations of one and the same force, which is converted into one or another of these equivalents. We must not in this case, more than in the preceding cases, delude ourselves into the belief that where we see a phenomenon presented in one of the modes of force, followed by another phenomenon presented in another mode of force and equal in quantity, we see a reappearance of the same thing. This theory, admirable for the construction of a good scientific coördination, gives us nothing more than the laws of succession in phenomena, along with a special characteristic which increases its certainty — that, namely, of definite quantity. Not only does this theory teach us nothing respecting the pretended sole force which reveals itself to us under these diverse forms; the very phenomena it unites do not cease to appear diverse

The idea of law exposes us to a similar peril. Born of a somewhat vague belief, it has become a type of certitude. At first it was but the perception of a relation of sequence, or of coexistence between certain phenomena of known quality, accompanied by a prevision, that is to say, by a belief in the future recurrence of the same phenomena under the same conditions. In proportion as the prevision is justified by the event, the confidence in its exactness increases in strength; the power of foresight gains at once in precision and in scope. The idea of fixedness in the return of phenomena takes root. Feeble at first, and hardly outweighing in value those probabilities in which the number of unfavorable chances scarcely allows us to reckon on the realization of a favorable chance, the idea of law is fortified as much by the frequent recurrence of phenomena related in the manner it describes, as by the indefinitely-re-

peated confirmations of the previsions founded on it. When it has acquired a degree of certainty that warrants a prevision in kind, it may serve as a base for scientific theories as yet imperfect, and incapable of being expressed except in popular speech. But when, in the progress of science, the relation is known with a degree of precision that justifies the prophecy of a sure recurrence, definite as to quantity in time, space, and degree, the certitude is as great as can be conceived. Then no room is left for unfavorable chances; the prevision is reckoned complete, and the law is expressed in the terse, unambiguous language of mathematics, instead of the popular phraseology, which is always tainted by indecision. Thenceforth, the mind of the philosopher, made familiar with established relations, and occupied with the discovery of new ones, is so far dominated with the idea of law that he cannot conceive of a phenomenon without a law that *accounts for* its production. He anticipated the unknown in affirming the universality of a law; and now, rising to the highest degree of generalization, he proclaims it as "a law, that every thing depends on a law." If the laws that govern any order of events whatever are unknown to him, he concludes thence that they are yet to be sought; and, if he fails in his search, he concludes from this, again, that the means employed are not the best, or that our knowledge is not advanced enough to make investigation fruitful. But he never contests the principle. "He refuses to admit that the course of scientific progress is to turn back suddenly on itself; he will acknowledge no other cause of ignorance than the insufficiency of our forces, and he does not hesitate to declare that humanity must in the end discover a constant order among phenomena the most complex and the most obscure." [1] Every fact, we are

[1] Herbert Spencer, "Classification of Sciences," p. 64, edition of 1869, in the Appendix entitled "Laws in General," which was inserted in the first edition of "First Principles."

told, is explained by its law, and a law is explained by showing that it, too, has a law; in other words, that it is a particular case under a more general law. The universal explanation, then, would be given in a law under which all other laws should be particular cases, or in a theorem whereof all known relations should be corollaries. In this way the mind of the philosopher, in its more ambitious dreams, may imagine a solution of the problem of Nature. But let us not be beguiled by false appearances. There is no talk, yet, of a true explanation. The mind accustomed to abstractions is the dupe of an illusion when it takes laws for realities. Laws are symbols of order; they do not account for order. The man of the world does not entertain the same idea that the philosopher does, of the laws of the universe; falling in with the usages of popular speech, the familiar expression of general beliefs, he sees in a law simply a regulation, like that of the civil code, imposed on the march of events by the arbitrary will of a supernatural legislator, in view of certain mysterious ends which religion reveals or metaphysics conjecture; and he has, more commonly than most philosophers, a sense of the mystery which we merely displace when we transfer it from an event to a law, and from one law to another more general law. "To explain one law of Nature by another is simply to substitute one mystery for another; the general course of nature is no less mysterious than before, for we can no more assign *a reason* for the more general laws than for the more partial." [1]

We ought to be thoroughly convinced of the fact that what we have a right to demand of science is not an explanation; it is a coördination of the relations which experience shows us as existing among all the orders of phenomena in the world; not with an intent to substitute a new dogmatism for an old one, as many believe, but with

[1] J. S. Mill, "System of Logic," vol. i., p. 581.

a purpose to oppose an insurmountable barrier against the return of aggressive dogmatism in any form. This function, thanks to an authority that is no longer seriously disputed, science is competent to discharge. It is its office to give us a system of truths which minds eager for finished and faultless constructions can respect. The man of the world, who sees in a law the permanent *fiat* of a supernatural will, nevertheless believes the world to be governed by laws; he demands to know them, to have the mechanism of the world disclosed to him, hoping thus to possess one solution of the triple problem of Nature, the true method, the *how* of things. The philosopher, he at least who has come to doubt the transcendental reach of human intelligence, completely divests himself of all interest in the other phases of the problem, which he makes over to the speculations of metaphysicians and theologians; but he thinks to penetrate the knowledge of the *how* when he forges a methodical chain of facts. The one as much as the other cherishes vitally the belief that the *how* can be reached in all the groups of facts, and even in the entire assemblage of groups. This belief in the possibility of a rational synthesis of phenomena within the limits of possible experience is one of the characteristics of the modern mind. It yields to the hope of mounting from law to law till it finds an all-encompassing law, from the concrete facts of experience to an abstract conception which comprehends them all, and of rolling back the mystery to the extremest limits attainable by our faculties. It flatters itself that positive science can, in default of an explanation of the universe, organize and institute a doctrine capable of engaging as high a degree of confidence as any system whatever, metaphysical or religious. For this reason, though the hope be abandoned of seeing rise up one of those grand metaphysical structures by which the potency of a philosophy used to be judged, the idea is not abandoned of a synthesis sci-

entifically reduced, a theory of the world with which imagination has nothing to do, and all the parts whereof are rigorously demonstrated. This is the inspiration of many efforts.

Will this theory of the world possess the rigorous certainty that will entitle it to fill satisfactorily the part which the modern mind calls on it to play? If from an embracing law already discovered, and not conjectured merely, we could deduce a complete series of laws less and less general, down to the most elementary, we should possess a basis which, though reached by analysis and deduction, would have the greatest possible certitude. But this is the dream of a perfected science, the full realization of which we are very far from discerning. We only hold the fragments of it which each special science furnishes, and when we attempt to join them together we but form from them a web with enormous rents in it, through which the systems of metaphysics might all introduce themselves with ease. If there existed a single *a priori* truth to which all these fragments could be attached, if the rents were of a kind to be concealed behind provisory articulations resulting from this *a priori* truth, positive knowledge would be reduced to unity, we should have a philosophy, and they who think themselves entitled to reason conclusively from actual experience to what transcends possible experience, would have a solid basis for their convictions, and a sure test of their rationality. This would be an *ideal* science, to use the happy expression of M. Berthelot,[1] but with a solidity that this thinker refuses to concede to it. In fact, he does not admit that it can be constructed *a priori*, that it has a firm central point, a core about which may be disposed, to give them life, these *disjecta membra* which the different sciences present to us. If he is right, if the ideal science is as yet nothing but the fruit of unfettered individual imagination, which, dissatisfied with positive science, projects its lines

[1] *Revue des Deux Mondes*, November 15, 1868.

without ability to preserve their original rectitude, then the ideal science is a chimera, and every structure that may be erected on it is condemned in advance. One might construct poems on the data of science, but they would not give a fair equivalent to the reader. If, on the other hand, as Mr. Herbert Spencer believes, it is possible to construct *a priori* a system of knowledge, an abstract expression and symbol of the synthesis of the world's phenomena, a philosophy superior in positiveness to any yet attempted will be instituted amid the applauses of an enlightened public.

This work of synthesis Mr. Herbert Spencer has undertaken. Starting from positive science, the different branches whereof he traces in their concentric progress up to their widest generalizations, he attaches these generalizations to the loftiest abstract conceptions that they all suggest, and brings them back together to the principle which officiates in the double capacity of supporting all the truths, and expressing an intuition of consciousness. He thus welds the most advanced results of experience to the legitimate and inevitable results of *a priori* speculation. Finally, by way of deduction, he derives from this first principle the laws which sum up the movement of things, and founds, on an undeniable truth, a theory of development which he afterward verifies by the different orders of knowledge, and by the history of the cosmos. Such is the vast scheme that he proposes, and the arduous task that he undertakes, at an epoch when the path of the systematic thinker is more perilous than it ever could have been before; when, in face of a criticism alert and fully equipped, it is impossible to foster an illusion by which one may deceive himself. The enterprise is certainly bold; but it is well calculated to tempt and fascinate one of those rare minds which unite the powerful faculties of the genuine thinker with the immense knowledge of the *savant* who delights in the verification of the smallest details.

CHAPTER III.

OUTLINE AND GROUNDS OF SPENCER'S SYSTEM.

Mr. Herbert Spencer belongs to the class of contemporaneous philosophers who ground all knowledge on experience. He merits a distinct place, however, in the experimental school. He chooses to employ language which might cause him to be taken for an adherent of another school; he speaks of *a priori* principles, of necessary truths; he reproaches the *empirics* with pretending to explain such of our beliefs as are called necessary, as they explain all others, without assuming the necessity of any beliefs. But we must not deceive ourselves. In the view of Mr. Spencer, even, the difference between himself and other champions of the experimental hypothesis is not fundamental, but purely formal. If he corrects a mode of speech that seems to him inexact, if he rejects propositions which, taken literally, would leave philosophy without a basis, it is in the faith that thereby he shall serve the same cause. In tracing our most elementary beliefs back to ultimate notions, he still explains them by experience. His criticism has no other object than to plant the experimental theory on an inexpugnable foundation. Empiricism, he declares, try as it will, will endeavor in vain to escape the obligation to postulate an unquestionable principle. In order that any proposition whatever in his series of reasonings may be proved, it must be brought back to an order of

propositions already proved, and these again to others, also proved. If this chain of proofs had no end, the whole system would hang by nothing. It must be attached to some tacitly-admitted principle which cannot be proved, and which cannot be rejected either; in other words, to a necessary principle, which must be laid down in advance as certain, and without which, nothing being certain, nothing could be proved.

We must, therefore, admit data that are not and never will be proved. In science, likewise, we start from particular, concrete facts, and rise to general facts which explain them; from these to facts yet more general which explain them, by an operation which, however slow and long, cannot be infinite, but which, from one central point to another, brings us toward a final generalization that serves as an explanation of them all—this final generalization, not being referable to one more general, remains inexplicable. "By strict necessity, explanation brings us face to face with the inexplicable. We have to admit a datum which cannot be explained."[1]

But some means we must have of distinguishing these necessary data from such as are not necessary. A criterion of truth must be fixed upon. We know nothing but what is in our consciousness; there, and there alone, is the characteristic to be sought which shall be acknowledged as criterion. Before undertaking a criticism of our judgments, to decide which are true and which are not—before determining, for example, whether we should admit the existence of an external world—all philosophy must make sure that it has a touchstone of truth, and, to discover it, subjective elements only can be used.

The substance of every proposition is an association of states of consciousness, some representing the subject, others the predicate. In these groups all degrees of cohe-

[1] Herbert Spencer, "Essays: Mill *versus* Hamilton."

sion exist. Some are temporarily indissoluble, strong or feeble; these form the objects given to perception. Some remain indissoluble amid all circumstances. In the former, the associated states of consciousness do not present themselves always in the same relations. In the latter, the associated states persist in their relations. In the former, thought can more or less easily separate the subject from the predicate; in the latter, the separation cannot be actually effected. The movement cannot be thought of without a simultaneous thought of something that moves itself. Let one try to separate the two groups of conscious states; it cannot be done. "The incapacity to conceive the negative of the proposition concurs with the incapacity to separate the states of consciousness which constitute the affirmation. The propositions that resist the effort we make to effect this separation are those we call necessary. Whatever meaning we attach besides to this word, it means essentially the indissolubility of a group of states of consciousness. That we bend before, we cannot do otherwise; whether we will or no, this indissolubility rules thought; it is a universal law of consciousness, the force whereof is such that no other law is conceivable." [1] Does one seek to explain the indissolubility, it cannot be done. Invent any hypothesis for it you please, it will always declare an association of states of consciousness. To judge it, is to test the cohesion of the states of consciousness, that is, to present them before the criterion of indissolubility. After this test, we may consent to accept it, but it will possess no more solidity than the criterion itself, consequently it will not explain it. "From this final verdict there is no appeal. The only thing left to do, is to reconcile the different verdicts of consciousness, and to put them in harmony with the final verdict." [2]

The character of the truth being found, the point is to

[1] Herbert Spencer, "Essays: Mill *versus* Hamilton." [2] Ibid.

discover a truth that serves as a basis for philosophy; not a truth of the logical order, but a truth in the order of existence. The reasonings by which people pretend to establish this are usually vitiated by a begging of the question. Mr. Spencer gathers about him all kinds of precautions to avoid this; he will not leave consciousness, and it is there that he claims to find, without bringing it with him first, the attestation of that real existence which will support his philosophy.

Without leaving consciousness, a primary examination discloses there two classes of states which, in almost all cases, are equally distinguished by marked signs. Every state of consciousness belongs to one of these two classes; to the class of internal states, ordinarily called the *subject*, or to the class of external states, ordinarily called the *object*. We shall show that the states composing both these classes are united by particular bonds; they correspond with each other, so that the external states, those that are called perceptions, appear to excite certain internal states of the subjective class. Moreover, the subjective states have the power to excite one another, to form series by a spontaneously-developed connection which unrolls itself, provided it is not broken by the intervention of a state belonging to the other class, and gives rise to a new one. We are therefore able to observe and note the conditions under which the subjective states appear. We ascertain, too, that objective states appear to be excited by other objective states, and ranged in series, so that we can also observe and note the conditions of their appearance. Still, there are cases in which these conditions elude us. Some state such as we had seen preceded, appears without any assignable antecedent of the same class; neither has it one in the internal class; it rises spontaneously; and the mind, broken into the habit of affirming an antecedent within the series, finding none, affirms one out of the series. It supposes an un-

traceable antecedent, as a mode of something that is not revealed in consciousness. It posits this outside thing as an unknown force, capable of intervening at any moment in the series of objective states, and whose modes are joined to these states by a cohesion which invariable repetition has rendered indissoluble. What this thing is we cannot say; we cannot but affirm its reality. That is real which persists; and this thing absolutely persists, not under this or that form in consciousness, but outside of consciousness, without determinate form, as pure power.

On this necessary truth it is possible to construct an explanation of knowledge. For this, two hypotheses suffice. In supposing that the states of consciousness which form the objective class are manifestations of this unknown power, that the relations more or less close which unite our states of consciousness are engendered by the experience of relations more or less constant in the states of this unknown existence, we comprehend a large part of the facts of consciousness. Another hypothesis helps us to comprehend the rest. If we suppose that ideas are formed on the model furnished by things, by a constant repetition of the same associations during an incalculable number of generations, and that ideas moulded by experience "are transmitted by inheritance under the form of modifications in organic structure," no fact of consciousness eludes longer the explanation of the experimental doctrine. The forms and laws of thought, which have been set up as rules, existing prior to all communication between the me and the not-me, are, according to Mr. Herbert Spencer, but "absolute interior uniformities engendered by a repetition of absolute exterior uniformities," the result of the action which an external world previously posited, exercises on the consciousness, the most comprehensive forms of an experience, vague, prolonged for an immense period, during which correspondences between groups of states of consciousness and

groups of external states become organized and gradually fixed, so that they serve as rules for individual experience, the relations invariably presented and represented of states of the world. These universal relations, although empirical in their origin, are of two classes. The first, primitive, inasmuch as they are given as such in consciousness, are relations of succession; they connect the terms presented in a constant order. The others, secondary, inasmuch as they are primarily given, like the first, in an order of succession, but are distinguished from them by an essential character, the terms they unite presenting themselves indifferently, one before the other; these are the relations of coexistence.

Considered apart from the states of consciousness, these relations constitute the conceptions of succession and coexistence, time and space, abstracts of the two modes of union in the concrete states of consciousness.

A criterion of truth, and, by means of this criterion, the assurance of a permanent reality which reveals itself to consciousness through two orders of impression, the me and the not-me, of an unknowable cause, of which we can only say that, being, so to speak, persistent throughout all the modes of consciousness, it is more real than any of them; then, of universal forms of cohesion in these states of consciousness, expressions of absolute cohesions between the states of the unknowable—this is what the analysis of consciousness gives us. To affirm the supreme reality of an unknowable object of thought of which the phenomenal world is but the manifestation in ourselves, is a return to realism. Mr. Herbert Spencer avows it, and considers this return as a logical consequence of the inevitable suicide of skeptical criticism. "Our knowledge of noumenal existence has a certainty which our knowledge of phenomenal existences cannot approach; in other words, in view of logic as well as of common-sense, realism is the

only rational thesis; all the others are doomed to fall."[1] It is claiming to know a great deal to affirm that changes occurring in phenomenal existence correspond to parallel changes that occur in noumenal existence. Still if, following Mr. Spencer, we keep clear of idealism, as philosophers of the school of Berkeley understood it, we may yet maintain the principle of the *relativity of knowledge*, since we profess at the same time to know nothing positive in regard to the nature of the changes that occur in the noumenon, and recognize the essential inability of the mind to penetrate the mystery of "the unconditioned existence," which remains in our consciousness as a body to which, when we would represent it, we can simply ascribe forms which are our own, without ever being able to determine those that really belong to it.

Neither is any pretence made of knowing in themselves the objects of those notions which, long deemed irreducible to experience, have been considered as supernatural revelations of consciousness: space, time, matter, motion, force, personality. Clearly we know these but as forms which the indeterminate substance assumes in consciousness. Reduce them, as Mr. Herbert Spencer does matter and movement, to manifestations of force, time and space to modes of cohesion in the manifestations of force, and every thing will be explained except force. Force remains a primary datum, the nature and modes of action and variation whereof continue unknown and impenetrable. We posit it, as the ground for the changes in consciousness, as a persistent cause of fugitive effects, which makes itself manifest in the very fact of the change, and can be seized only in this fact, that is to say, in its relation to us. Finally, consciousness itself, in which we find all these revelations, remains unexplained. We can conceive neither beginning nor end of the lines of states that compose it. We cannot conceive

[1] Herbert Spencer, "Principles of Psychology."

the succession of these states without interposing, as a necessary correlative, the action of the absolute reality which transcends consciousness, namely, the inexplicable. It can no more be conceived as a being whom another being may affect; in other words, the personality which seems to be attested by consciousness cannot be explained, since every fact of consciousness is double, and offers to us the antithesis of subject and object, and consequently the intuition of self by self would suppose an act of consciousness in which the object should be at the same time subject; that is to say, an act of consciousness that should not be an act of consciousness.

The first principles of the subjective order, as well as those of the objective order, are therefore at bottom equally inexplicable. The mind, always thrown back on itself by the impossibility of overpassing the limits that enclose it, is condemned to fathom its own nescience, and the only truth it can discern in this abyss of ignorance is the intuition of its own feebleness. Philosophy, if philosophy be possible, has then another object. Its true aim is not the science of the absolute, but the science of the relative. It must state, as the sum of knowledge, a doctrine which is to this sum what the general doctrine of each science, which is called its philosophy, is to that science; in other words, it must give to knowledge a unity that comprehends and consolidates all the fundamental truths of the different sciences, such a unity as transcendental speculations have sought in vain—in a word, it must institute a general science in the largest acceptation of the term.

The principles which the sciences recognize and do not explain, but by means whereof they explain all the phenomena of their province, are, from this fact, laws superior to the different laws that each particular science proposes to discover and unfold. These superior principles are obtained by analysis, and they serve to coördinate, to bring

back to unity a complete order of facts. They are *philosophic principles.* If they are true of all the sciences of facts, they may be termed *universal.* If it can be established that they are consequences of the first incontestable principle, the persistence of force, they are *necessary* principles. To discover by analysis the fundamental principles of the sciences, so that they may be connected again by deductive process with the undeniable verity which consciousness reveals, is, in the view of Mr. Herbert Spencer, to found philosophy. When it shall be shown that in the world of phenomena nothing is lost, and when, sustained by recent discoveries of the equivalence of forces, it shall be made evident that the infinite variety of phenomena is but a metamorphosis of forces, from the immense revolutions of the celestial orbs to the infinitesimal movements of microscopic animalcula, from the formation of clouds to the birth of an individual sentiment or of a current of opinion, from the violent convulsions of the globe to a variation in the public funds; when it shall be proved that all movements, to whatever order belonging, obey in their formation the same laws of equivalence, system, and direction; when, after this, it shall be shown that this metamorphosis and these laws are corollaries of one and the same principle, the persistency of force, philosophy will have established its unity.

But the mission of philosophy, according to Mr. Herbert Spencer, ought not to be limited to this. In summing up, in a final formula, the analytical principles upon which the sciences repose, it gives us but a portion of what we may expect from it. We shall have, indeed, a system of philosophical truths, so far as they transcend the range of each science, but we shall not have the principle that binds together the phenomena of the universe. We can know only phenomena, at least one supreme science must embrace them all, the possible as well as the actual, in a

comprehensive formula. The history of an object must take it up at its origin; that is to say, at the moment when it begins to fall within the apprehension of consciousness with the characteristics that individualize it, and trace it to its end at the moment when it ceases to be perceptible. Philosophy should be the theory of all these histories. It should show us each state of a thing firmly set between the state that preceded and the state that will follow it, and adjusted to all the changing things that environ it. It must fix in an abstract formula this immense variety of details. Then it will be a history of the universe in its whole and in its parts, a theory of the progress of things, from which no particle of knowledge is omitted. Besides the systematizing of the axioms of the sciences, philosophy should be a theory of the modification of things. Such is, in its full extent, the object of the "First Principles."

CHAPTER IV.

THE DOCTRINE OF PROGRESS.

Of all the beliefs that the philosophers of the last century have bequeathed to our age, as if to replace those which they had felt themselves compelled to discard, none has struck such deep root as the belief in the progress of humanity. It grows every day, and deserves to be considered one of the chief characteristics of thought in the nineteenth century. Nevertheless, the notion of fatality that ordinarily accompanies it shocks many good men. If by progress be understood an absolute direct line toward perfection, the word is unsuited to describe the unbroken march of humanity, in which so many natural laws, all equally inflexible, cross and recross each other to produce effects which cannot be foreseen with any thing like exactness, and still less submitted to calculation. The authors who have adhered to the idea of progress toward perfection, stumble at the difficulty of reconciling with a fatal law of evolution toward good the manifest retrogradations toward evil. Criticism has made them pay dear for their attachment to a theory which is feeble simply because it is not sufficiently general, and because it assumes final happiness merely as a conjecture obtained by induction, if it be not the result of some disposition to mysticism. They have compromised their doctrine, and would have brought it into complete discredit, perhaps, if it had been

possible to lose sight of the numberless testimonies that science brings in its favor. The thing wanting in the different theories of progress is not an abundance of facts authorizing the induction of a purpose, but a fixed principle, to be, as it were, a guarantee of it—a law from which this conjectured purpose might be deduced. If this principle were seized, the necessity of progress would be demonstrated, and criticism would be reduced to silence. The problem to be solved would merely consist in adjusting to this certitude our belief in responsibility and our idea of duty. Humanity will attain the happiness promised to it by the defenders of the idea of progress, if happiness be the natural effect of a conditioned development; that is to say, if there be a law whose working out succeeds in effecting the full satisfaction of all the needs of every creature endowed with sensibility.

The opponents of the idea of progress would be right if they confined themselves to a denial of its continuity; that is to say, if they denied that the series of states through which our race passes presents such an arrangement that each subsequent stage is better than its antecedent—an arrangement uninterrupted, unchecked, without reaction. In this sense nothing in Nature is continuous; one of the most fixed of the laws of Nature is the law of rhythm. Continuity could exist only in case a single force prevailed; but then no mark of variety would exist, and consequently no progress. With good reason, attention is called to facts of retrogression in the history of humanity; melancholy retrogressions that cover periods of many generations, and are, in regard to the intellectual and moral experiences of the race, what disease is to living beings. But these facts are the products of negative factors that preponderate in the composite movement, whereof progress is simply the result; on this account they are necessary. Should these factors come to prevail for a long time, and in

a constant manner, there could be no more question of progress; the march of humanity would take a backward course, and, instead of tending toward perfection, would recede toward barbarism and bestiality.

Since the reactions and pauses in the march of humanity are necessary effects, it cannot be said that progress is fatally continuous, that it will go on, whatever happens, for it depends essentially on the persistence of the dynamic factors which favor it. If it is necessary, it is in the sense in which all the results of the natural laws are necessary; and in this sense the checks, the reactions it experiences, are necessary also. Whether there be forward or backward motion, there is always development of a series; the end, the direction is changed, but there is always an end, and a direction. A law that expresses progress only, can be merely a law of movement in one direction, a part only of the law of human advance. The true law, the complete law, must be a law of retrogression as well as a law of progress; it must express, simultaneously with the general tendency to advance, the partial retrogressions which retard progress without destroying it; and the partial advancement which cannot arrest the systematic retrogression of a thing that is dissolving. It must present a double current of changes, in opposite directions, so mingled together that one class of changes predominates over the other according to the law of universal rhythm.

With the great majority of contemporaneous thinkers, Mr. Herbert Spencer believes in necessary progress. Twenty years ago he expressed this belief in a remarkable work—"Social Statics"—devoted to an examination of the conditions under which humanity can and must find happiness, and to the search after a natural law that secures the realization of these conditions. In various writings published at other dates, and collected under the title of "Essays: Scientific, Political, and Speculative," Mr. Spencer has

often, *à propos* of very different subjects, taken up the idea of evolution, which is properly the ruling idea of his philosophy, the inspiration of his whole work. With a candor rare in a theorist, Mr. Spencer relates to us the history of his thought, the mental process by which he has brought his primitive ideas to completion, and given to his theory an amplitude and scientific rigor that none of those produced since the end of the last century can claim. In his view, humanity, mighty as it is, is but a feeble part of a system of being much more vast; it reveals the laws that govern this system; it shares in its destiny. The progress of humanity is one part of the development of a mass of beings that embrace more than humanity. The appointed end of this progress, happiness, is only a special feature of the more general end appointed to the development of this more comprehensive whole; and this whole is itself but a part of a yet vaster whole whose laws it manifests. We shall see how Mr. Herbert Spencer, now by generalizing his law of development, now by defining it, now again by introducing into it necessary correlatives which allow of a greater comprehension of incidents, has succeeded in tracing the compact and clearly-outlined theory which he expounds in the "First Principles," and which he demonstrates or proposes to demonstrate more fully in the volumes that will embrace his entire SYSTEM OF PHILOSOPHY.

Already, as we have said, in the "Social Statics," Mr. Herbert Spencer sought the natural law whereof the progress of humanity is the manifestation. In what, then, does progress consist? In general, we see that progress in whatever contributes to the happiness of man tends directly to augment it, or indirectly to favor it. But the happiness of man, abstractly viewed, consists in the capacity to satisfy all the classes of his needs; in other words, in liberty—liberty regulated and limited by equality, its necessary cor-

relative, since man exists in a social state; it is, then, in a more general sense, the complete adaptation of man to social life. "Good, perfect, complete, are words that signify something entirely fitted to its destination; the word *moral* signifies the same property in regard to man, . . . to have, in one's self, the ability to do what ought to be done, is to be organically moral. . . . Perfection consists in the possession of faculties exactly calculated for the fulfilment of these conditions; and the moral law formulates the line of conduct which will fulfil them."[1] In a page that recalls the optimism of the proscribed Condorcet, Mr. Spencer affirms his belief in the realization of perfection in humanity. "Progress," he says, "is not an accident, but a necessity. Far from being the product of art, civilization is a phase of Nature, like the development of an embryo, or the opening of a flower. The modifications that humanity has undergone, and those it still undergoes, result from the fundamental law of organic Nature, and, provided the human race does not perish, and the constitution of things remains the same, these modifications must end in completeness. . . . It is certain that what we call evil and immorality will disappear; it is certain that man will become perfect."[2] Mr. Spencer's confidence is in the fact that there is a law of life which is good, not for the human race alone, but for all organic Nature, and that the morality which must insure happiness is but a particular instance of this law. Everywhere life affords to us proof that progress is made when parts at first similar and independent become dissimilar and dependent. When the organism tends to pass from the state of an assemblage of discrete unities to the integral state of a system of coördinated unities, it tends to become a distinct thing, to *individualize itself*, after Coleridge's definition of life. From those inferior creat

[1] Herbert Spencer, "Social Statics," p. 277.

[2] "Social Statics," p. 80 (English edition, p. 65).

ures a species of living jelly, in which no organs, nor even form can be discovered, which feed on the water that soaks them, and which lack unity to the degree that you may cut them, and yet each part will continue to live as the whole mass did at first, to the vertebrates, in which a complicated apparatus, fitted for distinct functions under the impelling force of a nervous system, coördinates actions with a harmony which furnishes us the highest type of unity, and no part of which can be injured without communicating to the whole a hurt that may be destructive, there is an immense ladder, every round of which is a degree of individuation. "The lower the organism the more completely is it at the mercy of circumstances; it is always exposed to destruction by the action of elements, want of nourishment, or assaults of enemies, and almost always it perishes. The reason is, its lack of power to preserve its individuality. It loses it either by going back to the inorganic form, or by absorption in another individuality. With the superior animals, on the other hand, which possess force, sagacity, agility, there exists, besides, a power to preserve life, to prevent the easy dissolution of the individuality. In these last the individuation is most complete. The highest illustration of this tendency we see in man. Thanks to the complexity of his structure, his being is the farthest removed from the inorganic world, in which individuality is at the lowest point. His intelligence, and his aptitude in adjusting himself to circumstances, allow him to preserve life to old age, to complete the term of his existence; in other words, to fill up the measure of the individuality that is bestowed on him. He has consciousness of himself; he recognizes his proper individuality. Moreover, the process of change we may observe in human affairs is effected in the way of a greater development of individuality—we may call it a *tendency to individuation.*

"Finally, what we call the moral law, the law of liberty

in equality, is the law under which individuation becomes perfect. The faculty that is even now developing, and is to become the distinctive characteristic of humanity, will be skill in recognizing this law and obeying it. The increasingly intense affirmation of individual rights signifies a constantly strengthening purpose to secure respect for the eternal conditions that are indispensable to the development of individuality. Not only have we now the conception of individuality, and comprehend the means of defending it, but we feel that we can claim a sphere of action necessary to the full development of individuality, and we wish to obtain it. When the changes that are going on beneath our eyes shall be completed, when each man shall in his heart unite to an active love of liberty, active feelings of sympathy with his kind, then the existing limits of individuality, the legal obstructions or private violations, will be effaced; nobody will be hindered any more in his development, for, while maintaining his own rights, each will respect the rights of others. The law will impose no more restrictions or burdens; they will be at once useless and impossible. Then, for the first time in the history of the world, there will be beings whose individuality will be able to reach out in all directions. Morality, perfect individuation, and perfect life, will be realized at once in individualized man." [1]

Society becomes, itself, an individual. With the individuation of the parts goes forward also the reciprocal dependence of the parts. In a superior organism, a true republic of monads, each unit, devoted to special functions which it separately fulfils, is joined to similar units in a common work, by which also the others profit, just as, on its part, it profits by the labor of all the others, and becomes ultimately wholly dependent. It is the same in society; the social units, set apart more and more to special func-

[1] "Social Statics," p. 497.

tions, group themselves with similar units to form distinct classes, which fulfil special functions for the benefit of society and of each social unit, and become ultimately altogether dependent. In a civilized society, as in a superior organism, the harmonious unity formed by the subordination of parts is the first condition of existence; no part can be wounded or destroyed without causing injury to all the rest. Civilization, which is constantly more and more knitting the bonds of this harmony, is but a process of individuation.

"The union of a great number of men to form a state; the mutual dependence which is always thus bringing the once independent units nearer together; the gradual separation of citizens into distinct groups, engaged in the discharge of distinct functions; the formation of a living being composed of numerous essential parts, all of which feel the injury that has been done to one—all these features enter into the law of individuation. Like the development of man, and of life, the development of society may be defined as a tendency *to become one thing*. Rightly comprehended, the different forms of the progress that works itself out around us, all express this tendency."[1]

The history of science shows it to us in a state of progress. Its different sections have incessant intercommunications; they are united by continued exchange of services. Mr. Spencer makes us recognize in it the same characteristics of development. Science, like man and society, is an organism whose parts, united by a general *consensus*, serve the development of the whole, as well as that of the other parts. "The observation of a star demands the concurrence of many sciences; it has need of being *digested* by the entire organism of science. Each science must assimilate to itself the portion that comes within the sphere of its observation, before the essential fact it reveals ac-

[1] "Social Statics," p. 481.

quires the value that will place it among the contributions to astronomy." [1] "A discovery in one science causes instantly a corresponding progress in many others; a gap in one science arrests the development of those that must wait till the gap is filled up. In order to make a good observation in pure natural science, the organized concurrence of a half-dozen societies is necessary." [2]

The example drawn from science proves to us that the principal feature of the progress in organic and in social life recurs as a characteristic of progress in its intellectual manifestations. Tendency to become one thing, to persist, to become organized in a complete system of parts, according to the laws of the physiological division of labor and of organic harmony, by the gradual substitution of parts specially united by the attraction of one law, for parts loosely joined by juxtaposition—this is movement in the path of progress. This definition well expresses the essential characteristic of progress; but, in choosing the word *individuation* to convey it, our author was not happy. His mind, reaching out after vast syntheses, very soon found the idea answering to this word too narrow for his purposes. Besides, the notion of an individual, and the notion of individuation derived from it, suggest, say what we will, the notion of a being who may be and should be considered in himself, and consequently the notion of a suitable end that explains him. At one stroke, undesignedly by the author, and as by psychological necessity, all the metaphysical and religious speculations he had expelled from the domain of general science, found themselves reestablished; the scientific explanation stopped short for lack of power to indicate the natural causes which, in the midst of so many beings that seem to have no purpose of their own, produce beings that seem to have one—individuals, in a word; the metaphysical explanation took the

[1] "Genesis of Science." [2] "Essays: Genesis of Science."

place which science did not occupy, and, instead of engaging in a search for causes and natural laws, the mind paused to contemplate the fathomless mystery. Many readers must have been struck by the mystical tone of sentiment, and the suggestion of final causes, which, without being formulated, seem to pervade the "Social Statics." An imperfect vocabulary called up in their minds associations of thought which the author did not contemplate. "Language," Mr. Spencer has said, "is an obstacle to thought."[1] It is a hinderance which not only throws the reader off the track, but which compels the thinker himself to go out of the way. We understand why our author has taken, in the sequel, so many precautions to place himself beyond the reach of these ugly unforeseen turns of philosophic language, and we cannot help thinking of all those eminent minds that, since Descartes, have promised to make a rigorous examination of their beliefs. Arrived at the end of their reasonings, they thought they were bending before the unquestionable verdict of logic when, unconsciously, habit alone had spoken, and had insidiously recommitted them to the *rôle* of beliefs the titles of which they had seriously believed themselves to be challenging. They thought they had in every sense ransacked analytical conceptions, while the law of association imposed on their synthetical conceptions the idols of common-sense. Mr. Spencer had to avoid this danger. At this epoch, already, he yielded to a "desire which he did not clearly recognize, but which worked secretly within him." He wished to find "an interpretation purely physical of phenomena." He sought for some time to connect the fact of individuation with some natural law, and, soon after, succeeded in giving "to one of his corollaries a scientific explanation."[2]

[1] "Essays: Philosophy of Style."

[2] "Theory of Population derived from the General Law of Animal Fecundity."—*Westminster Review*, April, 1852.

We have seen that with the individuation which forms a whole, composed of harmoniously allied parts, another operation takes place, which distinguishes these parts, and gives a definite character to their respective functions; this is the *specialization* of the parts. The two tendencies become continually more pronounced as progress goes on; variety increases with the unity it accomplishes. But it is sometimes the unity that most forcibly attracts attention, and sometimes the variety. These two concomitant facts, which do not explain one another, have not, even in relation to progress, an equal significance. The individuation, which constitutes unity, is the principal characteristic; the specialization of parts, which constitutes variety, is the secondary characteristic. Nevertheless, the difficulty of ascending directly from the individuation to the physical law which expresses its cause, by degrees turned Mr. Spencer away from the consideration of the essential characteristic of progress, to direct his attention more specially, and, for a time, exclusively, to the secondary characteristic. In studying a question which lay too close to his most intimate thoughts not to exert a preponderating attraction on his mind, the *natural evolution of species*, and in looking for the geological proofs that support it, Mr. Spencer recognized the fact that "not only the individuals of the vegetable kingdom and of the animal kingdom progress in eccentricity in the course of their evolution, but that, during the geologic epochs, the flora and fauna follow the same order."

This was a fact that the doctrine of individuation could not express, but which found its general formula in a law already discovered and determined by German thinkers famous in different fields—Wolff, Goethe, and Baer. According to the last, "the series of changes effected while a seed transforms itself into a tree, an egg into an animal, is a passage from a homogeneous to a heterogeneous state

of structure." [1] Starting from this point, in possession of a formula that expressed one of the most salient features in the progress of life, Mr. Spencer dropped, little by little, the principle of individuation, and came back to it only when, by new speculations, he could assign to it the pre-eminent place in his work that belongs to it, by giving it an entirely different form, "no longer a metaphysical one, unfit to receive a natural explanation, but a form purely physical, susceptible of a complete explanation." This is the reason that, while during the years subsequent to the publication of the "Social Statics," we still find in Mr. Spencer's writings the principle of unity under the name of *individuation, mutual dependence, consensus;* we find there, more and more emphasized, the part which specialization and the increasing heterogeneity of the mass play in the work of progress.

Already, in an essay entitled "The Philosophy of Style," [2] Mr. Spencer presented increase in variety as one of the essential characteristics of progress. According to him, the literary masterpiece of a perfect writer ought to be, "like all the products of Nature and of man, not a series of similar parts simply arranged in line, but a whole, composed of parts mutually dependent." In the "Genesis of Science," also, our author devoted much space to the fact of the specialization of parts. He showed, as in a fine historical study, science receiving birth in vulgar knowledge, and progressing by the multiplication of its branches and the specialty of its different objects.

But it is especially in an essay, entitled "Manners and Fashion," published in 1854, that the idea of the specialization of functions comes clearly out and presents itself in a more vivid light than the idea of unity. In this paper Mr. Spencer studies a class of manifestations in social life

[1] Herbert Spencer, "Essays: Progress, its Law and Cause."

[2] Herbert Spencer's "Essays."

whose development from their common origin up to a period when, by the extreme division they undergo, they tend to become effaced, constitutes one of the striking features of the progress of humanity. He treats of the institutions, great and small, which regulate the conduct of men in society—government, the administration of justice, religion, customs, rules of etiquette, fashions. At an epoch in which ancient documents, myths, poems, monumental ruins, furnish us with testimonials that we have only to interpret, and the usages of which, long abolished in our communities, are preserved under analogous forms among the barbarous tribes of Africa, the will of the victorious chief, of the strongest, was the rule of all conduct. When he passed judgment on private quarrels his decisions were the origin of law. The mingled respect and terror inspired by his person, and his peerless qualities, then deemed supernatural by the rude minds that had scarcely an idea of the powers and limits of human nature, were the origin of religion, and his opinions were the first dogmas. The signs of obedience, by which the vanquished whom he spared repaid his mercy, were the first examples of those marks of respect that are now called good manners and forms of courtesy. The care he took of his person, his vestments, his arms, became models for compulsory imitation; such was the origin of fashion. From this fourfold source are derived all the institutions which have so long flourished among civilized races, and which prevail yet, in spite of their evident decadence and the protests of non-conformists, who, without putting in peril the essential idea that lies at the bottom of them—on the contrary, purifying them more and more—menace the long-venerated forms with complete ruin. Everywhere power, originally held in a concentrated form in the hands of the strong man, the king-god, has become subdivided in the course of development—government into civil, military, diplomatic functions, etc., the

administration of justice into numerous tribunals, more and more special, to which are attached distinct bodies of magistrates, advocates, etc.; the Church into one institution, where, above the multitude of the faithful, rises a hierarchy of clergy whose functions are more and more distinct and numerous; customs into diverse observances, which politeness imposes toward individuals according to the rank they hold in society; finally, fashion, at first an imitation of the dress and gestures of the king-god, is subdivided, by the imitation of many other things, so as to become, through the effect of sumptuary regulations imposed by law or opinion, or tacitly accepted, the external characteristic of different classes of society, of administrative, military, judicial, or religious functions. Everywhere, multiplication and specialization of functions have marked the development of these institutions. But, in perpetuating themselves, this specialization has profoundly altered their general character. When government tends to be but the federal bond between small independent communities, and the Church to crumble into an incalculable number of sects; when the marks of class subordination, become simple tokens of respect for the dignity of the human being, are bestowed on all citizens, without regard to rank or function; finally, when fashions tend to represent merely the æsthetic feeling of each individual, that which strikes us most is not the harmony of the special functions, which nevertheless undergo, by reciprocal dependence, parallel and simultaneous modifications, it is the increasing multiplicity of the separate parts.

After having successively tested the fact that the law of Baer was applicable to organisms considered as individuals, to the aggregate of all organisms in the entire course of geologic history, to the masterpieces of literature, to the fundamental institutions of society, as likewise to languages, to arts, and to all those products of mental life which

he comprehends under the generic term *superorganic*, Mr. Spencer found himself placed on an inclination which must naturally bring him to extend this law to the development of the existences that compose the inorganic world. It cannot be doubted that these existences also have an evolution. The coördinated changes that constitute the genesis of the solar system as a whole, and that of the vast bodies that compose it; the different stages through which the earth has passed, from the epoch at which it was a globe of vapor, until, through periods of incandescence, of hardening at the crust, and of condensation of waters, under the combined action of flood and fire it arrived at its present condition—all these changes attest a gradual development. In examining all these changes Mr. Spencer admitted the universality of Baer's law; he did more, he proposed to seek the natural cause of it. This search was the origin of the charming essay entitled "Progress: its Law and Cause," which was first to have appeared under the more significant title, "The Cause of all Progress." [1]

The sidereal world, Mr. Spencer tells us in this essay, if we adopt the nebular hypothesis, has passed from a state almost homogeneous, in which matter was diffused, to its actual state, in obedience to the law of Baer. To a mass, all whose parts were alike in composition, the forces they exerted one on another, the direction of the movement they followed, has succeeded a system of masses distinct and different in volume, in the direction of their movements, the inclination of their axes, the form of the curve they describe in their revolution, etc. In the same way the earth has obeyed this law as it passed from the state of incandescence to the actual state in which a solid and cool crust imprisons a still glowing core, and presents great inequalities of elevation, of structure, of exposure to the solar rays, of cli-

[1] "Essays: Progress, its Law and Cause," first published in the *Westminster Review*, April, 1857.

mates, etc. In the same way, again, living creatures, not only as individuals, but considered in the fauna and flora that have succeeded each other on the surface of the globe; in the same way, once more, all social manifestations, political institutions, industries, commerce, sciences, letters, arts. If the mode of development is everywhere the same, we ought, from the uniformity of the law, to infer the uniformity of the cause. Extensive as this law must be, since it comprehends all the facts of evolution, it is still but a generalization from experience; it needs to be reduced to a more general law, which renders it rational instead of empirical, and confers on it, as on the progress it formulates, the character of necessity. Progress, under whatever form manifested, is a change; in a law of change, therefore, is to be sought the *rationale* of this transformation from homogeneous to heterogeneous. Mr. Spencer finds it in a law demonstrated by experience, and verified in all orders of facts. "In the most stupendous as well as in the most insignificant events" which occur in the sidereal universe, in the solar system, in the history of our planet, in the two animated kingdoms, and in society, we perceive that a single cause produces always more than one effect. The increasing complexity of things, their passage from a homogeneous to a heterogeneous structure is an inevitable consequence of this. "Should the nebular hypothesis ever be established, then it will become manifest that the universe at large, like every organism, was once homogeneous; that, as a whole, and in every detail, it has unceasingly advanced toward greater heterogeneity, and that its heterogeneousness is still increasing. It will be seen that, as in each event of to-day, so from the beginning, the decomposition of every expended force into several forces had been perpetually producing a higher complication; that the increase of heterogeneity so brought about is still going on, and must continue to go on; and, that

thus Progress is not an accident, not a thing within human control, but a beneficent necessity." [1]

A little after, Mr. Spencer will indicate another physical cause which, joined to the first, explains the passage from the homogeneous to the heterogeneous; he will show that the state of homogeneousness is a condition of unstable equilibrium.

[1] "Essays: Progress, its Law and Cause," p. 52, English edition.

CHAPTER V.

THE LAW OF EVOLUTION.

A THEORY of progress thus stated had not the character of mysticism or of finality which marred the doctrine of individuation: it filled a gap in the scientific mind by substituting for a formula of the metaphysical order a formula more favorable to a natural explanation. At the same time Mr. Spencer felt obliged to give a definition of progress which, leaving out of account our moral or æsthetic sentiments, induced him to abandon the word progress, too much compromised by association with these sentiments, and to adopt the word *evolution* as more suitable to express the thoroughly scientific nature of his theory. But this formula was very far from being complete and truly scientific. It explained the passage from the homogeneous to the heterogeneous by the law that a single cause produces always manifold effects relatively to us; but the fact which this law generalizes remained unexplained, as well as that of the instability of homogeneous existences. Besides, is the formula at which we see Mr. Spencer rest really the law of progress? Does it verify itself in all the changes to which the name of progress may be given? and does it verify itself in none of those to which the name may justly be refused? The law of passage from the homogeneous to the heterogeneous fulfills the first condition, but not the second. As Mr. Spencer himself acknowledges, an injury

introduces into an organism changes that make it more heterogeneous and more multiform. If this multiplication of effects continues, dissolution ensues. When a revolution breaks out in a state, illegal institutions get established by the side of legal institutions, and the anarchy that results renders the state more multiform than it had been before: let this anarchy endure and the consequence invariably is the dissolution of the state. These two examples, borrowed from the pathology of organisms and societies, show that changes operated in accordance with the law of passage from the homogeneous to the heterogeneous, and from the uniform to the multiform, are not facts of progress. Moreover, Mr. Spencer remarks further, a chaos of heterogeneous forms succeeding to a homogeneous mass does not constitute a progress. There is in progress a characteristic which the law we have just stated, necessary as it may be, does not embrace; it is *a* law of progress, not *the* law of progress. Another law is required to limit it, another feature which, added to the first, more distinctly specifies the class of facts we wish to define, a sign by which we may know whether a change from the homogeneous to the heterogeneous is a link in the chain of progress, or whether it is its terminus, and marks in the history of a thing the line that separates its progressive phase from its dissolution.

At this point Mr. Spencer had to return to a consideration of the principle of unity, which, for a moment and for good reasons, he had neglected. He gradually completed his theory by inserting in his formula the generalizations relating to the formation of observable beings, and to the transformations that constitute their evolution; and, as his sound habit of mind led him to consider changes of every kind from the physical point of view, and to bring into light their common features, he ended by formulating different universal laws upon rhythm and direction of move-

ment, and all he had to do was to connect them by inductive process with the first principle, the persistence of force, in order to grasp the truth that all the phenomena of evolution are effects of mechanical laws manifested by the elements that enter into the composition of existences, or, as he phrases it, arrangements on a new plan (*redistributions*) of matter and movement. Let us rapidly follow the development of Mr. Spencer's ideas.

All progress is a kind of change. The law of progress must be a certain law of change. "All change," wrote Mr. Spencer, in the first edition of "First Principles"—"all change in the arrangement of the parts of any mass whatever, supposes, first, the *matter* of which the parts consists; next, the *movement* produced while they arrange themselves on a new plan; finally, the *force* that impels them. The problem we have to resolve is a problem of dynamics." For us every change, whatever its apparent complexity, is a modification of matter and a modification of movement. These two aspects of the conception of force are inseparable. Matter is indestructible; movement is continuous: universal truths these—corollaries of the first principle that consciousness attests—the persistence of force. From the various combinations of these two elements result all the phenomena of the *cosmos*. Every aggregate of matter has parts, and possesses a certain quantity of sensible movement, as when it occupies successively different positions, or of insensible movement, as when it affects our senses by its qualities. A change wrought in this aggregate, which is not a simple transposition of mass, must consist either in an increase or a diminution of the quantity of movement, or in a new arrangement of parts, and a different distribution of the quantity of movement. If the quantity of insensible movement diminishes, there ensues concentration of the parts, consolidation of the whole mass, integration; if the insen-

sible movement increases, there is dispersion of the particles, deconsolidation of the mass, disintegration. These two types of change—the one of concentration of matter, with dissipation of movement, the other of absorption of movement, with diffusion of matter—comprise all the changes observed in Nature, all the changes in objects, as well as changes in parts of objects. These are the two aspects of the universal metamorphosis always presented, but unequal, so that we always find some tendency to integration or to disintegration, and nowhere repose, equilibrium of the two tendencies. Absolute equilibrium can exist only between dynamic units, evenly diffused in an infinite space—a notion that the human intelligence is not made capable of entertaining. The two inverse orders of changes never cease to coexist. They mutually, after an imperfect manner, neutralize each other; there subsists a differential force, which carries the whole to integration or to disintegration.

Evolution is integration; dissolution is disintegration.

It is only in very simple cases that evolution presents merely a concentration of units around a common centre. More frequently with this general concentration, so to speak, local concentrations of units about various centres are formed, so that evolution is multiplex. The whole is not only more compact, more differentiated from other wholes, it is a compact aggregate of particles themselves concentred, and become differentiated each from the others. On this operation Mr. Spencer for a time paused. This is what he called a passage from the homogeneous to the heterogeneous. In many cases this operation is the most striking—it completely masks the operation of concentration of the entire mass, which coördinates all the subordinate centres about one common centre, and makes of all the heterogeneous parts an harmonious structure, composed of coöperative organs.

What occurs in regard to matter occurs also in regard to movement. In a mass of diffuse matter, the molecular units are held in the discrete state by a movement peculiar to themselves. As the mass is concentred, the movements of the molecules are integrated, and appear as a movement of the whole mass. Besides this total integration, there are partial and local integrations of the movements of the units into movements of small masses—a complete hierarchy of coördinated movements. The function of the whole combined is an harmonious group of the functions of elementary units. In so far as an assembly of units contains this molecular movement, interior arrangements are possible. In gases, where the molecular movement is exceedingly rapid, the relation of the molecules continually changes; there is no structure. In solids, where it is entirely transformed into the movement of masses, or even lost under this form, the molecules cannot change their position; the structure is permanent. In bodies of an intermediate density, especially in plastic bodies, the molecules have still enough of movement to be able to contract new relations. These bodies are the true field of evolution and of dissolution; the others have either not commenced evolution or have completed it. The tendency to organization in particles, distinct and coöperative, has not yet disclosed itself, or can do so no longer, owing to the cessation of all action in the relative immobility of the particles.

To get a clearer apprehension of these abstractions, let us take, once more, the example already presented—society. The first appearance of wandering families in quest of their meagre subsistence, when no distinct functions exists save that of the sexes, illustrates the discrete state of diffuse matter. Later, a certain number of these tribes combine, and already separate functions are established—a rudimentary distinction which divides the social groups into two classes—the governing and the governed, the

directing and the laboring. In the first class an integration is effected, the result of which is a hierarchy. The laboring-classes remain in submission to nobles; these obey feudal lords, who, in turn, have above them the royal power. Mr. Spencer has shown us, in "Manners and Fashion," how, from the royal power, proceeded, by a kind of subdivision, qualities that imply a sovereign nature —functions more and more distinct from government, of church, of judiciary. At the same time, an analogous operation is accomplished in the laboring-class, industry is specialized, by a continually-increasing subdivision. The individuals who are devoted to the same specialty gather in places where their work can be carried on with most facility; exchanges are effected among the more and more specific commercial agencies; a strict *consensus* is established among the producers, the distributors, and the consumers; it is evolution through the concentration of social units, collected into coördinated groups, accomplishing distinct and harmonious functions, which result from the aggregation in convergent and coördinated movements —of movements heretofore independent of the units.

The thing wanting in the formula, already given by Mr. Spencer in his essay on "Progress," was a declaration that the aggregate, the parts whereof, at first homogeneous, become heterogeneous, does not lose its unity; that the differences, constantly becoming sharper, which distinguished these parts, do not therefore dissolve the aggregate into more or fewer independent aggregates. In calling *evolution* a continually-increasing integration of the whole mass, accompanied by an integration, a differentiation, and a mutual, perpetually-increasing dependence of parts as well as of functions, and by a tendency to equilibrium in the functions of the parts integrated, Mr. Spencer completed his formula, and, by substituting for the word *individuation* the word *integration*—as he had substituted the

word *evolution* for the word *progress*—he freed his theory from all metaphysical attachments.

He has done more than this. It is by the very laws that served to explain to him the increase of variety, that he has explained the increase of unity. In his essay on "Progress" he was content with showing that progress is the necessary result of an empirical law, that a simple force spends itself always in producing many effects. In his essay on "Transcendental Physiology" he had pushed a little further his attempt at explanation, without, however, ceasing to recur to an empirical law, that of the instability of the homogeneous. Now he deprives these laws of their empirical character, by showing that they are consequences of the general principle of the persistence of force. But, as this law is insufficient to explain two of the principal characteristics of progress, the distinction of parts and of functions, and the integration of parts and functions, Mr. Spencer has recourse, in order to explain them, to two laws which are also corollaries of the fundamental principle. He rests the necessity of evolution on three universal laws, and, through them, on the undemonstrable but undeniable principle of the persistence of force. According to the first (the law of the instability of the homogeneous), a homogeneous body, or, to speak more exactly, a body less heterogeneous in composition and structure, for we know nothing absolutely homogeneous, becomes more heterogeneous under the action of an incidental force. The law *of the multiplication of effects* lends to the law of the instability of the homogeneous a vigorous coöperation. A casual force that affects an already heterogeneous composite, affects its particles differently; consequently, by virtue of the principle of reaction, it is differently affected by them; it ceases to be homogeneous, if it had been so, or becomes more heterogeneous than it was, and acts simply as a bundle of dissimilar forces, which, in their turn, exercise actions

and undergo reactions more and more dissimilar and numerous; so that the number of effects that may be traced to a single primitive cause goes on increasing in geometrical progression, and the ratio of this progression itself increases according to the degree of heterogeneity of the medium in which the cause operates. Finally, the law of *segregation* is a necessary consequence of the two preceding laws, and, through them, of the principle of the persistence of force. These dissimilar forces, striking a mass, produce in it movements in different ways, which result in the convergence and aggregation of the units that move in the same way, and the separation of units that move in different directions. Supported by the unanimous testimony of the facts of experience, logically deduced from our *a priori* datum of consciousness, and compelled to follow as a result of the mechanical laws, evolution is for us a necessary fact.

Will it continue forever? Does it go on now? If it has a limit, what is it? Can a point be assigned beyond which the integration of particles cannot go—at which, all movement of the units being dissipated, no arrangement for evolution is any longer possible? That evolution has a limit, cannot be doubted. The aggregation of particles does not go on unless they encounter resistance, and, to overcome it, expend a portion of their movement. From concentration to concentration, that is to say, from loss of movement to loss of movement, a degree of concentration must be reached at which the parts have no more movement to lose, a state of balanced aggregation, not as regards the moving bodies, nor the medium, but as the integrating particles. Toward this state the aggregates tend in evolution; they reach it and persist in it, returning to it when they are displaced from it by a disturbing cause, oscillating with a slackening rhythm until at length they rest there in repose. Such is the final state appointed to social progress. We advance toward it through terrible

fluctuations, through alternations of revolutions and bloody reactions, wars, and, happily also, through periods of peace, which succeed in slower and slower measure, in which the revolutionary explosions become less violent, and the reactionary repressions less cruel; we advance toward an epoch of liberty and equality in which the sentiments of men, being adapted to the conditions of human existence, their desires will spontaneously obey the great economic law of supply and demand which then takes the name of Justice.

By the side of evolution goes incessantly its inevitable correlative, dissolution. When an aggregate, traversing all the phases of its development, has reached that state of internal equilibrium in which the elementary particles that compose it are no longer susceptible of a new arrangement, it is still as much as ever exposed to the action of external forces. In order that it should not be, it would be necessary that it should have disposed of all its force; in other words, that it should have attained complete equilibrium. That supposes the neutralization of all possibilities by the realization of all possibilities, the absolute suppression of movement, universal death; all which conceptions are unthinkable. An exterior force, striking a body in a state of internal equilibrium, cannot fail to produce in it an arrangement of matter and of motion other than that which existed before, and begin a disintegration the extent whereof depends on the quantity of motion the body absorbs. This event, the prelude of a dissolution, is produced also in aggregates that have not completed their evolution, and with the more facility that the equilibrium of a whole, which has not attained its maximum of heterogeneity, is more unstable because it contains still motion of units unintegrated in the functional movement of integrated groups. So long as a body is in process of evolution, the proximity of every disposable force is a perpetual peril

to its progress. In a society in process of evolution, when all its component members are not irrevocably set in the mechanism of a fixed hierarchy, actions from without exert a powerful influence on its structure. The existence, in the neighborhood of such a society, of a centre of unintegrated forces, becomes an obstacle to its progress. Sometimes we have a race arrived at a high degree of civilization; but, surrounded by yet barbarous nations, it is continually menaced by a conquest that would make it rapidly retrograde toward the social level of these barbarians, or else it is compelled to keep up military institutions and manners that arrest the development of institutions and sentiments which are more favorable to social progress. Sometimes a society contains in its bosom masses that have no access to the good things of every kind which are the fruit of an advanced social organization, a society wherein no harmony exists between the sentiments of the citizens and the constitution of the groups in which they are incorporated for a common end. In these two cases, the societies are incessantly beset by the peril of a general dissolution of their institutions, or, at least, they undergo, through unavoidable and perpetually-renewed struggles, partial dissolutions that retard the general progress.

When evolution is completed, when the body has acquired a fixed structure, equilibrium is more stable, and a greater force is required to dissolve it. The presence of such a force in the vicinity of this body inevitably puts its structure in peril. When a society has, through its process of evolution, attained a stable constitution, in which the sentiments of its members are in harmony with each one's lot, whatever may be the structure of this social body, derangements of its equilibrium are rare and difficult. When the social type it presents to us is of an inferior order, when the inequality of its members is consecrated by the most powerful feelings, and especially by

the religious sentiment, the evolution has come to the line that closes the path of its advance, but it has not reached the end of its effort after social integration. In such a society the equilibrium will be maintained for an indefinite time, until some great shock from without—a conquest, for example—temporary or permanent, succeeds, by a salutary catastrophe, in giving to the imperfectly-integrated units proper motion that had been misapplied to the benefit of a bad constitution, and in permitting them at last to reconstruct themselves on a better plan by a radical revolution. Let the question be of the social organism, or of any other aggregate susceptible of evolution, the stability of the temporary equilibrium which mark its stages, or of the more permanent equilibrium which marks its end, cannot be absolute. To break it there are always surplus forces, disengaged by the evolution that has been produced elsewhere. Force is persistent: this axiom, the basis of philosophy, is the guarantee that all force on leaving a body in which matter is aggregated passes elsewhere to effect a dissolution, to be transferred afterward, driven by a new evolution toward another point of the universe, to do there once more its work of disintegration. The partial or total dissolution of an aggregate is an event quite as necessary as its evolution, and depends on the direction of those numberless currents of force which every moment add movement to matter or take it away. Looked at from the highest point, evolution, with its correlative dissolution, represents an immense rhythm of a duration that human imagination cannot grasp. All it can do is to form a symbolic representation of the series of waves that carry our world, from a state of extreme diffusion anterior to the formation of nebulæ, to the state of equilibrium in the extremest concentration, and then by a gradual disaggregation brings it back to its primitive condition.

This summary and abstract exposition will serve to

show us the significance of Mr. Herbert Spencer's synthesis. It does not resemble the doctrine which M. Renan, speaking for the Hegelian thesis, outlined in a brilliant sketch a few years ago,[1] a theory of steady progress toward the better, to which the name of progress toward the absolute fairly belongs. Evolution, with Mr. Spencer, is not a continually accelerating march of all the particles of the universe, which leads them simultaneously, by a path strewed with destruction, but uninterrupted and unpausing, from the material atom to the universal consciousness in which omnipotence and omniscience are realized; in a word, to the full realization of the absolute, of God. The philosophy of Mr. Spencer does not conduct us to speculations of this nature. It gives us in an abstract formula the two classes of manifestation of the absolute, whatever their positions in space and time; but, at bottom, it gives us only an abstract of what we know of that small number of manifestations which occur in the narrow region of our consciousness. We can conclude nothing in regard to such as do not appear to us, except from those that do appear to us. Now these do not present to us a single current bearing men and things toward a predetermined future, but two lines of opposing currents. The force that we know as persistent, but that we do not know in itself, is revealed to us under two antithetic modes, attraction and expansion. In the corner of the universe where we make our effort to conjecture the world's laws, attraction reigns, integration operates, evolution proceeds. We may hope that humanity will realize on earth the conditions of happiness, because we have reason to believe that progress will be, for a considerable number of ages, the law of the region whereof we form a part. But we have no reason to believe that, in the whole, the progressive tendency predominates over the retrogressive, and that progress is

[1] *Revue des Deux Mondes*, October 15, 1868.

the law of the entire universe. Science may grow by the double process which increases the adjustment of our notions to facts, and makes it more firm. The power of man will augment with his knowledge. The life which this power assumes will be better protected and more productive; it will even attain to that point of equilibrium at which knowledge, being the faithful mirror of all the relations that subsist between things and man, will render him the master of his destiny or his planet. But we cannot doubt that if the duration of evolution, to which our progress is due, permits our species to adapt itself perfectly to the conditions imposed on it—which it can comprehend but cannot modify—a time will arrive at last when it will not find on the globe the conditions that guarantee the exercise of thought or even of life. Whether humanity, at this epoch, shall or shall not have attained the era of happiness and of relatively completed knowledge, such as we have a right to hope for in the generations to come, it will perish, and its work, accomplished or only sketched out, will be lost with it—completely lost, unless the existence of the human race and its members persists by the action of some inscrutable law. But such a belief, which finds a place naturally in the philosophy of the illustrious thinker we have just cited, finds none in the system we have been cursorily reviewing; it has no foundation in it, and cannot figure in it either as deduction or induction. It is a belief that belongs to the province of religion, not to that of philosophy, two things that Mr. Spencer distinguishes and that M. Renan confounds.

CHAPTER VI.

POSITIVISM.

By discarding from his philosophy every prejudgment that is not scientific, by banishing across the frontiers the problems of substance and cause, which human intelligence is incapable of solving, by basing on experience the whole doctrine of the general science, which unifies the special sciences, and, above all, by coördinating positive knowledge, according to a law of evolution, into a series, the gaps whereof are skillfully covered by hypotheses that reason may accept and that experience does not contradict; by all these features, and by the last especially, Mr. Spencer presents to us one of the most complete types of the philosophical spirit of the nineteenth century. To authors who maintain this class of doctrines, or at least such of them as are considered fundamental, we have been accustomed for some years in France to give the name "positivists;" and they have been regarded as disciples of Auguste Comte. The public, from the midst of which this powerful mind had gathered with difficulty a small circle of followers, had allowed him to live, think, and die, without giving to his work the attention it deserved, and without cherishing toward him personally any feelings but those of utter indifference.

We shall not forget the profound astonishment with which, a few years after M. Comte's death, we received

the news—revealed by an economist—that his doctrines seemed likely to replace the old beliefs among some of the working-classes. Afterward, and without very close consideration, he received credit for the grand movement of contemporaneous thought which he did not create, and which appeared to pursue another route than that he would have wished it to follow. This term "positivist" is admirable; it applies well to that general group of thinkers, *savants*, and even mere amateurs, who base their general ideas on the positive sciences as a whole, and regard as insoluble the problems that the positive sciences can do nothing to explain. Still, it cannot be said that these *savants* and thinkers belong to Comte's school. A school supposes a master who has founded it, and disciples whose chief care is to reproduce faithfully the master's ideas of processes, allowing themselves more or less liberty in details. Here we have certainly bold lines, fundamental doctrines—but points of divergence cannot be called details. Besides, the grand lines on which there is agreement were traced out already, before Comte. If, then, it was well to give the name of "positivists" to all those who adopt these essential principles, it was wrong to connect them with Comte, as if they were his disciples and he was their master. A confusion would arise from such thoughtlessness that would misrepresent their respective attitudes. They who have already fallen into it profess themselves surprised at a recent controversy, which they have taken to be an intestine quarrel among disciples of the same school, preluding the dissolution of a common doctrine. Not having drawn near enough to the conflicting opinions, they have failed to see the grave differences between them; not having sufficiently studied the first movement of the current of contemporaneous philosophy, they do not see the points at which it has parted into several branches. It is no place here to decide the quarrel, or to estimate the comparative value of the

special doctrines of Comte, and of the thinkers who decline to be associated with his school, or who have lent him only a partial adherence; we wish merely to note that, in spite of the resemblances and analogies which the reader may find between the writings of divers contemporary authors and the ideas of Comte, those at least that peculiarly belong to him form a system so distinct that they who reject them are fairly entitled to claim their independence; there is no propriety in calling them disciples of Comte. To those that have no exact knowledge of the doctrines, the polemical documents—among others the writings devoted by Robinet, Bridges, Littré, J. S. Mill, to the exposition, criticism, defence of Comte's ideas—might have taught that, along with an agreement on essential points, there exists among the several classes of advocates of the experimental philosophy a profound disagreement on points that are especially characteristic of the philosophy of Comte.

It is because this disagreement is not well known or appreciated that the greater number of eminent men, who gave in their adhesion to the principles of the experimental philosophy, have been regarded as disciples of Comte, and this philosophy has been confounded with the system called positive. Hence the fairly-warranted protests that have appeared from all quarters, especially from Mr. J. S. Mill, who writes with a good-nature growing out of an acceptance of many of Comte's views; from Mr. Herbert Spencer, whose impatience is mingled with a profound respect for the illustrious thinker he departs from, and from Mr. Huxley, whose assaults go to the extent of injustice.

In spite of Mr. Spencer's incontestable claims to originality, it is hardly surprising that the confusion we speak of should have been made, especially in France; but it is more surprising that it should have been persisted in by a distinguished writer whom extensive knowledge, and a

familiarity with Mr. Spencer's works, ought to have saved from such misunderstanding.[1] It seems to us worth while to remove and to destroy it now, when, for the first time, an important work of Mr. Spencer is about appearing in our language.

"What Comte meditated," says Mr. Spencer, "is a systematic classification of our knowledge, that may serve in the interpretation of classes of phenomena that have not been studied in a scientific manner; a lofty idea, worthy of encouragement and praise. He has revived the conception of Bacon, already well calculated to astonish us at an epoch when knowledge was so little advanced, as it contemplated nothing less than an organization of the sciences in a vast system, in which social science should appear as a branch of the tree of Nature. In the place of a vague, indefinite conception, Comte has given a definite, carefully-studied conception of the world; in his work he has displayed a reach, a fertility, and an originality of mind truly great, as well as a rare power of generalization: setting aside all question of truth, his system of positive philosophy is an immense progress. But, after paying Comte a just tribute of admiration for his ideas, and for the efforts he has made in elaborating them, the question remains as to his success. They who think that he has reorganized method and knowledge, and who accept his reorganization, deserve really the name of his disciples; but they who do not accept this reorganization ought not to bear it. If one does not admit Comte's peculiar doctrines, he is his adversary; he finds himself in just the situation he would if Comte had never written. They who reject his reorganization of scientific doctrine, and adhere to the doctrine itself as it was before Comte, profess in common with him opinions that the past has bequeathed to the present; but this adhesion should not be reckoned in favor of the doc-

[1] M. Langel, *Revue des Deux Mondes*, February 15, 1864.

trines peculiar to Comte. Such is the position of the main body of *savants:* this is my position." [1]

Comte, moreover, did not make the pretensions that certain of his disciples put forward. He acknowledged that the positive method in philosophy had been developing for ages, and was an inheritance common to all men of science. The principles that compose this common heritage, the relativity of knowledge and its corollary, the principle that forbids recourse to metaphysical entities for the explanation of phenomena, finally, the fixedness of the laws of Nature, Comte did nothing to add to the weight of these. He availed himself of them, but, simply by interdicting all subjective analysis of thought, he has put himself in opposition to their clear demonstration. We shall not examine all the points of disagreement; we will merely pause to touch on the three principles—the dynamic law of sociology, the encyclopedic hierarchy, or classification of the sciences, and the constitution of human society.

[1] Herbert Spencer, "Reasons for dissenting from the Philosophy of M. Comte."

CHAPTER VII.

COMTE'S FUNDAMENTAL DOCTRINES.

THE variations of human opinion, says Comte, can never have been purely arbitrary. They obey a law that causes every theoretical conception to pass through three successive stages: the first, by a pure mental fiction, gives to the absolute cause of events concrete forms—this is the theological stage; the second gives to the same absolute cause an abstract and purely ideal form—this is the metaphysical stage; finally, the third abandons "the search after the origin and destiny of the universe," the knowledge of the "interior causes of phenomena," and devotes itself merely to discovery of "their effective laws, that is to say, their relations of succession and similitude"—this is the positive or real stage. The stage adopted at first in the general system of explanation, has gone on from concentration to concentration, and has reached "the highest perfection it is susceptible of when it has substituted the providential action of a single being for the varied play of the numerous independent divinities that had been imagined in primitive times." The second stage, the metaphysical, which closely follows the first, substituting for a deity a creation of reason, pursues in its turn the same path toward unity, and arrives at perfection when all the unities are combined in one unity, Nature, a grand

entity, "regarded as the only source of all phenomena." The third stage, the positive, in which the mind confines its search to the marks of relations, traces facts to more general facts, whereof they are but particular cases, these to others more general still, so that "its perfection, toward which it tends incessantly, although quite probably it will never reach it, would consist in the power to represent the different observable phenomena as particular cases under a single general fact, like that of gravitation, for example."

Such is the law of the *three stages* destined to play in the system of Comte a part of the first order, since, by assigning a definite limit to the progress of human thought, it lays a basis for the practical construction of ultimate society. This law determines the principle of the classification of sciences, which furnishes a career for education, in which "what has hitherto been accomplished blindly will be done henceforth scientifically." Although Comte shows us the application of the three methods in philosophy, the characteristics whereof are, he says, essentially different and even radically opposite, he sees, at bottom, in the metaphysical method nothing more than a general modification of the theological method, very suitable as an intermediate step between the two extreme stages, and as conducting, "by insensible degrees, to the positive philosophy, . . . a powerful instrument for breaking up theological conceptions, a clever device for concealing their absence a while by vague, illusory conceptions, but incapable of organizing the domain of metaphysics, or of stemming the tide of the positive philosophy." There are, then, but two methods fundamentally and essentially opposed—the theological and the positive; the human mind passes from the first to the second, whatever accidents may befall on the passage; it must begin with the first and end with the second, abandoning the first as radically incapable

of bestowing on man the power of modifying the environment in which he is placed.

Of all the contributions that Comte has made from his private store to the common fund, none has called forth more lively protests than the dynamic law of social organization, as well from theologians and pure metaphysicians as from the representatives of a school in other respects closely allied to positivism—the critical school, namely—all of whom refuse to allow the march of humanity, which they think indeterminate, to be compressed within the lines of any strict law whatever. Comte was well aware that this law needed explanation; that it would never acquire the scientific authority he wished to give it so long as it expressed only a simple general fact. He perceived the necessity of characterizing the different general motives taken up in the exact knowledge of human nature, which have made, now inevitable, now indispensable, that necessary succession of social phenomena, regarded in the direct light of intellectual evolution, which essentially controls their principal march. The different scientific processes, that serve definitely to confirm an empirical truth, were too well known to the man who had traced the philosophy of the positive sciences to justify him in thinking he had done enough in announcing a simple historical generalization. This sort of induction, he knew and said, needed, in order to become unexceptionable, the control of the "eminent faculty," by which we conceive, "*a priori*, all the fundamental relations of phenomena, independently of their direct investigation, according to indispensable bases furnished in advance by the biological theory of man. Independently of secondary causes, the movement that proceeds in accordance with the dynamic law, recognizes two universal causes, "the natural conditions of the human organization, and those of the medium wherein it has its development." But these two causes are ever at work, and, if

it can always be maintained with confidence that they determine evolution and its rapidity, we can never tell what part each takes in this common work, or show what laws of circumstance, what laws of human organization, are verified in this or that manifestation of social dynamics. In presence of this difficulty, which he was unable wholly to surmount, Comte, for the verification of his law, was compelled to resort to all the means of investigation at his command, to observation direct and indirect, "to the numberless forms of the comparative method," and, above all, to logical reasoning. In spite of these resources, the dynamic law, with no bond of deduction to connect it with a more comprehensive law, remains a pure empirical generalization; the adherence of "all advanced minds" cannot shield it against the "irrational evolution" of those less advanced minds whom Comte so loftily waved off, making himself judge of the competency of his antagonists.

Man, he tells us, has never been able to comprehend the events that surround him, except by endowing each permanent group of phenomena with consciousness and will. He has thought he could know himself, and he has supposed he found in himself a type of unity; this he has transferred "to other subjects that attracted his nascent attention." He ended, of course, in a universal anthropomorphism. This is quite possible. We see around us still many instances of this quite childish method of explanation; we still hear the assertion that what man knows best is himself, made often enough to comprehend that one of the first offices of reason, on coming out from this long period during which, impressions not being coördinate, no knowledge could take form, is to personify. But this wholly metaphysical induction, so like those which have often led astray thinkers who tried to bend facts to mental theories, cannot dispense with the support of a complete historical verification. It is very true that, at the birth of

all societies, theological conceptions prevail; but there are cases wherein the first theological notions that history presents to us have not the stamp of fetichism. The rational induction of Comte has not, therefore, the rigorous verification it requires.

The difficulty that presents itself in the way of passing from the theological to the positive stage is very much greater even than this. Comte attributes it, peremptorily, to "the predilection of intelligence for positive conceptions; especially on account of their practical superiority, which they owe entirely to the fact that they are better adapted to the provisions exacted by our activity." This reason, true in itself, does not seem to us to contain all that Comte would draw from it. It answers admirably well to account for changes, constantly increasing in the conception of Deity, which, up to that point, has dominated our understanding; but, does it go the length of annihilating it? Persuaded henceforth of the practical superiority of positive conceptions, man will demand his happiness, and the security of his future, of positive science; he will no longer endeavor, by "plausible solicitations," to secure the arbitrary intervention of ideal powers. He will try to get at the secret of Nature by all the methods of scientific investigation; and, to make sure of his own destiny, he will set himself to the task of modifying, with the whole force of his knowledge, the naturally independent conditions that determine it. He will no longer pray; but, will he give over his belief in the existence and presence of Deity? It is a common notion that a god who confers no favors, who does not lay his finger on each event, is not God; this is the opinion of the adherents of Christian churches, as of the greater number of those who reject their symbols—it certainly was the opinion of Comte himself. He did not, therefore, think it necessary to demonstrate that the full advent of the positive

system would efface the last vestiges of theological conception. In the absence of the special experience that the future holds in reserve, which may or may not verify the positivist affirmation, sectional motives alone can give it the provisional authority of an accepted belief, forbid contradiction, and render impossible or improbable every other theory of mental evolution.

General conceptions, Mr. Spencer declares, do not pass through three different and opposite stages, nor even through two; they remain always the same; the comprehension of them alone varies, and, with their comprehension, but in an inverted way, their compactness.

The human mind has never ceased to agitate the question of cause; it has tried two methods of solution—the religious and the scientific—hence the illusion of two objects of research, hence the apparent antagonism between two processes, which hides the deep sense of their common tendency. The friends of religion, and the defenders of science, have ceaselessly fought together, and still they have not ceased doing a common work, profitable as well to religion as to science. In this conflict, old as civilization, beset with so many vicissitudes, there has been neither victor nor vanquished.

"All religion is an *a priori* theory of the universe." All religions undertake to explain the world by a causing power; all affirm that something must be explained by a cause, and all propose a conception of this cause. "In the grossest fetichism, which supposes a distinct personality behind each phenomenon," that is to say, which represents the directing force of the world under manifold forms, "strictly outlined and homely," and assimilates them with visible powers, human and bestial; in polytheism, where these personalities begin to undergo generalization, and are more and more peremptorily remanded to distinct regions, whence they influence the order of things by means that

elude man's apprehension; in monotheism, where the generalization becomes complete, where the divine person loses, little by little, all his anthropomorphic attributes and becomes, through lack of possible qualification, "the unknown god;" finally, in this latter period, when religion is distinctly aware of the impossibility of endowing the object of its worship with any attribute whatever, in other words, of conceiving it, when religious thinkers repeat, with Hamilton, "a god comprehended would be no God;" in all these forms so various, under symbols so different, religion has done nothing but affirm more and more earnestly the transcendency of the cause of the universe; and its development consists precisely in its shedding of the symbols that disguise the fathomless mystery of this cause; this the most enlightened theologians of our time admit. According to them, the struggle and the reverses have been a discipline from which religion has come out purer every time.

And science? That, too, is a theory of the universe. Science represents the sum of "positive and definite knowledge in regard to the order which reigns among the phenomena that environ us." For the indeterminate order, expressed by theological conceptions, it has gradually substituted a determinate order; but it has advanced only by affirming powers radically different in kind from those of the religious dogmas, entities, spirits, forces, conceptions, more and more abstract, by means whereof it claimed to represent what it did not and could not know. Not till now, by the method of the most advanced *savants*, has it perceived that the ultimate forces on which its universal explanation rests, are not distinct forces at all, but modes of manifestation of a single universal force hitherto recognized as incomprehensible. Science, like religion, has advanced by laying down superficial explanations, which it took up little by little into explanations more profound and

more general, and it ends at last, after a struggle in which victory seems to have never deserted it, by acknowledging the same mystery before which religion bends; a transcendent, that is to say, an inconceivable cause of the universe.

If the mind, in its evolution, follows not three distinct processes but only one, it comes to one only result, and not to three. The one God, who, in religion, absorbs all the other gods; Nature, the single entity that in metaphysics absorbs all the other entities; the general fact to which all facts may be referred as particular cases, are not three different conceptions, but one single conception. "When the theological idea of the providential action of an individual being has reached the last form of its development, by absorbing all secondary independent powers, it becomes the conception of a being imminent in all phenomena, which explains the disappearance of all the anthropomorphic attributes that once characterized them. The last term of the metaphysical system, Nature, is a conception identical with the preceding; it is the notion of a single source, which, as soon as it is regarded as universal, ceases to be conceivable, and differs in name only from the conception of a being who manifests himself in all phenomena. In the same way the final stage of science, the reduction of all observable phenomena to particular illustrations of one general unique fact, implies the postulate of an ultimate existence to which this fact may be referred; a postulate that cannot be distinguished from the two identical conceptions of theology and metaphysics."[1] The conflict, thus far permanent, between religion and science, can be terminated only by a full adherence of these two powers to the principle of the transcendence of the cause of the world; it cannot end in the suppression of either one;

[1] Herbert Spencer, "Reasons for dissenting from M. Comte's Philosophy."

they are destined to live as long as consciousness. In vain will Science flatter herself that her explanations have touched the unknown; her conquests, immense as they may be reckoned, will always leave the eternal problem unsolved. The religious sentiment will not perish for want of nourishment; intrenched, as it is now, in a region where science cannot reach it, it sees its domain extend in equal measure with that of its rival. "If we consider science as a gradually increasing sphere, we may say that every addition to its surface enlargement does but multiply its points of contact with surrounding nescience."[1] The object of the religious sentiment will continue to be what it has always been, the unknown source of things. The *forms* under which men conceive the unknown source of things may be effaced; the absolute Being, the *substance* of consciousness, is permanent. The religious sentiment began by representing the universal cause under the form of imperfectly known agents, then under the form of agents less known and less knowable, arriving at last at the conception of it as a cause wholly unsearchable; but, if for the moment it has ceased making it the object of its speculations, it has come back to it again with new fervor: it will busy itself thus always. Now that, in magnifying its object, it has come to contemplate it as the unknowable infinite, it is at the highest limit of its evolution; no finite being will satisfy it, not more the object which Comte proposes for the veneration of his disciples—the grand being, humanity—than any other finite conception within the compass of knowledge.[2]

[1] Herbert Spencer, "First Principles," p. 16.

[2] "Reasons for dissenting from the Philosophy of M. Comte."

CHAPTER VIII.

THE ORDER OF THE SCIENCES.

EVERY dogmatic or critical philosopher is under necessity to deal with the question of the order of our ideas. The founder of positivism could the less decline this task, as he believed the epoch of criticism to be finally closed, and the hour for positive constructions come. In spite of his denials, often made in a peremptory tone, Comte admitted that, by placing one's self at a favorable point of view, and with sufficient knowledge, one could reproduce the connection of the more general scientific ideas; that is to say, could conceive that inquiry, as to broad outlines, was closed; he believed that what remained of truths in detail to be explored, although of great extent and great practical importance, could exert no influence on the working of the speculative system. For this reason he preferred the dogmatical to the historical method in giving his exposition of the hierarchy of the sciences. He knew perfectly well that these two methods do not concur, that the development of the sciences has been simultaneous, and has gone on by reciprocal exchange of services. Nevertheless, he chose to regard the older as the more advanced, thus subordinating an irreproachable witness to a principle of classification that he has borrowed from the relations of things; he determines the order and rank of the sciences, according to the relation of the facts with which they deal.

Another cardinal point in the doctrine of Comte is the division of the sciences into the abstract and the concrete, the former being systems of laws that govern elementary facts, or events, as they exist or present themselves to observation, but in scope more comprehensive than real existence; the latter, coördinations, which are only layers of facts or events, combinations disclosed by experience. These occurrences present mutual relations which admit of classification in "natural categories so disposed that the rational study of each category rests on the principal laws of the category preceding it, and becomes the foundation of the study of that which follows." [1] Each category depends on that which goes before it, and, in its turn, serves as an introduction to that which comes after; it is a scale in which each category of facts represented by the corresponding laws systematized in abstract sciences, is more general and more simple than that which immediately follows. This order of decreasing generality correlative with an increasing complexity constitutes the unity of philosophic doctrine, and gives to the classification of the sciences a homogeneity such as no other essay has presented.

Beings in Nature present two grand divisions. All possess properties of gravity, heat, etc., of combination and decomposition, but only one of the two groups presents phenomena of increase and reproduction. The first, possessing properties common to both divisions, the most general, in other words, are the simplest; they form the class of brute bodies. The second, having, in addition to these common properties, certain special ones, are less general and more complex; they form the class of organized bodies. The first division is again subdivided, by virtue of the same principle of decreasing generality, into three groups, to which respond three sciences: astronomy, for the more general and more simple phenomena, "subjected to laws

[1] Auguste Comte, "Cours de Philosophie Positive," i., p. 68.

that bear on all the rest, of which they themselves are however independent;" physics, in which bodies are considered from the more general and simple point of view of mechanism; chemistry, which studies the laws that govern the combinations of bodies. The second class, in its turn, may be divided into two distinct groups according as we consider the physiological laws of the individual, or those less general laws which, becoming auxiliary to the first, condition the social evolution. These two groups correspond to the sciences called biology and social physics.

If, now, a group be made of the mathematical sciences which shall comprise all the phenomena under the categories of number, space, and force, we shall have a science the laws whereof are the most general and the simplest of all, thus giving it the first rank in the hierarchy of the sciences. "The science of mathematics is less a constituent part of natural philosophy properly so called, than, since Descartes and Newton, the true basis of that philosophy, . . . the most powerful instrument the human mind can employ in the investigation of natural phenomena."[1] "To sum up finally, mathematics, astronomy, physics, chemistry, physiology, social physics, this is the encyclopedic formula, which, among a great number of classifications that the six fundamental sciences afford, is alone logically conformable to the natural and invariable hierarchy of phenomena."[2] The same principle of decreasing generality presides over the development of the secondary sciences, the subdivisions of the six fundamental sciences. Independently of the great advantage of combining in a methodical system all the truths that make up knowledge, the encyclopedic scale possesses one eminent property—it furnishes a rational basis for a system of education which, henceforth, will lead the coming generations systematically over the road that humanity has pursued without deliberate purpose.

[1] Comte, "Cours de Philosophie Positive," i., p. 86. [2] Ibid., p. 115.

Mr. Spencer does not admit the possibility of arranging the sciences in a serial order that will express either their logical dependence or their historical development. Were such an order possible, the classification he would adopt would be that of Comte. But why that order? Is it because our thought is so constituted that we can only represent things in series? This purely metaphysical reason, which rests the foundation of things upon logical forms, can have no force with the positive mind of Comte. None but a German, capable of conceiving Nature as *petrified* intelligence, could lean on that. Besides, Comte, by claiming that the sciences are branches of a single trunk, deprived himself of the right to arrange them in series. He perceived the truth, but not the whole truth. The sciences are not merely branches from a common trunk, they are mutually sustaining, assisting, inosculating, as an anatomist expressed it; they do not only follow a movement from simplicity to complexity, from greater generality to less, they follow also the inverse course. History, and the special tendencies that now prevail, show us that the development of the sciences takes place after the manner of a continually augmenting generalization, that general science is constantly becoming more independent of special knowledge. Comte, in his system, has embodied but half of the truth. Progress is at once analytical and synthetical; the profounder analysis prepares the way for the completer synthesis; the completer synthesis enables us to conceive and to effect a still more profound analysis. Science, as we have seen, is an organism. In proportion as it grows, it creates departments with special functions. But each department lends to all the rest, and receives from all the rest. They are all united by an intimate *consensus*, the effect of which is that one science progresses only as the others progress also. The evolution of the sciences does not therefore take place in the serial order indicated

by Comte, nor in any other; properly speaking, there is no filiation of the sciences. From the beginning, the abstract sciences, the concrete sciences, and an intermediate order that unites these extreme characteristics—the abstract-concrete—have advanced together. The first have made no progress, except by solving the problems presented by the second and the third; the third, in like manner, have progressed no otherwise than by solving the problems raised by the second. There has always been between these three great orders of the sciences an exchange of services, a constant action and reaction. From concrete facts we have passed to abstract, and these have afterward been applied to the analysis of new orders of concrete. This order Comte has remarked on. He perceived that the development of the sciences leads first to the knowledge of events, which serve to make up the abstract sciences, and that afterward the concrete sciences are completed under the direction of the abstract sciences, and finish the coördination of the combinations of events. But he did not attach sufficient importance to this observation; he forgot it as the principle of simultaneous and solid development.

The other basis of Comte's theory—the order of development in the parts of a science according to the principle of decreasing generalization—is equally wanting in truth. The mathematics will give us proof of this. For the rest, one has only to go to Comte himself to find the objections that may be made to his theory: he has admitted them all. By his own confession, "mathematical analysis seems to have had its birth in the contemplation of geometrical and mechanical facts;" that is, the most general science was born after the less general, and incidentally to it. From that time we have seen algebra, an abstract science, remain unformed until after geometry had received a high degree of development; algebra itself is posterior to arithmetic.

which it includes, and the transcendental analysis, more general than algebra, is a quite recent science. The mathematicians are even obliged to invent still broader generalizations. So much for the science of calculation. In geometry there is the same progress toward the more general: the ancients occupied themselves solely with bodies; the moderns rise to higher abstractions; they concern themselves with all questions that relate to figures. In mechanics, the same; the most general science, statics, moves only after the less general dynamics, which, by the principle of virtual forces, supplies to it an abstract theory of equilibrium susceptible of application alike to fluids and solids.

The principle of decreasing generality does not, then, express the order of development in the constituent parts of a science; no more does it express the order of development in the fundamental sciences. Astronomy—which Comte places after mathematics and physics, and which represents the application of the geometrical and mechanical laws to the heavenly bodies—together with the laws of celestial physics, made no progress until after geometry, mechanics, and terrestrial physics, had advanced on their side. "Before scientifically coördinating a class of celestial phenomena, a commencement was made by coördinating a corresponding class of terrestrial phenomena."

"Mr. Herbert Spencer's objections are weighty," says M. Littré, "but they have failed to convince me." [1] Comte's principle of classification is true; the inverse principle, which Mr. Spencer makes the basis of his criticism, is also true. The contradiction must therefore be apparent, not real, and Mr. Spencer must have deceived himself. By a decreasing generality, Comte meant a generality given in the object. Philosophy at first knows nothing but groups —grand totals; on these grand totals it begins to speculate; at first it studies bodies in the mass, then it passes to

[1] Littré, "Auguste Comte and the Positive Philosophy," chap. vi.

the examination of organs, next to tissues, finally to anatomical elements. Here you see the type of the history of science: the advance is from the whole to the parts; the generality that is followed is decreasing, it is an *objective generality*. In Mr. Spencer's view, science, passing from body considered in the mass to the organ, thence to the tissue, thence to the anatomical element, has ascended to doctrines more and more general; but here the question is of a generality in doctrine, that is to say, a *subjective generality*. The difference in the points of view is obvious. What Comte has in consideration is the object, not the doctrines based on the object. Set aside the mathematics, the place whereof is incontestably at the head of the series, and astronomy, which must come down from the lofty rank of a fundamental science to the more humble place of a secondary science belonging to the group of physics, that we may, by "an indispensable sacrifice," serve the substance of the doctrine here justly attacked by Mr. Spencer. What does the object show to us? Three groups of properties—the physical, the chemical, the vital—ranged according to the principle of decreasing generality. From the physical group, as being the most general, the mind, duly prepared by the knowledge of mathematics, must take its departure in its encyclopedic study, thence it must continue through the chemical group and end with the vital, under pain of arrest, since the mind is constrained to "travel at the same pace" with the natural arrangement of the object.

What meaning does M. Littré attach to the words "objectively more general?" By this phrase he indicates (pp. 289, 290) properties that are manifested in many instances. Applying this meaning to what he has said of tissues, and of anatomical elements, Mr. Spencer would then be justified in saying that the properties of the tissue are objectively more general than those of the organ, and those of the

anatomical element objectively more general than those of the tissue, since the properties of the tissue present themselves in more instances than those of the organ, and the properties of the element in more instances than those of the tissue.[1] This superior generality does not exist in the mental view, it is at the point of the scalpel, and under the lens of the microscope that we find it. Mr. Spencer confesses that he does not comprehend M. Littré's objection; but he tries to throw light upon it. "There is," he says, "and here M. Littré is right, a decreasing generality, which is objective. With the exception of the phenomena of dissolution, which are changes from the special to the general, all the changes undergone by matter are from the general to the special; these are changes in which there is a decreasing generality in the groups of attributes; this is the progress of *things*. The progress of *notions* is made not in the same direction alone, it is made also in the opposite direction. The investigation of Nature reveals to us continually more particulars; but, at the same time, it reveals to us continually more generals in which the particulars are contained. To take an example: Zoology, in multiplying the number of the species it describes, and in studying them more thoroughly, pursues a decreasing generality; but, at the same time, in disclosing the common characteristics that unite the species in larger groups, it pursues an increasing generality. These two operations are subjective, and in this case the two orders of acquired truths are concrete—they express phenomena actually manifested."[2]

If, then, a decreasing generality is claimed in the arrangement of the sciences, it can be only subjective. The misconception attributed to Mr. Spencer by M. Littré does not exist. But, according to him, Mr. Spencer has committed the fault of "confounding the series of the sciences with their evolution, and, in the evolution itself, the epoch

[1] Spencer; "Classification of the Sciences," p. 10. [2] Ibid., p. 10, note.

in which they are not yet constituted with the epoch in which they are so."

The series, M. Littré says, should be such that each science shall depend on that which precedes it, and shall hold in dependence that which follows it. The series instituted by Comte satisfies this condition; it satisfies a yet more important condition, without which the whole work, being arbitrary, would have to be abandoned: it conforms to the series of the object, which is "naturally hierarchized, a circumstance that furnishes an excellent *a priori* reason in favor of Comte's series, supported besides on an *a posteriori* verification drawn from the impossibility of knowing the object, except by traversing the series of the sciences according to the order of decreasing generality."

The evolution of the sciences which leads knowledge on to truths more and more general and abstract, takes place, in Comte's view, according to the serial order; in Spencer's view, simultaneously for all the sciences, which lend each other a mutual assistance. Here again M. Littré thinks to explain the disagreement between Comte and Mr. Spencer, by a confusion on the part of the latter. He grants that Mr. Spencer is right as to the evolution of the sciences, but not as to the constitution of the sciences, which Comte's hierarchy alone correctly expresses. A science is constituted when it takes account of "some one of the fundamental properties of matter, and, on that property, establishes an abstract doctrine susceptible of evolution." For example, biology had no possible doctrine prior to the time when it recognized the vital properties inherent in tissues, and in the morphological elements. Previous to this epoch, it could have none that did not proceed from doctrines of the physical and chemical sciences, or that did not rest on some metaphysical conception of finality. Henceforth it is on the recognition of the properties of tissues that the hypotheses will rest

that should indicate the path of evolution, which goes on, it is true, by the mutual concurrence of the sciences. In this way, M. Littré proposes to reconcile these two opposite points of view.

Nothing will give a better idea of the opposition, after what we have already said on the evolution of the sciences, than an exposition of Mr. Herbert Spencer's classification. In conformity with the logical principle which groups together in one and the same class the things that resemble one another more than they resemble things outside, Mr. Spencer begins by forming two grand groups of sciences. In the first he puts the sciences that treat of "the abstract relations under which phenomena present themselves to us," that is, the relations of space and time; this is the group of *forms*, comprehending *the abstract sciences*, logic, the mathematics, sciences that differ from others more than others differ among themselves. In the second group he puts the sciences that treat of the existences represented under the relations of time and space. This group subdivides itself into two classes, which differ greatly. "Every phenomenon is more or less composite; that is to say, it is a manifestation of force under several distinct modes; thence two objects of study." A first class studies the component modes separately, and gives their laws, making abstraction of the particular cases; this is the class of *factors*. The abstract-concrete sciences that compose it are abstract in the classification of Comte; they doubtless are so since their theorems express laws of force whereof no fact is a pure expression, but they are also concrete because these modes of force express real relations. Just as the abstract sciences are ideal relatively to the rest, the abstract-concrete sciences are ideal relatively to the concrete sciences. Just as logic and the mathematics have for their object to generalize the laws of relations, qualitative and quantitative, abstracting the things that limit them, so

mechanics, physics, chemistry, have for their object to generalize the laws of relation which the different modes of matter and movement obey when they are disengaged from those actual phenomena in which they undergo modifications. In mechanics are expressed "the laws of movement, no account being made of friction and resistance of medium. The theorems do not tell us what movement is, but what it would be if there were no retarding force; or, rather, what should be the effect of such retarding force, other retarding forces being eliminated." In physics, the laws of radiation are laid down without taking account of the media that disturb its effect, and, when the action of these media is investigated, "they are considered as homogeneous, which they never are;" and, even when changes of density are reckoned—in the atmosphere, for example—when the matter treated of is light, we are not concerned with the currents that traverse it, and would derange again the effect announced in the theorem. Finally, in chemistry, there is never taken "a substance just as it is in Nature. . . . The problem of chemistry is to confirm the laws of molecular combination, not as they are actually operative, but as they would appear in the absence of those minute interventions that can never be completely put aside. . . . All the abstract-concrete sciences have *analytical interpretation* as their object." [1]

The second class studies these component modes of force in their relations, in their coöperation for the production of phenomena of particular cases. The sciences that compose it are concrete, in that they deal with things as they are met in Nature, "with the real as opposed to the wholly or partially ideal. Their object is *synthetical interpretation*. . . . The construction of phenomena that result from factors under the different conditions offered by the universe." This is the class of *products;* it com-

[1] Spencer, "Classification of the Sciences," p. 16.

prises astronomy, geology, biology, psychology, sociology. With Comte geology is, indeed, a concrete science, but psychology has no independent existence, and is but a department of biology, an abstract science like astronomy and sociology.

The differences on which Mr. Herbert Spencer rests his divisions bear simply on the degree of abstractness; the degree of generalness in the laws with which the sciences are concerned is a secondary principle which serves to subdivide the three main groups. Thus, in each group of sciences, the more as well as the less general, there are those which deal with relations that extend to all, or to the greater number of facts, and those which deal with relations that extend to a smaller number of facts. We need not enter into the details of the classification, nor follow its secondary, tertiary, or other subdivisions. We need only give enough of them to explain their characteristics.

Nothing better conveys the extent to which the differences they repose on "are fundamental," than the functions that they fulfill. The class of abstract-concrete sciences, and those of the concrete sciences, supply materials to the class of the abstract sciences, the class of the concrete supplies materials to the class of the abstract-concrete; the first two classes act as an instrument for the third, the first for the second, but "no theorem of the second and third will serve as a key to resolve the problems of the first, any more than a theorem of the third will serve as a key to resolve the problems of the second. There are constant relations between the three classes, direct and indirect, but these relations find no expression in a linear series; an arrangement of three dimensions would alone properly express them, and obliterate whatever of crudeness there may be in a sketch which claims to represent a classification, and which performs its office by

mutilating the object it sought to image."[1] It has been affirmed, but without proof, that Mr. Spencer's attempt has failed, and that, in its turn, it may serve to show the difficulty of making an unexceptionable classification.[2] We have presented it in its broad lines, in order to show how much it differs from that of Comte, and wherein the two points of view are irreconcilable.

[1] Spencer, "Classification of Science."
[2] Lewes, "History of Philosophy," vol. ii.

CHAPTER IX.

EVOLUTION AND GOVERNMENT.

GRAVE as are the two questions on which we have just seen Comte and Mr. Herbert Spencer in complete disagreement, that which is yet to be examined is graver still.

At the beginning of this century, after an unexampled revolution, which had presented the spectacle of a people overthrowing all their institutions and trying to build up others, with no instruments but those furnished by a crude science and theories—rational, so called—on the nature of man, there remained in the mind of the French an idea that this construction was not made on a sound plan; that it was necessary to begin again on a basis and with materials of scientific validity. A number of theorizers hereupon came forward with systems of social organization that claimed to be an infallible means of arriving promptly at general happiness—too often, however, at the expense of liberty. Comte, a pupil of St. Simon, received from his master the notion that society must be, and could be, manufactured. The present time was, in his judgment, a period of untimely criticism and anarchy, with which we must have done as speedily as possible, in order to save progress. He pieced up a system in which the minute details of life were made subject to regulations, and which extended a jealous supervision over thoughts as well as actions. A society in which each individual should act

under a common inspiration, as at the fine era of the Catholic rule, in the eleventh and twelfth centuries, would be the form most conducive to the advancement of humanity. This miracle of revealed faith, demonstrated faith, was to be repeated under the direction of a clergy of *savants*, composed of men most capable through their cyclopedic knowledge of knowing the desirable end to reach, and invested with a moral authority sufficient to rally in phalanx, and direct in action, the scattered faculties.

By its proper constitution the human race is called to action. But, as in the Christian religion, the faithful receive from a competent and recognized authority the dogmas they must believe, and the commandments they must obey; so, in the society conceived by Comte, the man who, either from mental incapacity or because his activity is better employed otherwise, cannot discover and verify the principles that serve as a basis for practice, will accept them from a superior authority. The authority of the *savant*, in matters belonging to his special department, nobody disputes; the same should be the case with the *savant* who has penetrated the laws of the social sciences. To obtain a clear notion of man's relations with the rest of the universe, that the problems which daily rise in practice may be scientifically solved, is the aim of the highest human activity. This work is evidently beyond the capacity of the great majority of mankind. It is well, then, to institute an order of speculative minds devoted to the solution of these difficult problems, commissioned to discover the thing to be done, to formulate rules of action, and to interpret them when necessary, by throwing light on such obscure points as may arise in the minds of those who have to follow them. If men are too often incompetent to discover the principles of their actions, they show their radical incompetence above all in morals. Not only have they great trouble in discerning nicely the true moral principles

that should guide them, but they have small inclination to follow them unless they are laid under some restraint—either a physical restraint, represented by that necessary evil called government, the application whereof is to outward actions alone, which interest immediately the members of society, or a restraint of a different kind, namely, moral influence. These two orders of constraint are, so to speak, complementary each of the other; where the moral is feeble or unheeded, recourse must be had to force, to the detriment of humanity—for there is always something in force that degrades the dignity of man. Still, the monarchical opinions of the *savants* of the present day, and notably those of the men who maintain the cause of progress against the defenders of Catholic authority, tend to nothing less than the propagation in society of ills so intolerable that the despotism of brute force may alone avail to save it. One remedy exists: a strong constitution of the spiritual power, based on the positive philosophy, which shall incessantly appeal to the sentiments of men, assume their direction, and compel all thoughts and actions to converge toward a common end, the welfare of humanity. The moral power will have to prevent social miseries of two kinds: among men in general the preponderance of egoistical instincts, which, when gratified, diminish the sum of well-being and of power, whence progress results, and, when repressed, inflict a cruel injury on the happiness of the individual; among *savants* in particular, the taste for useless studies, an excess of the disintegrating specialism which leads away from contemplation of the grand subjective unity, and from the ends of humanity. The first aim will be reached by an education that subordinates the egoistical sentiments to the disinterested, and realizes, so far as our nature permits, the ideal of the unity in which our personal existence in its greatest activity harmonizes with society and coöperates with it for a common object.

The second aim will be reached by that systematizing of scientific research which will cause to converge toward a common object of recognized utility, under the direction of the highest theoretical knowledge, all the activity that for want of a preconceived plan is scattered and lost in vain speculations on insoluble and idle problems, such as the origin of species, or the objective synthesis of the universe. If the ideas of Comte were applied they would submit the whole man to official regulation; an unimpeachable authority would rule every thing; the Catholic ideal of the suppression *of the liberty to err* would be realized, and humanity, as the price of the absolute submission of the individual to society, would have no fruits to gather but those of a progress conceived in its plan and its methods by the speculative class. Decided as Comte was to commit the exercise of physical constraint, and the direction of industry, to an oligarchy of the rich, the exercise of moral restraint and the direction of science to an oligarchy of the learned, it is not surprising that he should have felt an utter contempt for representative government, and that he should have seen, at first in the revolution of February, 1848, later, in the despotic revolution of December, 1851, felicitous events calculated to suppress miserable and degrading factions, and favorable occasions for putting in practice a social system which the pedantic twaddle of orators in the elective assemblies could no longer obstruct.

There is certainly an advantage in committing the moral authority to a body composed of truly wise men, making recommendations in the name of indisputable science, instead of priests, who give orders in the name of transcendental conceptions. The institution of a sacerdotal theological power has helped progress wonderfully, by giving to the ill-defined knowledge of mankind a synthesis that might serve as a basis for morality. The institution of a scientific sacerdotal power would serve a better purpose

still, by ruling out contradictions in ethical precept. But, to say nothing of the intervention, always powerful, of the passions, which have corrupted the theological institution, and have made it for the last three centuries the greatest obstacle to progress in the West, and which would not fail to corrupt as well the scientific institution, an argument of great weight presses against the organization which Comte proposed for the coming society. At the bottom of Comte's doctrine is the belief that man is always the same, that he has always needed guidance in the past, and will always need guidance in the future, the idea that the principle of authority must forever be incorporated in some visible form. Neither history, which furnishes our inductions, nor the theory of evolution, which extends and confirms them, warrants this belief. History shows a gradual decay of the different governmental institutions, in civilized communities; the theory of evolution shows how, for the influence of visible authority, which is decreasing, is substituted the influence of an invisible authority of much greater efficacy. From the fact that the action of a temporal government, and of a spiritual government, has been necessary and legitimate, it is not fair to conclude that it always will be. This error proceeds from the false idea men form of the social function of government under one or another shape. It is assumed that government is called to direct citizens in their action. According to Mr. Spencer, nothing is less true. For the origin of this error we must go back to the old anthropomorphic conception which has hitherto shaped all our explanations of things, and which still, in our own time, holds so wide an empire. The man who believed that the sun and the moon had been launched into space by an almighty hand, that man had been modeled in clay by an artist of supernatural skill, believed according to the same way of thinking that the society to which he belonged had been fashioned and regulated, either directly by Provi-

dence, or indirectly by the supreme wisdom which inspired an all-powerful legislator. This way of thinking still recurs in our own time. People are still inclined to ascribe to the institutions of the past an august character that exalts them above our criticisms. "It is the wisdom of the sovereign, it is the wisdom of our fathers," say they, "that has created this or that institution." There are some who think that a social state is the work of governors, the happy result of the thoughts of the men of genius whom the nations have been fortunate enough to possess, or the corrupt product of the vices and evil passions of those who have governed them. It is a mistake. A society, like every concrete existence, is the product of a development under fixed laws. The institutions that constitute the essence of it existed first in the germ; afterward, by a slow and insensible development, under the pressure of necessity, and, through the activity of interested individuals, it has attracted the notice of contemporaries, who consecrated it by an act of legislative power; but nobody designed or established it all at once. The most considerable social facts attest this, and the less important facts as well. The legislative changes, which succeed in overturning a secular institution, seem to contradict this opinion. A law is passed, functionaries are appointed to carry it into execution; here, it seems, is the beginning of a series. This, again, is an error; the innovation has a deeper root than the will of legislators. These, whether they suspect it or misunderstand it, are the mouth-pieces of the national will, the resultant of the sentiments that prevail in the country. "Law is not a creation, it is a natural product of the character of the people."[1] That explains why the aristocratic and reactionary constitution of Sylla, the essentially wise and useful reforms of Cromwell, the democratic institutions founded by the authors of the French Revolution, so soon

[1] Spencer, "Essays: The Social Organism."

perished. Men of genius may "derange, retard, or help the close work that goes on naturally in society, they have no power to determine its course, . . . great men are the products of the society in which they appear. But for certain antecedents, a certain level of national character, they could not have been born, they would not have received the culture that formed them. If there is truth in saying that society owes to them in some degree its form, it is truer yet that they owe to it their form: they have received from their ancestors the traits that distinguish them, a kind of congenital bent, their beliefs, their knowledge, their aspirations." [1]

These considerations determine the idea that should be formed of the province of government; it is not, and it ought not to be, an imitator. It has been said that government is a necessary evil, and that nations ever have the government they deserve. These propositions are essentially true. Government is the whole body of institutions, of constraining apparatus that give check to the antisocial tendencies, and maintain the equilibrium between the conditions of social life at a given moment and the traditional dispositions, the vestiges of an anterior social state: government is a function corresponding to the immorality of society. A bad government corresponds to a bad social state, that is, to a combination of social phenomena produced by bad passions and beliefs. "The social state, of whatever epoch, is the resultant of all the ambitions, of all the personal interests, of the sentiments of fear, respect, indignation, sympathy, as they exist among the citizens of that epoch, or as they existed among their ancestors in previous epochs." [2] From the time when the human race, multiplying, covered the globe so that the individuals composing it find themselves in presence of one another, and

[1] Spencer, "Essays: The Social Organism."

[2] Spencer, "Reasons for dissenting from the Philosophy of M. Comte."

can satisfy their desires only by struggling for its possession, till our era, social forms have always shown this correlation between preponderating sentiments and the rigor of authority. The development of the moral sense gradually brings on the fall of coercive institutions. Respect for authority declines in proportion as respect for the right of the individuals increases. But it is too evident that we are far from this adjustment of man to the social state. To say nothing of treasons, knaveries, robberies of all sorts, violences, intrigues, and corruptions, which the penal law does not touch, the infractions of sacred rights and the crimes that it tries to punish, attest that we still bear in our hearts remains of the old predatory manners of primitive cannibalism. There are still reasons for the existence of government, that is to say, there is room yet for a protective institution.

The true function of government, says Mr. Spencer, is the protection of the governed. This definition was always good; but, the notion men form of the protection which the governed may claim, and which is his due, has not always been understood in the same sense. To establish justice, although the sole title to existence of its authority, has not always been its sole occupation. At the epoch when it was surrounded with the most respect, it was called on to regulate the conduct of individuals, their costumes, their credences, their private undertakings; not to see that this or that piece of injustice was not done, but that this thing prejudged good, was. The law of specialization of functions, of which physiology and political economy offer us so many examples, wills that, in becoming more skillful to perform one function, an organ shall become less skillful to perform others. The best form of government then will be that which best fulfills the true end of authority, even though it give but moderate results in respect to the other attributes ascribed to it, or still arrogated by it. If

it shows incapacity there, it is because it works outside of its sphere. It ought to contract itself. "In different lands, and at various times, the state has performed a hundred different offices. Perhaps no two governments have resembled each other in the number and nature of the duties they thought themselves obliged to discharge; but one duty has never been entirely neglected by any—the duty of protection; which proves that to be its essential function. . . . The duty of the state is to protect, to maintain the rights of men, in other words, to administer justice."[1] Representative government, so defective when it comes to massing the wills and forces of a country for practical concurrence toward an end judged useful, that it has been accused of retarding with us the development of industry, is well fitted to perform the true office of government, the protection of rights. To it nations have recourse when they would bridle oppression, check injustice, stop the demoralizations of the heads of the state, abolish the abuses of privilege, and the rights of castes founded on inequality. The sentiment of equity, which is never quite absent from the mind of the least cultivated members of society, suffices to discover and to perfect the means of abolishing unjust practices, and experience has proved that the vitality of this sentiment may be relied on, that it knows how to assert itself in spite of all the imperfections, whether speculative or practical, which characterize what has been called the political incapacity of the common people and the laboring classes. "Parliamentary government is the best of all for the work a government ought to do; it is the worst of all for the work a government ought not to do."[2] It is the office of a government to secure the inviolability of the law of equality in liberty; it is not its business to seek means by which the citizens may obtain happiness,

[1] Spencer, "Social Statics," p. 280.

[2] Spencer, "Essays: Representative Government."

nor to conduct them to it. For the rest, parliamentary government, as it exists at present in countries where it is best established, and where it produces its finest fruits, is still but a transitory form of government; it is best adapted to a society wherein the violent and predatory manners that characterized the past ages have not yet given place to manners founded on justice. It is a form in which the two legitimate forces that by their balance secure the regular march of social progress—the conservative spirit and the spirit of radical reform—may best assert themselves; the first, affirming the necessity of still imposing on the governed the constraint of institutions which the state of human immorality and savagery once made necessary; the second, dreaming of the realization of an ideal social state, which will never come until man shall have reached the stature of a perfectly moral being. The force of conservative sentiments, and the force of reformatory sentiments, express by their strife and by the resultant of their tendencies, the degree of morality in a community. The triumph of the former indicates a predominance of violent habitudes, the victory of the latter proves that the moral habitudes of respect for rights preponderate. A society may be judged by the proportion of constraint employed on its citizens in the name of human law, and the proportion of voluntary obedience to the moral law of equality in liberty. Where the one fails the other comes in. If the moral law has insufficient power over hearts, constraint must supply the deficiency. But, on the other hand, when the moral law is strong enough, constraint must disappear.

Then all government becomes useless, nay, mischievous, and men feel such an aversion toward the restraints of authority, they "show themselves so jealous of their rights, that government of every kind becomes impossible. Admirable illustration of the simplicity of Nature: the same

sentiment that makes us fit for freedom makes us free."[1] Between the absolute monarchy of the Eastern despots, the tyrants of antiquity, and of Italy in the middle ages, who knew no other restraint than the fear of revolt and assassination; between this political *régime*, adapted to a state of very inferior morality, wherein unrestrained vices rendered energetic restraint necessary, and the final democracy, in which the nation will be the true deliberative body, and will cause its wishes to be executed by delegates charged with imperative mandates, a society whose members will no more encroach on the rights of their neighbors, there are forms that look paradoxical because they allow room for two opposite sentiments. The representative government, monarchical or republican, which all civilized nations at present adopt, may appear absurd to thinkers who look at it from the absolute point of view; it is rational in the eyes of those who see in a government the expressed sentiments of the people who sustain it. "Here," adds Mr. Spencer, "we have a fine example in support of the law that opinion is ultimately determined by sentiment, and not, as Comte claimed, by intelligence."[2]

In place, then, of a social form in which the greater part of the nation is excluded from political rights, in which the function of civil government belongs to the body that possesses fortune, and the function of moral and intellectual government is in the hands of the body that possesses knowledge, "we advance toward a form in which authority will be reduced to a minimum, and liberty carried to the maximum. Human nature will be so well moulded by social discipline, so fitted for social life, that it will no longer have need of external constraint, and will restrain itself. The citizen will tolerate no encroachment on his liberty, other than that which assures to all an equal liberty. The

[1] Spencer, "Social Statics," p. 467.

[2] Spencer, "Reasons for dissenting from the Philosophy of Comte."

supreme authority will have no other office than to secure the conditions under which individuals can, by free associations, develop industry and acquit themselves of all other social duties. Finally, the life of the individual will be elevated to the highest degree compatible with the social life, and this will have but one aim, to guard against all infringement the sphere of individual existence." [1] Far from subordinating the individual more and more to a superior authority, social progress will more and more emancipate him. If, ultimately, he is more dependent on his kind, it is for the satisfaction of his different needs by the same title that others depend on him: the dependence is reciprocal, and one that may exist under a *régime* in which equality reigns simultaneously with liberty. Not only does social progress, reached under the law of the instability of the homogeneous, tend to dissolve the political bodies appointed by the community to discharge the different functions of government, it dissolves also the aggregates formed by the voluntary union of the members of society, the parties, the churches, the sects, in which they combine their sentiments and forces with a view to common action. The parties, breaking into smaller and smaller fractions, must perish through the multiplicity of their divisions. The increasing attenuation of the distinctive characteristics of these groups will slowly lead to universal nonconformity, to the suppression of all common regulation, even of such as has been submitted to with free consent, to the complete independence of the individual. "In place of an artificial uniformity, according to a prescribed pattern, humanity will present, as Nature does, a general resemblance, varied by infinitesimal differences." [2]

In this progressive march toward the independence of the individual, when imposed authority and accepted au-

[1] Spencer, "Reasons for dissenting from the Philosophy of Comte."

[2] Spencer, "Social Statics," p. 476.

thorities are abolished alike, the moral power must yield to the same fate. Humanity is not forever condemned to choose between a brutal submission to force, or a no less humiliating submission of the mind to the decisions of an outward tribunal. There is an illusion in this matter. The decrease of the empire of force is due to the fact that men are become more moral, more capable of respecting one another. The power of moral ideas need not be incarnated in a body organized to rule conduct and opinion, and armed with the power to censure and excommunicate. The force of free opinion, unofficial, is enough. In proportion as the opinion shall become more moral, it will be more powerful to repress infractions of the law of human respect. At this point the powerful apparatus of moral constraint represented by the Church, theological or positivist, will have no longer a ground of existence; it should not and cannot outlast humanity's need of its services. Institutions civil and religious, the power of force and the moral power of religion, are protecting envelopes which aid wonderfully the development of society. But when the forms they have shielded during the period of their growth have attained their full development, they are simply obstacles which the social being puts off, sheds, as it were, keeping all the while the good acquired under their protection. "From age to age tyrannical laws have been abolished, and the administration of justice, so far from being injured by it, has, on the contrary, been purified. The dead and buried beliefs have not carried away with them the foundation of morality which they embodied; that exists still, but purged of the taint of superstition." [1]

We are far from claiming that these pages give a complete idea of Mr. Herbert Spencer's work. Our purpose has been to indicate the place that, in our view, Mr. Spen-

[1] Herbert Spencer, "Essays: Manners and Fashion."

cer occupies among contemporaneous thinkers, not to pass under review all the elements of his philosophy, nor to follow him into all the questions he has seen fit to treat. We have been content to explain his method, and to trace the march of his thought from the moment of his conception of the idea of progress as the guarantee of future happiness for humanity, to the quite recent period when he has fixed in a final formula the natural law of advance which explains and secures the realization of the progress of the race. Finally, we had to note the differences that separate the doctrines of Mr. Spencer from the French positivism, the only concisely formulated doctrine that represents the experimental philosophy among ourselves. This suffices for an appreciation of the general character of Mr. Spencer's doctrine, and for a recognition of its originality.

The philosophy of Mr. Spencer resolves for the first time the difficult problem raised by the ancient conflict between religion and science, here represented by philosophy, which is its highest expression. It has been maintained that this conflict must end in the complete overthrow of one of the two adversaries, either the subjugation of science by religion, or the entire suppression of religion. The successive defeats inflicted by criticism on theology seemed to justify the belief that of the two combatants it is religion that must go down. Mr. Spencer's philosophy gives proof of great originality by its interpretation of this struggle, hitherto incessant, and, by showing how it may and must at last cease, it demonstrates the legitimacy of religion, while at the same time it secures the independence of science by exactly defining its sphere. If religion be the expression of an indestructible sentiment, because it has for its object a positive transcendent existence attested by consciousness—an existence that criticism leaves untouched, and that science cannot help assuming—religion

is indestructible; the human mind will not cease to speculate on this transcendent existence, and to ascribe to it forms that make it conceivable. The theological conceptions and the practical institutions which spring from religion will pass away, but religion will not pass away. In the future, as in the past, it will save the mind from the danger of becoming absorbed in the exclusive consideration of relative existence, and, though powerless to raise it to knowledge of the absolute, will raise it so far above the plane of simple concrete relations that it can better feel the immensity of that unconditioned being which none of our conceptions, however vast and bold they may be, are adequate to represent.

Still, in its attempts at representation, the mind is obliged to borrow images from the order of phenomena; the religious sentiment builds up its transcendent beliefs with materials furnished by science; its conceptions are submitted to the law of evolution. It must not fashion them arbitrarily, nor draw from the conceptions of ignorant ages elements that are in contradiction with the positive notions of more enlightened periods. It must remember that the conception it adopts being inadequate, a pure symbol, its value must wholly depend on its conformity with the highest conceptions of science. Far from imposing on speculation, as applied to the phenomenal world, the bridle of a preëstablished religious dogma, religion ought to renew its symbols in accordance with the developments of science. If, as it has done in the past and still tries to do, religion were to succeed in thus bridling science, it might arrest its natural movement, but, by a just and inevitable reaction, it would cease to find there the elements of criticism and renovation which its beliefs require for their development, and for their contribution to the moral progress of humanity. On its part science, apprehending only the manifestations of the absolute being

that are relative to us, and reducing them all to manifestations of force, cannot, by its most comprehensive theories, prejudge the essence of the absolute Being. The genuine characteristic of scientific theories, and especially of the one that brings them back to unity, is not that they be spiritualistic or materialistic, religious or anti-religious, but that they be true; and the decision must be made not in the interest of a religious dogma, any more than in the interest of a favorable metaphysical belief, but in the interest of the principle which serves as a criterion of truth, the indissolubility of the association of the states of consciousness which these theories express.

Religion, then, is legitimate, and science is indispensable. This Mr. Spencer declares in a system of philosophy free as well from the religious as from the anti-religious prejudices, which, for a generation, have been blindly at war. More than this, religion has need of science not only by what she lends it, but by the help she receives from it.

"Doubtless science is the enemy of the superstitions that cloak themselves with the name of religion, but it is not the enemy of the essential religion which the superstitions darken. Doubtless in the science of to-day there reigns an irreligious spirit, but not in the true science, which, not stopping at the surface, penetrates to the depths of Nature. . . . With regard to human traditions, and the authority that consecrates them, true science maintains a lofty attitude; but, before the impenetrable veil that hides the absolute, it humbles itself; it is at once truly proud and truly humble. The sincere philosopher alone (and by these words we mean not the astronomer, who computes distances, nor the naturalist, who defines species, but he who, through the lower seeks the higher, to stop only at the highest), the sincere philosopher alone can know how high —we say not above human knowledge, but above human

conception—is the universal power, whereof Nature, life, thought, are manifestations." [1]

It is already a high tribute to the originality of a philosophy, that it lays down the preliminaries of a treaty of perpetual peace between religion and science. The philosophy of Mr. Spencer enjoys above all others a privilege no less dignified than this. While some confine themselves to speculation on the data of science, without concerning themselves with action, and others build up theories of action on insufficient or disputable data, the philosophy of Mr. Herbert Spencer is able to deduce from the loftiest of his speculations ends of action for men in society. In showing us in the evolution of humanity the effect of a law guaranteed and explained by the universal laws that flow from the first principle, the persistence of force, it teaches us that the progress of society consists of a series of states of unstable equilibrium, covering, relatively to us, vast periods, and always liable to be overturned by the shock of outward circumstances, to reconstitute themselves afterward, sometimes on an inferior model in the rank of progress, sometimes on a superior model, according to the action of these same circumstances, and the condition of the social unities disengaged from their former aggregations. It shows us, moreover, the strict solidarity that unites mankind in the nation, and even in the race; it explains the important part that human actions play in preparing the social arrangements that constitute the temporarily permanent conditions of equilibrium, and in originating the causes that later bring on social perturbations; it makes us feel the mutual dependence which diffuses throughout the social body the good as well as the evil that a single individual can do, the reaction which visits on the individual or the nation the evil and the good that individual or nation may perform; finally, propagation, which causes

[1] Herbert Spencer, "Education."

to echo in a country the violent transgressions of the moral law that are perpetrated in a distant land. By this teaching, so fruitful in social applications, the philosophy of Mr. Spencer seems to us especially calculated to give encouragement to action. So long as his sentiment of duty is unenlightened, man remains in ignorance of what he ought to do; he hesitates and is liable to go astray: instructed in the conditions under which the law of social progress is fulfilled, he knows what direction he should take; he perceives at what point the intelligent forces, united for a common purpose, the advancement of human happiness, should apply their irresistible lever. He knows, too, that the force he expends on this labor will have its effect, that his indifference or ill-will must inevitably produce disastrous effects. He sees "clearly, in the natural constitution of things," recompenses and penalties certain in quite another fashion from those that "the traditional beliefs announce." This certainty sustains and animates him, because he perceives "that the natural laws he obeys are at once inexorable and beneficent. He sees that, by conformity with them, people march toward a higher degree of perfection, and reach a higher degree of happiness. For this reason he urges their observance, for this reason he is indignant at their misapprehension. It is in affirming the eternal principles of things, and the necessity of obeying them, that he shows himself essentially religious." [1]

In this way Mr. Herbert Spencer gives the hand to religion, under the elevated form it is coming to assume in our day, and, at the same time, adheres to the doctrines of the positive thinkers. He recognizes the *noumenon* beneath the phenomenon, he feels the eternal behind the transitory, he shows happiness to be the result of obedience to a divine law of equality joined with liberty, which will be attained by the observance of justice, and of that

[1] Herbert Spencer, "Education."

other virtue which consists in abstinence from a right that may injure another, and in doing cheerfully what contributes to another's happiness, a virtue which he calls beneficence, and which, in Christian speech, goes by the name of charity. Finally, with the positivists, he admits the necessity of knowing the law in order to obey it; if, to use the language of one of these, he seeks nobleness of life in liberty, he finds the highest degree of liberty in obedience to the eternal law.

SEPTEMBER, 1870.

APPENDIX.

HERBERT SPENCER AND THE DOCTRINE OF EVOLUTION:

A Lecture,

DELIVERED BEFORE THE NEW YORK LIBERAL CLUB, JUNE 5, 1874,

By E. L. YOUMANS.

HERBERT SPENCER

AND THE

DOCTRINE OF EVOLUTION.

THE change that has taken place in the world of thought within our own time, regarding the doctrine of Evolution, is something quite unprecedented in the history of progressive ideas. Twenty years ago that doctrine was almost universally scouted as a groundless and absurd speculation; now, it is admitted as an established principle by many of the ablest men of science, and is almost universally conceded to have a basis of truth, whatever form it may ultimately take. It is, moreover, beginning to exert a powerful influence in the investigation and mode of considering many subjects; while those who avow their belief in it are no longer pointed at as graceless reprobates or incorrigible fools.

With this general reversal of judgment regarding the doctrine, and from the prominence it has assumed as a matter of public criticism and discussion, there is naturally an increasing interest in the question of its origin and authorship; and also, as we might expect, a good deal of misapprehension about it. The name of Herbert Spencer has been long associated, in the public mind, with the idea of Evolution. And, while that idea was passing through what may be called its stage of execration, there was no hesitancy in according to him all the infamy of its pater-

nity ; but, when the infamy is to be changed to honor, by a kind of perverse consistency of injustice there turns out to be a good deal less alacrity in making the revised award. That the system of doctrine put forth by Mr. Spencer would meet with strong opposition was inevitable. Representing the most advanced opinions, and disturbing widely-cherished beliefs at many points, it was natural that it should be strenuously resisted and unsparingly criticised. Nor is this to be regretted, as it is by conflict that truth is elicited ; and those who, after candid examination, hold his teachings to be erroneous and injurious, are certainly justified in condemning them. With such, at the present time, I have no controversy, but propose to deal with quite another class of critics. There are men of eminence, leaders of opinion, who neither know nor care much for what Mr. Spencer thinks or has done, but are quite ready with their verdicts about him ; and, so long as it is not generally known to what an extent we are indebted to him for having originated and elaborated the greatest doctrine of the age, these superficial and careless deliverances from conspicuous men become very misleading and injurious. By many he is regarded as only a clever and versatile essayist, ambitious of writing upon every thing, and who has done something to popularize the views of Mr. Darwin and other scientists. For example, M. Taine, in a late Paris journal, says : "Mr. Spencer possesses the rare merit of having extended to the sum of phenomena—to the whole history of Nature and of mind—the two master-thoughts which, for the past thirty years, have been giving new form to the positive sciences; the one being Mayer and Joule's Conservation of Energy, the other Darwin's Natural Selection." Colonel Higginson says[1]: "Mr. Spencer has what Talleyrand calls the weakness of omniscience, and must write not alone on astronomy, metaphysics, and banking, but also on music, on dancing, on style." And

[1] Estimating Spencer, in the *Friend of Progress*, 1864.

again: "It seems rather absurd to attribute to him, as a scientific achievement, any vast enlargement or further generalization of the modern scientific doctrine of evolution." To the same effect, Mr. Emerson, when recently called upon by a newspaper interviewer to furnish his opinions of great men, declared Mr. Spencer to be nothing better than a "stock-writer, who writes equally well upon all subjects."

These are not the circumspect and instructive utterances which we should look for from men of authority whose opinions are sought and are valued by the public; they are gross and inexcusable misrepresentations, and exemplify a style of criticism that is now so freely indulged in that it requires to be met, in the common interest of justice and truth. By their estimates of Mr. Spencer, the gentlemen quoted have raised the question of his position as a thinker, and the character and claims of his intellectual work. I follow their lead, and propose, on the present occasion, to bring forward some considerations which may help to a more trustworthy judgment upon the subject. Assuming the foregoing statements to be representative, it will be worth while to see what becomes of them under examination. My object will be, less to expound or to defend Mr. Spencer's views, than to trace his mental history, and the quality and extent of his labors, as disclosed by an analysis and review of his published writings.

And, first, let us glance at the general condition of thought in relation to the origination of things when he began its investigation. Character is tested by emergencies, as well in the world of ideas as in the world of action; and it is by his bearing in one of the great crises of our progressive knowledge of Nature, that Mr. Spencer is to be measured.

Down to the early part of the present century it had generally been believed that this world, with all that it

contains, was suddenly called into existence but a few thousand years ago in much the same condition as we now see it. Throughout Christendom it was held with the earnestness of religious conviction, that the universe was a Divine manufacture, made out of nothing in a week, and set at once to running in all its present perfection. This doctrine was something more than a mere item of faith; it was a complete theory of the method of origin of natural things, and it gave shape to a whole body of science, philosophy, and common opinion, which was interpreted in accordance with this theory. The problem of *origins* was thus authoritatively solved, and life, mind, man, and all Nature, were studied under the hypothesis of their late and sudden production.

But it was difficult to inquire into the existing order of Nature without tracing it backward. Modern science was long restrained from this procedure by the power of traditional beliefs, but the force of facts and reasoning at length proved too strong for these beliefs, and it was demonstrated that the prevailing notion concerning the recent origin of the world was not true. Overwhelming evidence was found that the universe did not come into existence in the condition in which we now see it, nor in any thing like that condition; but that the present order of things is the outcome of a vast series of changes running back to an indefinite and incalculable antiquity. It was proved that the present forms and distributions of mountains, valleys, continents, and oceans, are but the final terms of a stupendous course of transformations to which the crust of the earth has been subjected. It was also established, that life has stretched back for untold millions of years; that multitudes of its forms arose and perished in a determinate succession, while the last appearing are highest in grade, as if by some principle of order and progression.

It is obvious that one of the great epochs of thought

had now been reached; for the point of view from which natural things are to be regarded, was fundamentally and forever altered. But, as it is impossible to escape at once and completely from the dominion of old ideas, the full import of the position was far from being recognized, and different classes of the thinking world were naturally very differently affected by the new discoveries. To the mass of people who inherit their opinions and rarely inquire into the grounds upon which they rest, the changed view was of no moment; nor had the geological revelations much interest to the literary classes beyond that of bare curiosity about strange and remote speculations. To the theologians, however, the step that had been taken was of grave concern. They were the proprietors of the old view; they claimed for it supernatural authority, and strenuously maintained that its subversion would be the subversion of religion itself. They maintained, moreover, that the controversy involved the very existence of God. The most familiar conception of the Deity was that of a *Creator*, and *creation* was held to mean the grand six-day drama of calling the universe into existence; while this transcendent display of power had always been devoutly held as alike the exemplification and the proof of the Divine attributes. How deep and tenacious was the old error is shown by the fact that, although it has been completely exploded; although the immeasurable antiquity of the earth and the progressive order of its life have been demonstrated and admitted by all intelligent people, yet the pulpit still clings to the old conceptions, and the traditional view is that which generally prevails among the multitude.[1]

To men of science the new position was, of course, in the highest degree, important. It was stated by Prof. Sedgwick, in an anniversary address to the Geological Society of London in 1831, as follows: "We have a series of

[1] *See* Note A, p. 159.

proofs the most emphatic and convincing that the approach to the present system of things has been gradual, and that there has been a progressive development of organic structure subservient to the purposes of life." The traditional explanation of the origin of the world, and all that belongs to it, being thus discredited, it only remained to seek another explanation: if it has not been done one way, how has it been done? was the inevitable question. One might suppose that the effect of the utter break-down of the old hypothesis would have been to relegate the whole question to the sphere of science, but this was far from being done. The preternatural solution had failed, but its only logical alternative, a natural solution, or the thorough investigation of the subject on principles of causation, was not adopted or urged. The geologists occupied themselves in extending observations and accumulating facts rather than in working out any comprehensive scientific or philosophical principles from the new point of view. The result was a kind of tacit compromise between the contending parties—the theologians conceding the vast antiquity of the earth, and the geologists conceding preternatural intervention in the regular on-working of the scheme; so that in place of one mighty miracle of creation occurring a few thousand years ago, there was substituted the idea of hundreds of thousands of separate miracles of special creation scattered all along the geological ages, to account for the phenomena of terrestrial life. Two systems of agencies—natural and supernatural—were thus invoked to explain the production of effects. What it now concerns us to note is, that the subject had not yet been brought into the domain of science. One portion of it was still held to be above Nature, and therefore inaccessible to rational inquiry; while that part of the problem which was withheld from science was really the key to the whole situation. Under the new view the question of the

origin of living forms, or of the action of natural agencies in their production, was as completely barred to science as it had formerly been under the literal Mosaic interpretation; and, as questions of origin were thus virtually interdicted, the old traditional opinions regarding the genesis of the present constitution of things remained in full force.

It is in relation to this great crisis in the course of advancing thought that Herbert Spencer is to be regarded. Like many others, he assumed, at the outset, that the study of the whole phenomenal sphere of Nature belongs to science; but he may claim the honor of being the first to discern the full significance of the new intellectual position. It had been proved that a vast course of orderly changes in the past has led up to the present, and is leading on to the future: Mr. Spencer saw that it was of transcendent moment that the laws of these changes be determined. If natural agencies have been at work in vast periods of time to bring about the present condition of things, he perceived that a new set of problems of immense range and importance is opened to inquiry, the effect of which must be to work an extensive revolution of ideas. It was apparent to him that the hitherto forbidden question as to how things have originated had at length come to be the supreme question. When the conception that the present order had been called into being at once and in all its completeness was found to be no longer defensible, it was claimed that it makes no difference how it originated—that the existing system is the same whatever may have been its source. Mr. Spencer saw, on the contrary, that the question how things have been caused is fundamental; and that we can have no real understanding of what they are, without first knowing how they came to be what they are. Starting from the point of view made probable by the astronomers, and demonstrated by the geologists, that, in the mighty past, Nature

has conformed to one system of laws ; and assuming that the existing order, at any time, is to be regarded as growing out of a preëxisting order, Mr. Spencer saw that nothing remained for science but to consider all the contents of Nature from the same point of view. It was, therefore, apparent that life, mind, man, science, art, language, morality, society, government, and institutions, are things that have undergone a gradual and continuous unfolding, and can be explained in no other way than by a theory of growth and derivation. It is not claimed that Mr. Spencer was the first to adopt this mode of inquiry in relation to special subjects, but that he was the first to grasp it as a general method, the first to see that it must give us a new view of human nature, a new science of mind, a new theory of society—all as parts of one coherent body of thought, and that he was the first to work out a comprehensive philosophical system from this point of inquiry, or on the basis of the principle of Evolution. In a word, I maintain Spencer's position as a thinker to be this : taking a view of Nature that was not only generally discredited, but was virtually foreclosed to research, he has done more than any other man to make it the starting-point of a new era of knowledge.

For the proof of this I now appeal to his works. Let us trace the rise and development of the conception of Evolution in his own mind, observe how he was led to it, and how he pursued it, and see how completely it pervades and unifies his entire intellectual career. Various explanatory details that follow, I have obtained from conversations with Mr. Spencer himself ; but the essential facts of the statement are derived from his works, and may be easily verified by any who choose to take the trouble of doing so.

Mr. Spencer is not a scholar in the current acceptation of the term ; that is, he has not mastered the curriculum of any university. Unbiased by the traditions of culture, his early studies were in the sciences. Born in a sphere of

life which made a vocation necessary, he was educated as a civil-engineer,[1] and up to 1842, when he was twenty-two years of age, he had written nothing but professional papers published in the *Civil Engineer and Architects' Journal.* But he had always been keenly interested in political and social questions, which he had almost daily heard discussed by his father and uncles. In the summer of 1842 he began to contribute a series of letters to a weekly newspaper, the *Nonconformist*, under the title of "The Proper Sphere of Government." It was the main object of these letters to show that the functions of government should be limited to the protection of life, property, and social order, leaving all other social ends to be achieved by individual activities. But, beyond this main conception, it was implied throughout that there are such things as laws of social development, natural processes of rectification in society, and an adaptation of man to the conditions of social life. The scientific point of view was thus early assumed, and society was regarded not as a manufacture but as a growth. These letters were revised and published in a pamphlet in 1843.

The argument, however, was unsatisfactory from its want of depth and scientific precision, and Mr. Spencer decided in 1846 to write a work in which the leading doctrine of his pamphlet should be affiliated upon general moral principles. By reading various books upon moral philosophy he had become dissatisfied with the basis of morality which they adopt; and it became clear to him that the question of the proper sphere of government could be dealt with only by tracing ethical principles to their roots. The plan of this work was formed while Mr. Spencer was still a civil-engineer; and it was commenced in 1848, before he abandoned engineering and accepted the position of sub-editor of the *Economist.* It was issued, under the title of "Social Statics," at the close of 1850. In this work various develop-

[1] *See* Note B.

ments of the ideas contained in the pamphlet above named are noticeable. It will be seen that the conception that there is an adaptation going on between human nature and the social state has become dominant. There is the idea that all social evils result from the want of this adaptation, and are in process of disappearance as the adaptation progresses. There is the notion that all morality consists in conformity to such principles of conduct as allow of the life of each individual being fulfilled, to the uttermost, consistently with the fulfillment of the lives of other individuals ; and that the vital activities of the social human being are gradually being moulded into such form that they may be realized to the uttermost without mutual hindrance. Social progress is in fact viewed as a natural evolution, in which human beings are moulded into fitness for the social state, and society adjusted into fitness for the natures of men—the units and the aggregate perpetually acting and reacting, until equilibrium is reached. There is recognized not only the process of continual direct adaptation of men to their circumstances by the inherited modifications of habit ; but there is also recognized the process of the dying out of the unfit and the survival of the fit. And these changes are regarded as parts of a process of general evolution, tacitly affirmed as running through all animate Nature, tending ever to produce a more complete and self-sufficing individuality, and ending in the highest type of man as the most complete individual.

After finishing "Social Statics" Mr. Spencer's thoughts were more strongly attracted in the directions of biology and psychology—sciences which he saw were most intimately related with the progress of social questions ; and one result reached at this time was significant. As he states in the essay on the "Laws of Organic Form," published in 1859 in the *Medico-Chirurgical Review*, it was in the autumn of 1851, during a country ramble with Mr.

George Henry Lewes, that the germinal idea of that essay was reached. This idea, that the forms of organisms, in respect of the different kinds of their symmetry and asymmetry, are caused by their different relations to surrounding incident forces, implies a general recognition of the doctrine of Evolution, a further extension of the doctrine of adaptation, and a foreshadowing of the theory of life as a correspondence between inner and outer actions.

In 1852 Mr. Spencer published in the *Westminster Review* the "Theory of Population deduced from the General Law of Animal Fertility," setting forth an important principle which he says that he had entertained as far back as 1847. Here also the general belief in Evolution was tacitly expressed; the theory being that, in proportion as the power of maintaining individual life is small, the power of multiplication is great; that along with increased evolution of the individual there goes decreased power of reproduction; that the one change is the cause of the other; that in man as in all other creatures the advance toward a higher type will be accompanied by a decrease of fertility; and that there will be eventually reached an approximate equilibrium between the rate of mortality and the rate of multiplication. Toward the close of this argument there is a clear recognition of the important fact that excessive multiplication and the consequent struggle for existence cause this advance to a higher type. It is there argued that "only those who do advance under it eventually *survive*," and that these "must be the *select* of their generation." That which, as he subsequently stated in the "Principles of Biology," Mr. Spencer failed to recognize at this time (1852) was the effect of these influences in producing the *diversities* of living forms; that is, he did not then perceive the coöperation of these actions of the struggle for existence and the survival of the fittest, with the tendency to variation which organisms exhibit. He saw only

the power of these processes to produce a higher form of the same type, and did not recognize how they may give rise to divergencies and consequent differentiations of species, and eventually of genera, orders, and classes.

Early in 1852 Mr. Spencer also printed a brief essay in the *Leader*, on "The Development Hypothesis," in which some of the new current reasons for believing in the gradual evolution of all organisms, including man, are indicated. To this paper Mr. Darwin refers in the introductory sketch of the previous course of research on the subject of development, which he prefixed to the "Origin of Species." In this essay, however, *direct* adaptation to the conditions of existence is the only process recognized.

In October of the same year (1852), Mr. Spencer published an essay in the *Westminster Review*, on the "Philosophy of Style," in which, though the subject appears so remote, there are traceable some of the cardinal ideas now indicated, and others that were afterward developed. The subject was treated from a dynamical point of view, and, as Mr. Lewes remarks in his essays on the "Principles of Success in Literature," it offers the only scientific exposition of the problem of style that we have. The general theory set forth is, that effectiveness of style depends on a choice of words and forms of sentence offering the *least resistance* to thought in the mind of the reader or hearer—a foreshadowing of the general law of the "line of least resistance" as applied to the interpretation of psychological phenomena, as well as phenomena in general. Moreover, at the close of the essay, there is a reference to the law of Evolution in its application to speech—there is a recognition of the fact that "increasing heterogeneity" has been the characteristic of advance in this as in other things, and that a highly-evolved style will "answer to the description of all highly-organized products, both of man and of Nature; it will be, not a series of like parts simply

placed in juxtaposition, but one whole made up of unlike parts that are mutually dependent." Here, as early as 1852, there is recognized in one of the highest spheres both the process of differentiation and the process of integration—the two radical conceptions of Evolution.

In July of the next year (1853) Mr. Spencer's continued interest in the question of the functions of the state, led him to write the essay on "Over-Legislation" in the *Westminster Review;* and here, as in "Social Statics," the conception of society as a growth, under the operation of natural laws, is predominant.

The critical perusal of Mr. Spencer's works shows that this was a very important period in the development of his views. The reading of Mr. Mill's "Logic" along with some other philosophical works had led him to the elaboration of certain opinions at variance with those of Mr. Mill on the question of our ultimate beliefs, and those he published in the *Westminster Review*, under the title of "The Universal Postulate" (1853). The inquiries thus commenced, together with those respecting the nature of the moral feelings, and those concerning life and development, bodily and mental, into which he had been led both by "Social Statics" and the "Theory of Population," prepared the way for the "Principles of Psychology." Some of the fundamental conceptions contained in this remarkable work now began to take shape in his mind. Other ideas connected with the subject began also to form in his mind, an example of which is furnished by the essay on "Manners and Fashion," published in the *Westminster Review* (April, 1854). Various traits of the general doctrine of Evolution are here clearly marked out in their relations to social progress. It is shown that the various forms of restraint exercised over men in society—political, ecclesiastical, and ceremonial—are all divergent unfoldings of one original form, and that the development of social

structure, in these as in other directions, takes place by gradual and continuous differentiations, "in conformity with the laws of Evolution of all organized bodies."

Mr. Spencer was at the same time engaged in working out his view in a different sphere; the essay on the "Genesis of Science" being contributed to the *British Quarterly Review* in July, 1854. This was primarily called forth by Miss Martineau's "Abridgment of Comte," then just issued, and was in part devoted to the refutation of the French philosopher's views respecting the classification of the sciences. But it became the occasion for a further development of the doctrine of Evolution in its relation to intellectual progress. The whole genesis of science is there traced out historically under the aspect of a body of truths, which, while they became differentiated into different sciences, became at the same time more and more integrated, or mutually dependent, so as eventually to form "an organism of the sciences." There is besides a recognition of the gradual increase in definiteness that accompanies this increase in heterogeneity and in coherence.

It was at this time that Mr. Spencer's views on psychology began to assume the character of a system—the conception of intellectual progress now reached being combined with the ideas of life previously arrived at, in the development of a psychological theory. The essay on the "Art of Education,"[1] published in the *North British Review* (May, 1854), assisted in the further development of these ideas. In that essay the conception of the progress of the mind during education, is treated in harmony with the conception of mental Evolution at large. Methods are considered in relation to the law of development of the faculties, as it takes place naturally. Education is regarded as rightly carried on only when it aids the process of self-

[1] Republished in his little work on "Education," under the title of "Intellectual Education."

development; and it is urged that the course in all cases followed should be from the simple to the complex, from the indefinite to the definite, from the concrete to the abstract, and from the empirical to the rational.

Having reached this stage in the unfolding of his ideas, Mr. Spencer began the writing of the "Principles of Psychology" in August, 1854. This is a work of great originality, and is important as marking the advance of Mr. Spencer's philosophical views at the time of its preparation. The whole subject of mind is dealt with from the Evolution point of view. The idea which runs through "Social Statics," that there is ever going on an adaptation between living beings and their circumstances, now took on a profounder significance. The *relation* between the organism and its environing conditions was found to be involved in the very nature of life; and the idea of adaptation was developed into the conception that life itself "is the definite combination of heterogeneous changes both simultaneous and successive in *correspondence* with external coexistences and sequences." It is argued that the degree of life varies with the degree of correspondence, and that all mental phenomena ought to be interpreted in terms of this correspondence. Commencing with the lowest types of life, Mr. Spencer, in successive chapters, traces up this relation of correspondence as extending in space and time, as increasing in specialty, in generality, and in complexity. It is also shown that the correspondence progresses from a more homogeneous to a more heterogeneous form, and that it becomes gradually more integrated—the terms here employed in respect to the Evolution of mind being the terms subsequently used in treating of Evolution in general. In the fourth part of the work, under the title of "Special Synthesis," the Evolution is traced out under its concrete form from reflex action up through instinct, memory, reason, feelings, and the will. Mr. Spencer here

distinctly avowed his belief that "Life in its multitudinous and infinitely varied embodiments has arisen out of the lowest and simplest beginnings, by steps as gradual as those which evolve a homogeneous microscopic germ into a complex organism"—dissent being at the same time expressed from that version of the doctrine put forth by the author of the "Vestiges of the Natural History of Creation." It was, moreover, shown by subjective analysis how intelligence may be resolved, step by step, from its most complex into its simplest elements, and it was also proved that there is "unity of composition" throughout, and that thus mental structure, contemplated internally, harmonizes with the doctrine of Evolution.

It was at this time (1854), as I have been informed by Mr. Spencer, when he had been at work upon the "Principles of Psychology" not more than two months, that the general conception of Evolution in its causes and extent, as well as its processes, was arrived at. He had somewhat earlier conceived of it as universally a transformation from the homogeneous into the heterogeneous. This kind of change, which Von Baer had shown to take place in every individual organism, as it develops, Mr. Spencer had already traced out as taking place in the progress of social arrangements, in the development of the sciences, and now in the Evolution of mind in general from the lower forms to the higher. And the generalization soon extended itself so as to embrace the transformations undergone by all things inanimate as well as animate. This universal extension of the idea led rapidly to the conception of a universal cause necessitating it. In the autumn of 1854, Mr. Spencer proposed to the editor of the *Westminster Review* to write an article upon the subject under the title of "The Cause of all Progress," which was objected to as being too assuming. The article was, however, at that time agreed upon, with the understanding that it should be written as

soon as the "Principles of Psychology" was finished. The agreement was doomed to be defeated, however, so far as the date was concerned, for, along with the completion of the "Psychology," in July, 1855, there came a nervous breakdown, which incapacitated Mr. Spencer for labor during a period of eighteen months—the whole work having been written in less than a year.

We may here note Mr. Spencer's advanced position in dealing with this subject. While yet the notion of Evolution as a process of Nature was as vague and speculative as it had been in the time of Anaximander and Democritus, he had grasped the problem in its universality and its causes, and had successfully applied it to one of the most difficult and important of the sciences. He had traced the operation of the law in the sphere of mind, and placed that study upon a new basis. The conviction is now entertained by many that the "Principles of Psychology," by Spencer, in 1855, is one of the most original and masterly scientific treatises of the present century; if, indeed, it be not the most fruitful contribution to scientific thought that has appeared since the "Principia" of Newton.[1] For thousands of years, from

[1] This association of the name of Spencer with Newton, let it be remembered, does not rest upon the authority of the present writer; recent discussions of the subject in the highest quarters are full of it. The *Saturday Review* says, "Since Newton there has not in England been a philosopher of more remarkable speculative and systematizing talent than (spite of some errors and some narrowness) Mr. Herbert Spencer." An able writer in the *Quarterly Review*, in treating of Mr. Spencer's remarkable power of binding together different and distant subjects of thought by the principle of Evolution, remarks: "The two deepest scientific principles now known of all those relating to material things are the Law of Gravitation and the Law of Evolution." The eminent Professor of Logic in Owen's College, Manchester, Mr. W. Stanley Jevons, in his recent treatise entitled "The Principles of Science, a Treatise on Logic and Scientific Method," says, "I question whether any scientific works which have appeared, since the 'Principia' of Newton, are comparable in im-

Plato to Hamilton, the world's ablest thinkers had been engaged in the effort to elucidate the phenomena of mind; Herbert Spencer took up the question by a method first rendered possible by modern science, and made a new epoch in its progress. From this time forward, mental philosophy, so called, could not confine itself simply to introspection of the adult human consciousness. The philosophy of mind must deal with the whole range of psychical phenomena, must deal with them as manifestations of organic life, must deal with them genetically, and show how mind is constituted in connection with the experience of the past. In short, as it now begins to be widely recognized, Mr. Spencer has placed the science of mind firmly upon the ground of Evolution. Like all productions that are at the same time new and profound, and go athwart the course of long tradition, there were but few that appreciated his book, a single small edition more than sufficing to meet the wants of the public for a dozen years.[1] But it began at once to tell upon advanced thinkers, and its influence was soon widely discerned in the best literature of the subject. The man who stood, perhaps, highest in England as a psychologist, Mr. John Stuart Mill, remarked in one of his books, that it is "one of the finest examples we possess of the psychological method in its full power;" and, as I am aware, after carefully rereading it some years later, he declared that his already high opinion of the work had been raised still more—which he recognized as due to the progress of his own mind.[2]

The article "Progress, its Law and Cause," projected, as we have seen, in 1854, was written early in 1857. In the first half of it the transformation of the homogeneous into the heterogeneous is traced throughout all

portance with those of Darwin and Spencer, revolutionizing as they do all our views of the origin of bodily, mental, moral, and social phenomena."

[1] *See* Note C.

[2] *See* Note D.

orders of phenomena; in the second half the principle of transformation is deduced from the law of the multiplication of effects. In this essay, moreover, there is indicated the application of the general law of Evolution to the production of species. It is shown that there "would not be a substitution of a thousand more or less modified species, for the thousand original species; but, in place of the thousand modified species, there would arise several thousand species or varieties or changed forms;" and that "each original race of organisms would become the root from which diverged several races differing more or less from it and from each other." It is further argued that the new relations in which animals would be placed toward one another would initiate further differences of habit and consequent modifications, and that "there must arise, not simply a tendency toward the differentiations of each race of organisms into several races, but also a tendency to the occasional production of a somewhat higher organism." The case of the divergent varieties of man, some of them higher than others, caused in this same manner, is given in illustration. Throughout the argument there is a tacit implication that, as a consequence of the cause of Evolution, the production of species will go on, not in ascending linear series, but by perpetual divergence and redivergence—branching and again branching. The general conception, however, differs from that of Mr. Darwin in this —that adaptation and readaptation to continually-changing conditions is the only process recognized—there is no recognition of "spontaneous variations," and the natural selection of those that are favorable.

During the summer of 1857 Mr. Spencer wrote the "Origin and Function of Music," published in *Fraser's Magazine* for October. Like nearly all of his other writings, this interesting article is dominated by the idea of Evolution. The general law of nervo-motor action in all

animals is shown to furnish an explanation of the tones and cadences of emotional speech; and it is pointed out that from these music is evolved by simple exaltation of all the distinctive traits, and carrying them out into ideal combination. A further step was taken, the same year, in the development of the doctrine of Evolution, which is indicated in the article entitled "Transcendental Physiology." It was there explained that the multiplication of effects was not the only cause of the universal change from homogeneity to heterogeneity, but that there was an antecedent principle to be recognized, viz., the *Instability of the Homogeneous*. The physiological illustrations of the law are mainly dwelt upon, though its other applications are indicated.

In October of the same year, the essay on "Representative Government—what is it good for?" appeared in the *Westminster Review*. The law of progress is here applied to the interpretation of state functions, and it is stated that the specialization of offices, "as exhibited in the Evolution of living creatures, and as exhibited in the Evolution of societies," holds throughout; that "the governmental part of the body politic exemplifies this truth equally with its other parts." In January, 1858, the essay on "State Tamperings with Money and Banks" appeared in the same periodical. The general doctrine of the limitations of state functions is there reaffirmed, with further illustration of the mischiefs that arise from traversing the normal laws of life; and it is contended that "the ultimate result of shielding men from the effects of folly is to fill the world with fools"—an indirect way of asserting the beneficial effects of the survival of the fittest.

In April, 1858, Mr. Spencer published an essay on "Moral Education," in the *British Quarterly Review*, and throughout the argument every thing is again regarded from the Evolution point of view. The general truth in-

sisted upon is, that the natural rewards and restraints of conduct are those which are most appropriate and effectual in modifying character. The principle contended for is, that the moral education of every child should be regarded as an adaptation of its nature to the circumstances of life; and that to become adapted to these circumstances it must be allowed to come in contact with them; must be allowed to suffer the pains and obtain the pleasures which do in the order of Nature follow certain kinds of action. There is here, in fact, applied to actual life, the general conception of the nature of life, previously inculcated in the "Principles of Psychology"—a correspondence between the inner and the outer actions that becomes great in proportion as the converse with outer actions through experience becomes extended.

The essay on the "Nebular Hypothesis" was published in the *Westminster Review* for July, 1858. The opinion was then almost universally held that the nebular hypothesis had been exploded, and the obvious bearing of the question upon the theory of Evolution induced Mr. Spencer to take it up. The conclusions that had been drawn from observations with Lord Rosse's telescope, that the nebular hypothesis had been invalidated, were shown to be erroneous; and the position taken that the nebulæ could not be (as they were then supposed to be) remote sidereal systems, has been since verified. Spectrum analysis has, in fact, proved what Mr. Spencer then maintained, that there are many nebulæ composed of gaseous matter. To the various indications of the nebular origin of our own solar system commonly given, others were added which had not been previously recognized, while the view that Mr. Spencer took of the constitution of the solar atmosphere has since been also verified by spectrum analysis.

In October, 1858, he published in the *Medico-Chirurgical Review* a criticism on Prof. Owen's "Archetype and

Homologies of the Vertebrate Skeleton," which was written in furtherance of the doctrine of Evolution, and to show that the structural peculiarities which are not accounted for on the theory of an archetypal vertebra, are accounted for on the hypothesis of development. In January of the next year there appeared in the same review a paper on "The Laws of Organic Form," already referred to (the germ of which dated back to 1851), and which was a further elucidation of the doctrine of Evolution, by showing the direct action of incident forces in modifying the forms of organisms and their parts. In April, 1859, appeared in the *British Quarterly Review* an article on "Physical Education," in which the bearing of biological principles upon the management of children in respect to their bodily development is considered. It insists upon the normal course of unfolding, *versus* those hindrances to it which ordinary school regulations impose; it asserts the worth of the bodily appetites and impulses in children, which are commonly so much thwarted; and contends that during this earlier portion of life, in which the main thing to be done is to grow and develop, our educational system is too exacting—"it makes the juvenile life far more like the adult life than it should be." The essay "What Knowledge is of most Worth" was printed in the *Westminster Review* for July, 1859. This argument is familiar to the public, as it has been many times republished; but what is here most worthy of note is that, in criticising the current study of history, it defines with great distinctness the plan of the "Descriptive Sociology" (the first divisions of which are now just published), and which will give the comprehensive and systematic data upon which the Principles of Sociology are to be based.

An argument on "Illogical Geology" was contributed in July, 1859, to the *Universal Review*, which, although nominally a criticism of Hugh Miller, was really an attack

upon the prevalent geological doctrine which asserted simultaneity in the systems of strata in different parts of the earth. His view, which was at that time heresy, is now coming into general recognition. In the *Medico-Chirurgical Review* for January, 1860, Mr. Spencer published a criticism on Prof. Bain's work, "The Emotions and the Will," designed to show that the emotions cannot be properly understood and classified without studying them from the point of view of Evolution, and tracing them up through their increasing complications from lower types of animals to higher. The essay on the "Social Organism" appeared at the same time in the *Westminster Review*, in which it was maintained that society, consisting of an organized aggregate, follows the same course of Evolution with all other organized aggregates—increasing in mass and showing a higher integration not only in this respect but also in its growing solidarity; becoming more and more heterogeneous in all its structures, and more and more definite in all its differentiations. The "Physiology of Laughter," which appeared the same year in *Macmillan's Magazine*, was a contribution to nervous dynamics from the point of view that had been taken in the "Principles of Psychology." Even in Mr. Spencer's discussion of "Parliamentary Reforms, their Dangers and Safeguards" (*Westminster Review*, 1860), the question is dealt with on scientific grounds ultimately referring to the doctrine of Evolution. It was its general purpose to show that the basis of political power can be safely extended only in proportion as political function is more and more restricted. It was maintained in an earlier essay that representative government is the best possible for that which is the essential office of a government—the maintenance of those social conditions under which every citizen can carry on securely and without hindrance the pursuits of life; and that it is the worst possible for other purposes. And in continuation of this argument it was here contended

that further extension of popular power should be accompanied by a further restriction of state duty—a further specialization of state function. In the essay on "Prison Ethics," contributed to the *British Quarterly Review* in July, 1860, a special question is very ably dealt with in the light of those biological, psychological, and sociological principles which belong to the Evolution philosophy. The principle of moral Evolution is asserted, and the concomitant unfolding of higher and better modes of dealing with criminals.

We have now passed in rapid review the intellectual work of Mr. Spencer for nearly twenty years, and have shown that, though apparently miscellaneous, it was, in reality, of a highly-methodical character. Though treating of many subjects, he was steadily engaged with an extensive problem which was resolved, step by step, through the successive discovery of those processes and principles of Nature which constitute the general law of Evolution. Beginning in 1842 with the vague conception of a social progress, he subjected this idea to systematic scientific analysis, gave it gradually a more definite and comprehensive form, propounded the principles of heredity and adaptation in their social applications, recognized the working of the principle of selection in the case of human beings, and affiliated the conception of social progress upon the more general principle of Evolution governing all animate Nature. Seizing the idea of increasing heterogeneity in organic growth, he gradually extended it in various directions. When the great conception thus pursued had grown into a clear, coherent, and well-defined doctrine, he took up the subject of psychology, and, combining the principle of differentiation with that of integration, he placed the interpretation of mental phenomena upon the basis of Evolution. We have seen that two years after the publication of the "Psychology," or in 1857, Mr. Spencer had ar-

rived at the law of Evolution as a universal principle of Nature, and worked it out both inductively as a process of increasing heterogeneity, and deductively from the principles of the instability of the homogeneous and the multiplication of effects. How far Mr. Spencer was here in advance of all other workers in this field, will appear when we consider that the doctrine of Evolution, as it now stands, was thus, in its universality, and in its chief outlines, announced by him two years before the appearance of Mr. Darwin's "Origin of Species."

A principle of natural changes more universal than any other known, applicable to all orders of phenomena, and so deep as to involve the very origin of things, having thus been established, the final step remained to be taken, which was to give it the same ruling place in the world of thought and of knowledge that it has in the world of fact and of Nature. A principle running through all spheres of phenomena must have the highest value for determining scientific relations; and a genetic law of natural things must necessarily form the deepest root of the philosophy of natural things. It was in 1858, as Mr. Spencer informs me, while writing the article on the "Nebular Hypothesis," that the doctrine of Evolution presented itself as the basis of a general system under which all orders of concrete phenomena should be generalized. Already the conception had been traced out in its applications to astronomy, geology, biology, psychology, as well as all the various superorganic products of social activity; and it began to appear both possible and necessary that all these various concrete sciences should be dealt with in detail from the Evolution point of view. By such treatment, and by that only, did it appear practicable to bring them into relation so as to form a coherent body of scientific truth—a System of Philosophy.

It is proper to state in this place that, in contemplating the execution of so comprehensive a work, the first diffi-

culty that arose was a pecuniary one. Mr. Spencer had frittered away the greater part of what little he possessed in writing and publishing books that did not pay their expenses, and a period of eighteen months of ill health and enforced idleness consequent on the writing of one of them had further diminished his resources. His state of health was still such that he could work, at the outside, but three hours a day, and very frequently not that, so that what little he could do in the shape of writing for periodicals, even though tolerably paid for it, did not suffice to meet the expenses of a very economical bachelor-life. How, then, could he reasonably hope to prosecute a scheme elaborating the doctrine of Evolution throughout all its departments in the way contemplated—a scheme that would involve an enormous amount of thought, labor, and inquiry, and which seemed very unlikely to bring any pecuniary return, even if it paid its expenses? Unable to see any solution of the difficulty, Mr. Spencer wrote, in July, 1858, to Mr. John Stuart Mill, explaining his project, and asking whether he thought that in the administration for India, in which Mr. Mill held office, there was likely to be any post, rather of trust than of much work, which would leave him leisure enough for the execution of his scheme. Mr. Mill replied sympathetically, but nothing turned out to be available. In despair of any other possibility, Mr. Spencer afterward extended his application to the Government, being reënforced by the influence of various leading scientific men, who expressed themselves strongly respecting the importance of giving him the opportunity he wished.[1] A peculiar difficulty, however, here arose. Mr. Spencer is a very impracticable man—that is, he undertakes to conform his conduct to right principles, and his decided views as to the proper functions of government put an interdict upon the far greater number of posts that might otherwise be fit. Among the few that he could accept, the greater

[1] *See* Note E.

part were not available because they did not offer the requisite leisure. One position became vacant which he might have accepted, that of Inspector of Prisons, I think; but, though effort in his behalf was made by Lord Stanley (now Lord Derby, who was familiar with Mr. Spencer's works and entertained the matter kindly), the claims of party were too strong, and no arrangement was made.

Other plans failing, Mr. Spencer decided to adopt that of subscription, and to issue his "System of Philosophy" in a serial form. A prospectus of that system was issued in March, 1860, which outlined the contents of the successive parts. The first installment of the work was issued in October, 1860, and the commencing volume, "First Principles," was published in June, 1862.

In this work the general doctrine of Evolution is presented in a greatly developed form; and the author's former views are not only combined but extended. The law of Von Baer, which formulates organic development as a transformation of the homogeneous into the heterogeneous, Mr. Spencer had previously shown to hold of all aggregates whatever—of the universe as a whole, and of all its component parts. But, in "First Principles," it was shown that this universal transformation is a change from *indefinite* homogeneity to *definite* heterogeneity; and it is pointed out that only when the increasing multiformity is joined with increasing definiteness, does it constitute Evolution as distinguished from other changes that are like it in respect of increasing heterogeneity. There is, however, a much more important development of the principle. This change from the indefinite to the definite is shown to be the accompaniment of a more essential change from the *incoherent* to the *coherent*. Throughout all aggregates of all orders it is proved that there goes on a process of *integration*. This process is shown to hold alike in the growth and consolidation of each aggregate as well as in the growth and consolidation of its differentiated parts. The law of

the instability of the homogeneous is also more elaborately traced out. Under the head of the *principle of segregation* it is, moreover, shown that the universal process by which, in aggregates of mixed units, the units of like kinds tend to gather together, and the units of unlike kinds to separate, everywhere coöperates in aiding Evolution. Yet a further universal law is recognized and developed —the law of equilibration. The question is asked, "Can these changes which constitute Evolution continue without limit?" and the answer given is that they cannot; but that they universally tend in each aggregate toward a final state of quiescence, in which all the forces at work have reached a state of balance. Like the other universal process, that of equilibration is traced out in all divisions of phenomena. But the most important development given to the doctrine of Evolution in this volume was its affiliation upon the ultimate principle underlying all science —the persistence of force. It was shown that from this ultimate law there result certain universal derivative laws, which are dealt with in chapters on "The Correlation and Equivalence of Forces," "The Direction of Motion," and "The Rhythm of Motion," and it was demonstrated that these derivative laws hold throughout all changes, from the astronomical to the psychical and social. It is then shown that "the Instability of the Homogeneous," "The Multiplication of Effects," "Segregation" and "Equilibration," are also deducible from this ultimate principle of the persistence of force. So that Evolution, having been first established inductively as universal, is further shown to be universal by establishing it deductively as a result of the deepest of all knowable truths.

The first edition of "First Principles" was published, but another important step in elucidating the philosophy of Evolution required to be taken. In dealing with the classification of the sciences, from the point of view to

which his philosophy has brought him, Mr. Spencer had occasion to seek for that aspect of all physical phenomena which forms the most general division of physical science. He found that what he sought must be some general fact respecting the redistribution of matter and motion. The law was soon arrived at, that integration of matter results from decrease of the contained motion, while disintegration of matter results from increase of the contained motion. It is at once manifest that the law thus reached was deeper than the principle of Evolution, for it is conformed to by mineral bodies, which do not exhibit the phenomena of Evolution as Mr. Spencer had interpreted them. In short, it became clear that a law had been reached holding of all material things whatever, whether they are those which do or those which do not increase in heterogeneity. It was now first possible to judge of the relative value and importance of the several factors of the evolutionary process. In Von Baer's conception of organic development, it is made to consist essentially and solely in the change of increasing heterogeneity in the evolving body. But Mr. Spencer had shown that evolution is a double process—a tendency to unity as well as to diversity, an integration as well as a differentiation. It was now found that the process of integration, as it applies to all things, whether evolving or not, is a deeper principle, and is, in fact, the *primary process* in evolution, while the increase of heterogeneity is the *secondary process.* At the same time, this new view of the matter made it obvious that Dissolution is everywhere the correlative of Evolution, and that, before the generalization is complete, Dissolution must be recognized as universally tending to undo what Evolution does.

In a new edition of "First Principles," this idea was embodied, and the work recast in conformity with it. The doctrine of Evolution thus attained a higher develop-

ment. The fundamental antagonism between Evolution and Dissolution comes into the foreground as the cardinal conception. It is shown that every aggregate, simple or compound, is, from the beginning to the end of its existence, subject to these opposing processes of change; that, according as its quantity of contained motion is becoming greater or less, it is tending to integrate or disintegrate—evolve or dissolve; that from moment to moment throughout its whole existence it is simultaneously exposed to both these processes, and that the average transformation it is undergoing expresses the predominance of the one process over the other. This being the universal law to which all material things at all times are subject, there come to be recognized certain derivative laws that are not universal although highly general. Evolution is distinguished into simple and compound: simple Evolution being that in which the character of the matter and the rate of its integration are such that this primary process of change from a diffused state to a concentrated state is uncomplicated by secondary changes—compound Evolution being that in which, along with the general integrations, there go on more or less marked differentiations and local integrations. Thus the changes which were originally conceived to constitute Evolution itself, came to be recognized as, in order of time and importance, subordinate; integration may go on without differentiation, as in crystals; but differentiation is made possible only by antecedent integration.[1]

The doctrine of Evolution, as a theory of the genesis and dissolution of things in the onward course of Nature, was elaborately presented in "First Principles," and might have been there left to take its place and its chance among philosophical theories. But it had not been exploited by Mr. Spencer in the way of mental gymnastics, as a piece of novel and ingenious speculation. He believed

[1] *See* Note F.

it to embody a living and applicable principle of the greatest moment. If the law of Evolution be true, it is a truth of transcendent import, no less in the sphere of practical life than in the world of thought, and it was important that it should be carried out in the various fields of its application. Moreover, Mr. Spencer had been drawn to the investigation by his interest in the study of human affairs, and his task was but fairly begun with the establishment of the principle by which they are to be interpreted. In the strict logical order the next step would have been to trace the operation of the law in the inorganic or preorganic world, but the vastness of the subject forbade this, and Mr. Spencer found it necessary to enter at once upon the organic division of his scheme. In the "Principles of Biology" the subject of life was accordingly comprehensively dealt with from the Evolution point of view. He then passed to the phenomena of mind, and recast and amplified the "Principles of Psychology" in accordance with his more matured opinions, placing it upon the ampler basis afforded by "First Principles" and the "Principles of Biology." These three works, forming five volumes of the System of Philosophy, are now published, and they carry him half through the undertaking—the "Principles of Sociology," in three volumes, and the "Principles of Morality," in two volumes, remaining yet to be written. Mr. Spencer allowed twenty years for the whole enterprise; ill health and unforeseen interruptions have occasioned considerable delay, and it was half accomplished in twelve years.

A further illustration of the comprehensive and thoroughly systematic character of Mr. Spencer's work is afforded by his preparation for the treatment of the subject of Sociology. In dealing with Biology and Psychology, the data for reasoning were readily accessible; but in entering upon the scientific study of so vast and varied a subject as human society a most formidable difficulty ap-

peared at the threshold of the inquiry, in the absence of facts to form the broad basis of sociological reasoning. So deficient and scattered and contradictory were such data that the possibility of any valid social science has been generally regarded with distrust, or unhesitatingly denied. But the phenomena of society are not chaotic; they coexist and succeed each other in an orderly way. The natural laws of the social state are undoubtedly determinable, but such determination is primarily a question of the collection of materials suitable for wide and safe inductions. Mr. Spencer foresaw this several years ago, and began the collection and methodical arrangement of all those numerous classes of facts pertaining to the various forms and states of society which are needed to work out the "Principles of Sociology." This alone was an immense undertaking. The races of mankind were divided into three groups, illustrating existing civilizations, extinct or decayed civilizations, and the savage state. Three corresponding series of works were projected, a tabular method for the classification and arrangement of facts was devised, and three gentlemen were employed to carry out the work of collection and digestion of materials under Mr. Spencer's supervision. The first installments of each of these divisions are now completed, and published. This important work, which is subsidiary to his main enterprise, is the first of the kind ever attempted, and when finished and issued will form a complete Cyclopædia of the multifarious data necessary for the scientific investigation of social questions. Its continued publication will depend upon public support; but the collection has been made by Mr. Spencer for his own use, and it will form the groundwork of the "Principles of Sociology" upon which he has now entered, and the first part of which is issued.

Let us now recapitulate his labors in the order of their accomplishment, so as to bring them into one view :

Letters on the Proper Sphere of Government, . . 1842

(Occupied several years as a Railroad Engineer.)

Planned Social Statics, ... 1846

Social Statics published, ... 1850

Theory of Population,
The Development Hypothesis,
Philosophy of Style, } 1852

Over-Legislation,
The Universal Postulate, } 1853

Manners and Fashion,
The Genesis of Science,
The Art of Education,
Evolution first conceived as Universal, } . . . 1854

Principles of Psychology, ... 1855

(Breakdown of eighteen months)

Progress, its Law and Cause,
Origin and Function of Music,
Transcendental Physiology,
Representative Government, } 1857

State Tamperings with Money and Banks,
Moral Education,
The Nebular Hypothesis,
Archetype and Homologies of the Vertebrate Skeleton,
Evolution first conceived as the basis of a system of Philosophy, } 1858

The Laws of Organic Form,
Physical Education,
What Knowledge is of most Worth,
Illogical Geology,
Prospectus of the System of Philosophy drawn up, } 1859

The Emotions and the Will,
The Social Organism,
The Physiology of Laughter,
Parliamentary Reform,
Prison Ethics,
Prospectus of the Philosophical System published, } 1860

First Principles, ... 1862

Classification of the Sciences, ... 1864

Principles of Biology, ... 1867

Principles of Psychology, ... 1872

The Study of Sociology,
Descriptive Sociology, } 1873

Principles of Sociology, Part I., ... 1874

The facts now presented, I submit, entirely sustain the view with which we set out, in regard to the character of Mr. Spencer's work, and his position in the world of thought. It has been shown that he took up the idea of Progress while it was only a vague speculation, and had not yet become a subject of serious scientific study. We have seen that he verified its reality by gradually tracing its operation step by step, in widely different fields of phenomena ; that he analyzed its conditions and causes, and at length formulated it as a universal principle, to which the course of all things conforms. That view of the universe which the science of the world now accepts, it has been shown that Mr. Spencer adopted a generation ago, and entered upon its elucidation as a systematic life-work. We have traced the course of its unfolding, and I appeal to the record of labors here delineated as furnishing an example of original, continuous, and concentrated thinking, which it will be difficult to parallel in the history of intellectual achievement. In newness of conception, unity of purpose, subtilty of analyses, comprehensive grasp, thoroughness of method, and sustained force of execution, this series of labors, I believe, may challenge comparison with the highest mental work of any age.

As to the character of the system of thought which Mr. Spencer has elaborated, we have shown that it is such as to form an important epoch in the advance of knowledge. He took up an idea not yet investigated nor entertained by his predecessors or contemporaries, and has made it the corner-stone of a philosophy. If, by philosophy, we understand the deepest explanation of things that is possible to the human mind, the principle of genesis or Evolution certainly answers preëminently to this character ; for what explanation can go deeper than that which accounts for the origin, continuance, and disappearance of the changing objects around us ? It is the newest solution of the old-

est problem ; a solution based alike upon the most extended knowledge, and upon a reverent recognition that all human investigation, however extensive, must have its inexorable bounds. The philosophy of Evolution is truly a philosophy of creation, carried as far as the human mind can penetrate. If man is finite, the infinite is beyond him ; if finite, he is limited, and his knowledge, and all the philosophy that rests upon knowledge, must be also limited. Philosophy is a system of truth pertaining to the order of Nature, and coextensive with it ; and, as the various sciences are but the knowledge of the different parts of Nature, Mr. Spencer bases philosophy upon science, and makes it what may be called a science of the sciences. Resting, moreover, upon a universal law, which governs the course and changes of all phenomena, this philosophy becomes powerful to unify and harmonize the hitherto separate and fragmentary systems of truth ; and, as this is the predominant trait of Mr. Spencer's system of thought, he very properly denominates it the *Synthetic Philosophy*.

In estimating the character of Mr. Spencer's Philosophical System it is needful to remember that it differs in various fundamental respects from any that has before been offered to the world. It is more logically complete than any other system, because its truths are first derived from facts and phenomena by the method of induction, and then systematically verified by deduction from principles already established. It is more practical than any other, because it bears immediately upon common experience, takes hold of the living questions of the time, throws light upon the course of human affairs, and gives knowledge that may serve both for public and individual guidance. Viewed as an intellectual achievement, his undertaking is neither to be measured by the time consumed in its execution nor by the amount of labor involved, but by the nature and quality of the work itself. It was original

throughout, was based upon the most comprehensive results of modern science, and was elaborated under the inexorable conditions of logical method. The development of a system of philosophy now is a very different thing from what it was in the earlier times. Plato spun a system of thought before speculation was yet curbed by the knowledge of Nature; Spencer has constructed a philosophy out of the inflexible materials furnished in all the fields of modern investigation. His system is not a digest, but an organon; not merely an analytic dissection, but a grand synthetic construction; not a science, but a coördination of the sciences; not a metaphysical elaboration, but a positive body of doctrine conforming to verifiable facts, and based upon the most comprehensive principle of Nature yet arrived at by the human mind.

But no recognition of the greatness of Mr. Spencer's intellectual work will do him justice. There is a moral sublimity in his self-sacrificing career which is not to be neglected in making up the estimate of his character. As remarked by M. Laugel: "If Mr. Spencer, with his talents, his fertility of genius, and the almost encyclopedic variety of knowledge, of which his writings furnish the proof, had chosen to follow the beaten path, nothing would have been more easy than for him to secure all those honors of which English Society is so prodigal to those who serve her as she wishes to be served. He preferred, however, with a noble and touching self-denial, to put up with poverty, and, what is still more difficult, with obscurity." In advance of his generation and working against the powerful current of its prejudices, with broken health, without pecuniary resources, and depending upon promises of support that were but very partially redeemed, with an intrepidity that was not wanting in heroism he entered upon the most formidable intellectual project that was ever undertaken by any single mind. One would think that it should have commanded

the sympathy of the generous and the cordial approval if not the kindly coöperation of all who appreciate courageous and noble endeavor; but, unhappily, a discriminating appreciation of genuine work is not over-abundant in these times; and, in the accomplishment of a task which I believe future generations will regard as the most memorable achievement of this fruitful age, Mr. Spencer has had but stinted encouragement and a very shabby support. In answer to the question, why his contemporaries have been so unappreciative, much might be said, but I will here confine myself to one or two suggestions.

In the first place, Mr. Spencer's work has been done under circumstances peculiarly unfavorable to the recognition of his rights as an original and independent thinker. Of the twenty-five articles prepared in the most active period of his life, and published between 1852 and 1860, which, as I have shown, are important contributions toward the development of the doctrine of Evolution in its various phases, most, if not all, appeared anonymously. They were printed in the different leading reviews, and many of them attracted marked attention at the time; but their author was unknown, and, of course, lost the advantage of having his ideas accredited to him. Up to the time when he had matured his system of thought, and was ready to enter upon its formal publication, he had been giving it out in fragments, as its several aspects had taken shape in his own mind. His articles, many of which were republished in this country, thus went far toward familiarizing the public mind with the general conception of Evolution, so that he was actually preparing his readers to discredit his subsequent claims to his own views, which, being reproduced and further diffused by others, were regarded as belonging to the common stock of current ideas. So far did this go, that he was ultimately exposed to the imputation of plagiarism for the restatement of opinions that he had first put forth,

but which other men had appropriated and sent out as their own. Nor was the case much helped when he began to publish his system of philosophy to subscribers, for so limited was its distribution that it might almost have been said that it was "printed for private circulation." Moreover, being the owner of his own works, the interests of publishers were not enlisted in their diffusion; while the assaults of the press were so malignant, and their representations so false, that for years he was constrained to withhold his series from the periodicals. All this was favorable to misconception, and left Mr. Spencer much at the mercy of dishonest authorship and unscrupulous criticism.

Again, it must be recognized that there were difficulties in appreciating his work which arose from its nature and extent. While a scientific discovery, or a single definite doctrine, is readily apprehended because the impression it makes is narrow and sharp, an extensive system of principles, which it requires power to grasp and time to master, can only be imperfectly received by the general mind. The very greatness of Mr. Spencer's work was thus an impediment to its recognition, and this, too, it must be acknowledged, on the part even of men of science. In the scientific world, the accumulation of facts has outstripped the work of valid generalization. For, while men of moderate ability can observe, experiment, and multiply details in special departments, it requires men of breadth to arrange them into groups, to educe principles and arrive at comprehensive laws. The great mass of scientific specialists, confined to their departments, and little trained to the work of generalization, are apt to regard lightly the logical processes of science, and to decry mere theorizing and speculation. They forget that facts of themselves are not science, and only become so by being placed in true relations, and that the function of the thinker is therefore su-

preme; while the work of organizing facts and establishing general truths is, after all, just as much a specialty as that of observation or experiment in any branches of inquiry. The prevalence of these narrow views has been unfavorable to the recognition of Mr. Spencer's work by a large class of the cultivators of science; and the more so, as he has been mainly occupied in the highest spheres of generalization. For this reason it is only by the comparatively small number of scientific men, who possess marked philosophic power, that his labors have been justly appreciated.

But, while considerations of this kind are not to be overlooked in assigning the responsibilities of criticism, neither are they to be construed into excuses for prejudiced opinions, or crude and hasty judgments. It is the business of critics to inform themselves on important matters of which they speak, or to hold their peace. And, where there is peculiar difficulty or liability to error, they are all the more bound to caution, and to refrain from injurious interpretations. Reverting, now, to the criticisms cited at the outset of this discussion as typical of a class, we are prepared to rate them at what they are worth.

From what has been stated, I think it will be sufficiently evident that Mr. Spencer is no follower of Comte, Darwin, or any other man, and that he has pursued his own independent course in his own way. As to M. Taine's statement that "Mr. Spencer has the merit of extending to the phenomena of Nature and of mind" Mr. Darwin's principle of Natural Selection, the facts given show how mistaken was his view of the case. Strange to say, M. Taine, who claims to be a psychologist, puts forth this idea in a review of Mr. Spencer's "Principles of Psychology," a work which treated the subject of mind throughout, and for the first time from the point of view of Evolution, and

this years before Mr. Darwin had published a word upon the subject.

As this error of M. Taine is frequently repeated,[1] and indicates a total misapprehension of the facts, it is desirable to add a word or two regarding Mr. Darwin's relation to the question. While this illustrious naturalist has contributed immensely toward the extension and establishment of a theory of organic development, he has made no attempt to elucidate the general law of Evolution. His works do not treat of this broad problem; and nothing has tended more to the popular confusion of the subject than the notion that "Darwinism" and Evolution are the same thing. Mr. Darwin's fame rests chiefly upon the skill and perseverance with which he has worked out a single principle in its bearing upon the progressive diversity of organic life. The competitions of Nature leading to a struggle for existence, and that consequent winnowing which Mr. Darwin calls "Natural Selection," and Mr. Spencer calls "Survival of the Fittest," were recognized before Mr. Darwin's time: what he did, as I have already explained, was to show how this principle may aid in giving rise to new species from preëxisting species. The principle is a part of the great theory of Evolution, and has a philosophic importance exactly in proportion to the validity of that larger system of doctrine to which it is tributary as an element. Not only has Mr. Darwin never taken up the general question of Evolution, but it was not his aim to explain even the evolution of species in terms of ultimate principles—that is, in terms of the redistribution of matter and motion. Yet it is in this way

[1] The *Saturday Review*, for example, in commenting upon Prof. Tyndall's late address, remarks: "What Darwin has done for physiology, Spencer would do for psychology by applying to the nervous system particularly the principles which his teacher (!) has already enunciated for the physical system generally."

that all proximate principles, including Natural Selection, have to be expressed before the final interpretation is reached. This mode of dealing with the subject—the analysis of it into those primary principles from which all the proximate principles are derived, and the reduction of the various phases of transformation to a single law, which is the only thoroughly scientific method of its treatment, belongs to Mr. Spencer alone. As to his following Mr. Darwin, we have already seen that, long before the "Origin of Species" was published, Mr. Spencer had reached the proof of Evolution as a universal law; had traced its dependence upon the principle of the persistence of force; had resolved it into its ultimate dynamical factors; had worked out many of its important applications; had made it the basis of a system of Philosophy; and had shown that it furnishes a new starting-point for the scientific interpretation of human affairs. And for this vast constructive work Mr. Spencer was indebted solely to his own genius. Referring to the subject of Evolution, in a lecture before the Royal Institution, Professor Huxley said: "The only complete and systematic statement of the doctrine with which I am acquainted is that contained in Mr. Herbert Spencer's 'System of Philosophy;'" of this doctrine, I have given the proof that Mr. Spencer is the chief originator, as well as the only expositor. The same ethical canons of research, I therefore maintain, which gave to Copernicus the glory of the heliocentric astronomy; to Newton that of the law of gravitation; to Harvey that of the circulation of the blood; to Priestley that of the discovery of oxygen; to Dr. Young that of the undulatory theory of light; and, to Darwin, that of natural selection, will also give to Herbert Spencer the honor of having first elucidated and established the law of Universal Evolution.

Colonel Higginson imputes to Mr. Spencer, as a weakness, the propensity to write on a great number of sub-

jects ; I have shown, on the contrary, that he has been compelled to write upon many subjects from logical necessity, and has done so in unswerving devotion to the development of one class of ideas. It will be seen that he is now upon the same identical track of thought which he opened in his youth, to which he has consecrated his life, and which he has made his own. Thirty-two years ago he began to study the social condition and relations of men from the scientific point of view, and to treat of human society as a sphere of natural law. After eight years he published a treatise upon the question, which, although in advance of the times, only served to convince its author that the investigation was barely begun, and that, before any adequate social science was possible, the whole subject required to be more deeply grounded in the knowledge of Nature. Upon that deeper study of Nature he then entered, and, after twenty-four years of steady and systematic preparation, the problems of Social Statics are resumed in the "Principles of Sociology." If so prolonged and inflexible a course of original inquiry, yielding results which are felt in the highest spheres of thought, are suggestive of "a weakness," we should be glad to be furnished with the examples which embody Colonel Higginson's conception of strength in mental character. As to the declaration that it seems absurd to attribute to Mr. Spencer any vast enlargement or further generalization of the modern doctrine of Evolution, we leave its author to reconcile his opinion with the fact that the System of Psychology, which first extended the principle of Evolution to the sphere of mind, had been nine years before the world, the conception of universal Evolution had been formulated and promulgated four years, and "First Principles" had been for some time published, when this statement was made.

Mr. Emerson's criticism of Spencer is summary and de-

cisive, as becomes a man who has gone to the bottom of a subject. Reticent and mystical no longer, he plumps out his opinion, when interviewed, with all the confidence of one who knows what he is talking about. Into the pantheon of immortals, arranged for the reporter of Frank Leslie's newspaper, none may enter but star-writers, and Mr. Spencer is only a "stock-writer." We may, however, presume that Mr. Emerson has here followed his transcendental lights, as there are many who will insist that he is not for a moment to be suspected of having ever read Mr. Spencer's books—though it will still remain a mystery how he has so skillfully contrived to make his statement as exactly wrong as it could be made. It will, probably, matter little to Mr. Spencer what Mr. Emerson thinks of his position, as it may matter nothing to Mr. Emerson what we think of his judgment; but it should matter a good deal to him that he do not lend the influence of his eminent name to the perpetration of injustice. Speaking in the light of the facts here sketched, we say that Mr. Emerson will search the annals of authorship in vain to find an instance in which his epithet would be more grossly misapplied. And we will do him the justice to say that in other days he has taught us a more generous lesson in regard to what is due from the manly and liberal-minded to the heroic endeavors of noble and unrecognized men. Many of his admirers will recall with pleasure the following admirable passage: "What is the scholar, what is the man *for*, but for hospitality to every new thought of his time? Have you leisure, power, property, friends? you shall be the asylum of every new thought, every unproved opinion, every untried project, which proceeds out of good-will and honest seeking. All the newspapers, all the tongues of to-day, will, of course, at first defame what is noble; but you, who hold not of to-day, not of the times, but of the everlasting, are to stand for it; and the highest

compliment man ever receives from Heaven is the sending to him its disguised and discredited angels." This is a grand exhortation, and has no doubt thrilled many a reader with enthusiasm for the rising thoughts of his time. But the difficulty still remains, how to identify the celestial messengers! Such are the eccentricities of human judgment, that the sympathy which Mr. Emerson invokes is as likely to be given to the worthless as to the worthy. And what shall we say about the duty of common mortals respecting the "disguised and discredited angels," when the Seer himself snubs the author of First Principles as a "stock-writer," and says to the author of that unclean imposture, "Leaves of Grass," "I greet you at the beginning of a great career?"

NOTES.

NOTE A.—*Page* 119.

PULPIT exposition, in this case, is to be taken as representing the force of tradition, the persistence of habit, and the adherence to stereotyped ideas and forms of expression, which have been so long used in sacred relations that they have become sacred—rather than the actual and living belief. There has come to be a great discrepancy in this matter between pulpit presentations and the private opinions of clergymen. An example of this occurred when Prof. Huxley was invited to address the clerical body of Sion College, and took up, as the subject of his discourse, "The Antiquity of the Earth, of Man, and of Civilization." His address was followed by discussion, in accordance with custom, when several clergymen took occasion to express their surprise that Prof. Huxley should have chosen such a subject for such an audience; that his facts were very elementary, and his views long established and quite commonplace, and that the speaker greatly underrated the intelligence of clergymen if he supposed they needed primary lessons on that subject. To this Prof. Huxley replied: "*Why, then, do you not teach these things to your congregations?*" But there are plenty of clergymen still who inculcate the old views by no means as a matter of routine. They maintain them with vigor, and still denounce the modern doctrines with fiery vehemence. An illustration of this is afforded by a sermon lately preached in New York by Rev. George B. Cheever, on Evolution, of which the following passages are samples from the *Tribune* report. Mr. Darwin having referred to the notion of the special creation of man as a miserable hypothesis, Dr. Cheever remarks: "Observe this language, the miserable assumption of a special creation, spoken or written in the full knowledge that, instead of being an assumption at all, it is the very first truth taught in the Bible, as clearly as the being of a God, and no more to be dis-

puted by a Christian than that, but plainly revealed as the foundation of all the obligations and duties of religion, and the corner-stone on which the whole scheme of Christianity rests. . . .

"If you demand positive and actual chronology for these postulated, illimitable ages, the archæological and geological scientists have an almanac of Greek scientific terminologies, under the cloak of which both absence and assumption of knowledge without facts they may hide themselves—Eocene, Miocene, Pliocene, and Pleistocene—ingenious compounds of two Greek words; the dawn of recent time, the less recent, the more recent, the most recent. The use of these forms of scientific learning being established, when you ask the age of any given development or stratum, you are answered, it was Pliocene, or Post-Pliocene, or Eocene, or Miocene. You must be content, for these are but parts of the grammar of endless genealogies, which you must accept for certainties, and any further questioning can only show your ignorance of what be the very first principles of the knowledge of earth and time in the processes of evolution. The first postulate of this philosophy is that of countless millions of years to work in, with no creator, and no authority that can bring it to book. Such being the basis of scientific evolution, what can be the God, or the natural principle, at work for such results through illimitable ages? Is it any gain to such a system, or does it obviate, or soften, or neutralize its irreligion, its atheistic tendency, its monstrosity and cruelty, to suppose a God, or what is called God, hiding himself behind all these millions of ages, and setting all this in motion by inexorable law that evolves its products by natural selection, but gives neither idea, nor knowledge, nor revelation of God, but, on the contrary, makes it impossible that God should be a father or should ever interpose for the guidance or benefit of his creatures, or indeed should ever have acted with personal will and purpose, benevolence, and power, as their Creator? . . . .

"By their scheme, there never was, and never could have been, a deity interposing to instruct Adam, to educate Abraham, to inspire Joseph, to put down oppressing Pharaoh, to change the rod of Moses into a serpent, to create an additional frog, louse, or mosquito, in Egypt; to call for the waters of a deluge, to spread abroad a rainbow, to speak to the rain to fall on one piece of ground and not on another; to commission a famine, or a pestilence, or a flash of lightning; every drop of rain, and every shower, and every ray of light, and every blade of grass, having been so unalterably woven out of the original supply of force in the web of order, continuous and unbroken forever, as not to admit of a possibility of interference or alteration."

NOTE B.—*Page* 123.

IN regard to Mr. Spencer's education, a few words may be added. As a child he had a delicate constitution, and his father, feeling the danger of exposing him to the usual course of education, kept him from school, and attended to his early instruction himself. In this respect his case was like that of Mr. Mill, but the plan pursued was very different. For, while young Mill's mind was *forced* out by a stern coercive discipline, that of Spencer was *led* out by awakening an interest in knowledge, and guiding and encouraging the spontaneous tendencies of his mind. His father was a professed mathematical teacher, and the son's mathematical studies began early, and were continued systematically with a view to his prospective vocation as a civil-engineer. This course was chosen because Herbert early exhibited a marked aptitude for mechanics, mathematics, and scientific studies, and because the occupation of engineering would combine useful employment with out-door activity, which was favorable to health, and was demanded by his slender constitution. Mr. Mill's early education was purely one of books, and in his autobiography he expresses regret that he never had the discipline of trying experiments in science, or even the advantage of seeing them. Young Spencer, on the other hand, went early into the practical work of science. He cultivated natural history, collected an herbarium, and experimented in physics and chemistry. The bent of his mind, moreover, early attracted him to original investigation, and it is known that, before the age of seventeen, he had discovered and worked out the electrotype process independently. He had also solved certain difficult original problems relating to his chosen profession, and devised a new and ingenious theorem in descriptive geometry, which were afterward published in *The Civil Engineer and Architect's Journal.* He completed his mathematical studies with his uncle the Rev. Thomas Spencer, a cultivated scholar, who graduated with honors at Cambridge. He was also a man of great liberality, advanced in his political views, and the first clergyman of the Established Church to take a public and prominent part in the movement for the repeal of the Corn-Laws; having written and published extensively upon the subject. At seventeen young Spencer commenced life as a civil-engineer, being first engaged under Mr. Charles Fox, afterward Sir Charles Fox, who had been a pupil of his father, and afterward built the great Exhibition building of 1850. Some eight years were spent in this profession, when the reaction from the railway mania of 1845 led to such a depression in the engineering business that he abandoned it, and gave himself up to systematic study and a career of authorship.

Note C.—*Page* 132.

The following passage is from an able article republished in *The Popular Science Monthly*, from the *Westminster Review*, on the "Development of Psychology:"

"If Mr. Herbert Spencer had no other title to fame, he would still be the greatest of psychologists. The vast construction of his 'First Principles' will ever be a monument of his extraordinary powers of generalization. His designed organization of the Social Science opens up the prospect of intellectual acquisitions in the future, to which the past may furnish few parallels. But the 'Principles of Psychology' will still remain, in its symmetrical completeness and perfect adequacy to the subject, at once the most remarkable of his achievements, and the most scientific treatise on the Mind which has yet seen the light. Its publication in 1855 did not make a sensation. The persistent efforts of Mill had not yet succeeded in stemming the muddy tide of the prevailing scholasticism. The bastard Kantism of Hamilton did duty for Metaphysics, and the Common-Sense Philosophy of Reid, with the common-sense left out, usurped the place of experimental psychology. Experimental Psychology was as usual busy with analysis, and had no eye for an imposing synthetical effort. Mr. Spencer's work had, accordingly, a chill reception. Greeted by the aristocratic metaphysicians with only a few words of courtly compliment, but treated practically with supercilious disregard, it was received by psychologists of the Association school with hardly more favor than the snarling approval with which a constitutional Whig views the entry into the cabinet of a Birmingham Radical. Mr. Spencer was ahead of his generation, and paid the penalty of his prescience in twenty years of neglect. But now the wheel is coming round. The bovine British public, constitutionally disposed, indeed, to apathy, but drugged into a leaden slumber by its medicine-men, is at last awakening to the fact that the peer of Bacon and Newton is here. Writers of all schools are hastening to define their position with reference to the Synthetic Philosophy. . . . Whatever part of this philosophy may be transitory, Mr. Spencer's present influence is indisputable; and, since the lamented death of Mill, no one can now contest his claims to the philosophic supremacy in these islands. That supremacy rests mainly on his Psychology. . . . Mr. Spencer's numerous psychological advances may be grouped in two divisions: the application to mind of the theory of development, and the connection of psychological evolution with evolution in general. The last edition of his work also incorporates Mr. Darwin's law of natural selection in the explanation of the emotions, but this may be

regarded as simply an extension of the development theory. In the working out of both principles, Mr. Spencer has followed the lead of the physical sciences. . . . With a prescient insight into the future of science which has probably few parallels, Mr. Spencer founded his Psychology on the hypothesis of development. To all but a few deep-thinking observers there can have seemed few signs in 1855 that that hotly-disputed theory was ever likely to be in the ascendant. The exposition of none of the organic sciences, that we know of, had yet been based on it, and its application to mind was undreamt of. But, with a confidence in the intuitions of reason, which is one of the clearest attributes of speculative genius, and which may have its analogue in the statesman, in the nerve to take the vessel of the state over a bar, Mr. Spencer assumed the provisional truth of the theory, and it might be difficult to exaggerate the extent to which his exhibition of it in Psychology has contributed to its establishment."

NOTE D.—*Page* 132.

HIGH as was Mr. Mill's estimate of the "Principles of Psychology," we believe he never grew to a full appreciation of it. He was an ardent partisan of the experiential psychology as opposed to the intuitional, and his bias prevented him from discerning the immense step that Mr. Spencer had taken in harmonizing the fundamental disagreements of the two schools. His position, as defined in the "Autobiography," is, that "there is not any idea, feeling, or power, in the human mind, which, in order to account for it, requires that its origin should be referred to any other source than experience," and by this he means the experience of the individual. How strong his feeling was against the *a priori* view is illustrated by a further passage in the "Autobiography." He says: "Whatever may be the practical value of a true philosophy of these matters, it is hardly possible to exaggerate the mischiefs of a false one. The notion that truths external to the mind may be known by intuition or consciousness, independently of observation and experience, is, I am persuaded, in these times the great intellectual support of false doctrines and bad institutions. By the aid of this theory, every inveterate belief and every intense feeling, of which the origin is not remembered, is enabled to dispense with the obligation of justifying itself by reason, and is erected into its own all-sufficient voucher and justification. There never was such an instrument devised for consecrating all deep-seated prejudices." Mr. Spencer, on the contrary, held that the intuitionalists are right in this, that the ideas, feelings, and powers of the mind, cannot be explained as originating in the experience of the individual, but that there are intuitions or capacities of

knowing born with us. But, instead of merely assuming these with the intuitionalists as ultimate principles beyond explication, he maintains that they originate in the experiences of the race which have been accumulated and transmitted to the individual in his organization. Intuitions are thus affirmed, but their basis is laid in hereditary life, and the law of Evolution thus becomes the key to the deepest interpretation of mental phenomena.

In his recent able work, entitled "Principles of Mental Physiology," Dr. Carpenter remarks: "No physiologist can deem it improbable that the intuitions which we recognize in our own mental constitution have been acquired by a process of gradual development in the race corresponding to that which we trace by observation in the individual. . . . The doctrine that the intellectual and moral intuitions of any one generation are the embodiments in its mental constitution of the experiences of the race was first explicitly put forth by Mr. Herbert Spencer, in whose philosophical treatises it will be found most ably developed." Dr. Carpenter furthermore says that "the great master of the experiential school, Mr. J. S. Mill, was latterly tending toward the acceptance of this view," the evidence of which is given in the following quotation from a letter of Mr. Mill upon the subject to Dr. Carpenter: "There is also considerable evidence that such acquired facilities of passing into certain modes of cerebral action can in many cases be transmitted, more or less completely, by inheritance. The limits of this transmission, and the conditions on which it depends, are a subject now fairly before the scientific world; and we shall, doubtless, in time know much more about them than we do now. But, so far as my imperfect knowledge of the subject extends, I take much the same view of it that you do, at least in principle." We thus see how profoundly the foremost psychologist of his time was ultimately influenced in his most radical philosophical views by the doctrines of Mr. Spencer; and, when we remember how completely Mr. Spencer had already reconstructed the new psychology upon the basis of the principle thus lately and partially recognized by Mr. Mill, we are enabled to see how far he was in advance of his age in dealing with this great subject.

Note E.—*Page* 140.

Interested in all that relates to the history of Mr. Spencer's enterprise, and the conditions under which it was launched, when I learned about his being sustained by eminent men, in his application to government, I sought to know what kind of action they took, and found that their influence was given in the shape of letters to Mr. Spencer, to be

used with the government authorities. They were written by Mr. J. S. Mill, George Grote, and Professors Huxley, Fraser, Hooker, Tyndall, and Latham, in 1859, fifteen years ago, and were, of course, responsible estimates of Mr. Spencer as a thinker by some of the most distinguished of his contemporaries. At my request, Mr. Spencer favored me with the reading of these letters, and the effect of their perusal was to produce a feeling of profound regret that they had never been given to the public; for this would certainly have made an important difference in the reception accorded to his philosophical project. The writers recognized that Mr. Spencer was eminently the man to do a great and special work for the advancement and organization of knowledge in this age—a work which the British Government would honor itself by promoting; and they predicted the utmost that time has fulfilled in regard to the undertaking. But Mr. Spencer regarded the letters as written for a special purpose, and therefore not to be appropriated to any other. They, however, belonged to the initial stage of his enterprise, were designed to aid it, and should, I think, have been used for that object. I refer to this circumstance because it is an interesting fact; and I have the less concern in speaking about it, as the author of one of the letters assured me that the writers designed them for publication.

Note F.—*Page* 143.

The following summary of the essential doctrines of Mr. Spencer's system is taken from the article "Evolution" in the revised edition of the American Cyclopædia:

1. Throughout the universe in general, and in detail, there is an unceasing redistribution of matter and motion.

2. This redistribution constitutes evolution where there is a predominant integration of matter and dissipation of motion, and constitutes dissolution where there is a predominant absorption of motion and disintegration of matter.

3. Evolution is simple when the process of integration, or the formation of a coherent aggregate, proceeds uncomplicated by other processes.

4. Evolution is compound when along with this primary change from an incoherent to a coherent state there go on secondary changes due to differences in the circumstances of the different parts of the aggregate.

5. These secondary changes constitute a transformation of the homogeneous into the heterogeneous—a transformation which, like the first, is exhibited in the universe as a whole and in all (or nearly all) its details—in the aggregate of stars and nebulæ; in the planetary system; in the earth

as an inorganic mass; *in each organism, vegetal or animal* (Von Baer's Law); in the aggregate of organisms throughout geologic time; in the mind; in society; in all products of social activity.

6. The process of integration, acting locally as well as generally, combines with the process of differentiation to render this change not simply from homogeneity to heterogeneity, but from an indefinite homogeneity to a definite heterogeneity; and this trait of increasing definiteness, which accompanies the trait of increasing heterogeneity, is, like it, exhibited in the totality of things, and in all its divisions and subdivisions down to the minutest.

7. Along with this redistribution of the matter composing any evolving aggregate, there goes on a redistribution of the retained motion of its components in relation to one another; this also becomes, step by step, more definitely heterogeneous.

8. In the absence of a homogeneity that is infinite and absolute, this redistribution, of which evolution is one phase, is inevitable. The causes which necessitate it are:

9. The instability of the homogeneous, which is consequent upon the different exposures of the different parts of any limited aggregate to incident forces. The transformations hence resulting are complicated by—

10. The multiplication of effects: every mass and part of a mass on which a force falls subdivides and differentiates that force, which thereupon proceeds to work a variety of changes; and each of these becomes the parent of similarly multiplying changes: the multiplication of these becoming greater in proportion as the aggregate becomes more heterogeneous. And these two causes of increasing differentiations are furthered by—

11. Segregation, which is a process tending ever to separate unlike units, and to bring together like units, so serving continually to sharpen, or make definite, differentiations otherwise caused.

12. Equilibration is the final result of these transformations which an evolving aggregate undergoes. The changes go on until there is reached an equilibrium between the forces which all parts of the aggregate are exposed to, and the forces these parts oppose to them. Equilibration may pass through a transition stage of balanced motions (as in a planetary system), or of balanced functions (as in a living body), on the way to ultimate equilibrium; but the state of rest in inorganic bodies, or death in organic bodies, is the necessary limit of the changes constituting evolution.

13. Dissolution is the counter-charge which sooner or later every evolved aggregate undergoes. Remaining exposed to surrounding forces

that are unequilibrated, each aggregate is ever liable to be dissipated by the increase, gradual or sudden, of its contained motion; and its dissipation, quickly undergone by bodies lately animate, and slowly undergone by inanimate masses, remains to be undergone at an indefinitely remote period by each planetary and stellar mass, which, since an indefinitely remote period in the past, has been slowly evolving: the cycle of its transformations being thus completed.

14. This rhythm of evolution and dissolution, completing itself during short periods in small aggregates, and in the vast aggregates distributed through space completing itself in periods which are immeasurable by human thought, is, so far as we can see, universal and eternal: each alternating phase of the process predominating now in this region of space, and now in that, as local conditions determine.

15. All these phenomena, from their great features down to their minutest details, are necessary results of the persistence of force under its forms of matter and motion. Given these in their known distributions through space, and, their quantities being unchangeable, either by increase or decrease, there inevitably result the continuous redistributions distinguishable as evolution and dissolution, as well as all those special traits above enumerated.

16. That which persists unchanging in quantity but ever-changing in form, under these sensible appearances which the universe presents to us, transcends human knowledge and conception; is an unknown and unknowable power, which we are obliged to recognize as without limit in space, and without beginning or end in time.

THE END.

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