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The Evolution of Knowledge

A Review of Philosophy

By
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MOFFITT

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IN MEMORY OF
AUGUSTINE VERGNES PERRIN
FROM HER I LEARNED THE SECRET THAT THE DEEPEST
TRUTHS OF LIFE ARE COMMUNICATED
IN SILENCE BY EXAMPLE

MOFFITT

PREFACE

IN the year 1881 there appeared in Chicago an anonymous satire entitled, "The Student's Dream." My aim was to show that the most general terms of existence, namely: space, time, matter, and force, can be resolved into motion. Four years later "The Religion of Philosophy," or "The Unification of Knowledge" was published in New York and London, in order more fully to prove the same thesis. To this one aim many studious years have since been directed, resulting in the present revision of the above mentioned work, in which I have endeavored to show that motion is the ultimate reality,

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INTRODUCTION

In the following pages the chief systems of ancient and modern thought are compared, the object being to measure the approach of each system to the goal of philosophy which is the demonstration of the unity of all things. The most difficult unity to explain is that of mind and matter. Prior to the discovery of evolution this explanation was generally considered impossible, but now the problem can be dealt with scientifically. If by reducing the intellectual and the physical to a single principle, the various schemes of philosophy are rendered more intelligible, those who believe that metaphysical speculation leads only to mystery may again take heart.

This attempt to simplify the problem of being would be of wide interest were it more generally understood that philosophy is not only a last analysis, but a commanding synthesis; that its purpose is not alone to resolve the most general terms of existence into a single principle, but to reveal the harmonies of life and the universe as the most direct way of increasing human happiness.

The discovery that all the sciences spring from a centre of reality reminds us that unity was the ideal of the ancient Greeks. Their art and letters proclaim a knowledge of natural proportion, or an appreciation

of the law of unity in variety. This sublime intuition enabled them to perceive that the powers of the intellect and the ideals of righteousness move in unison with nature. They reasoned with singular power concerning general principles, for they saw that the true and the good are evolved from nature, while their sense of proportion crowned their knowledge with beauty.

All thoughtful persons classify experiences, forming them into general views of life, perceiving more or less distinctly that all ideas centre in an ultimate relation. The trend of social progress is from indefinite to definite ideas; that is to say, from a supernatural to a natural theory of knowledge. Society will have reached its zenith when it realizes that thought is a development of feeling, and that both are evolutions of nature.

Since there can be no reliable definition of truth or of right until knowledge is unified, we naturally look for this most important achievement to the universities, those centres of intelligence designed for the enlightenment of the world. But at the chief seats of learning, although investigations progress in many departments, there has been thus far a failure to co-ordinate the sciences. The cause of this lack of harmony among the various departments of research is not far to seek, for the prevalent philosophy, instead of reducing mind and nature to unity, maintains that the true and the good are not accounted for by physical laws.

The aim of this book, therefore, is to demonstrate the fact that knowledge can be unified by co-ordinating the sciences, or, in other words, that the most general terms of existence can be reduced to a single principle.

Ever since man has essayed to form definite ideas

of existence the problem of motion has occupied the highest place in his thoughts. The effort to solve this problem can be traced from the dawn of philosophy to the present day, each age showing an advance toward the solution.

Now every science builds its system upon an ultimate, which resolves itself at last into motion. Thus, mathematics is the study of motion, expressed in number and quantity, or in time and space; physics is the study of force; biology, the study of life; psychology, of mind; law, of justice; and religion, of God. It will be found upon investigation that all these terms have the same fundamental meaning, for they unite the subjective and the objective aspects of existence in motion. But, if it is necessary for each department of research to assimilate all universal terms before the sciences can be co-ordinated, we shall wait indefinitely for this most needed reform. Let us for the present, therefore, consider only those terms which are generally conceded to be universals,—namely space, time, matter, force and motion. To identify the last fact in each science with one or more of these principles is to unify knowledge, as the axiom holds true that things which are equal to the same thing are equal to one another.

The advantage to be gained by co-ordinating the sciences is as yet scarcely appreciable. When it is demonstrated that one relation accounts for mental as well as for physical existence, each discovery will throw new light upon all preceding ones. For example, if the principles of existence and of devotion are one, it follows that our most general ideas govern our religious beliefs, for the divine signifies the universal, or the most

general; that is to say, deity is the order of nature, reached through generalization.

One of the characteristics of our age is a reaction from skepticism or a demand for a justification of religious faith. To satisfy this greatest of human needs, we require a scientific theory of knowledge. In other terms, we need more than anything else, *an explanation of the origin and development of general ideas*.

There can be no higher revelation than philosophy, for it discloses the interdependence of mind and nature. The deepest truths are appreciated not by reason alone, but also by sympathy. As thought is a development of feeling, philosophy is a refinement of religious sentiment.

The highest use of philosophy is to strengthen religious faith, by giving to our devotional instincts the sanction of reason. Those who have never submitted themselves to the discipline of thought, or who have yet to employ the safeguards of investigation and verification with regard to their religious convictions, are apt to accept devotional symbols literally, mistaking them for the true meaning of their faith. The devout mind has nothing to fear from reason, since it reveals no fate that is not compensated by the peace of eternal and universal truth.

As above indicated, there can be no reliable definition of the true and the good until mind and matter are reduced to a single principle. Science, quite as much as religion, is responsible, therefore, for prevalent superstitions. So long as the universities teach that intelligence and sympathy are inscrutable, or that the

deepest meaning of truth and of right is unknowable, just so long will religion veil itself in mystery. If those who presume to educate our theologians cannot agree concerning the meaning of ultimate terms, how can the Church enlighten us as to the principles of existence?

Religion, or consecrated devotion, is the mainspring of social progress. Society organizes for righteousness, because righteousness is a necessity. All organizations having this aim are religious, whether their temples are reared to a personal deity or to the principle of justice.

If by disclosing the interdependence of ultimate terms knowledge can be unified, justice will appear in its true light, as the order of nature, commanding obedience because it is universal, and inspiring emulation because it is beautiful.

PART I
THE PRE-EVOLUTIONARY PERIOD

CHAPTER I

THE DAWN OF PHILOSOPHY

*Thales — Anaximenes — Diogenes of Apollonia —
Anaximander — Pythagoras*

THERE is a general belief that our origin and destiny are wrapped in impenetrable mystery. We do not realize that these questions can be solved by studying the nature of consciousness and of justice. The evolution of consciousness reveals the beginnings of life and the evolution of justice its purpose or end.

Toward the close of the first period of Greek philosophy, Anaxagoras endeavored to correlate the spiritual and the corporeal, which is the present aim of psychology. A century earlier Solon laid the foundations of ethical science by proclaiming the interdependence of human and divine justice. Thus it is clear that the theories of the ancients were fraught with the deepest meaning. Their attempts to comprehend mind and nature brought them face to face with the very problems occupying us today.

Nothing will conduce more to the solution of these problems than a comprehension of the nature of language. The increase of definiteness in language marks the progress of humanity. The power of expression is the first fruit of social life. Thought is not a thing apart from language; the spirit of the race breathes in the words and sentences that have grown up to express the common life. "Language," says Ampère, "begins with being a music, and ends by becoming an algebra." Reason and its expression develop together; they advance from the incoherent to the coherent, or from vague metaphor to definite comparisons. Reason is comparison, and its vehicle, language, is a system of metaphors, arising from the same source. ^

In order to elucidate their theories Plato and Aristotle found it necessary to compare them with previous cognate thought. Almost all subsequent writers on metaphysics have followed this example; in fact the only feasible method of metaphysical demonstration is the historical, because the principles of existence can be simplified only by reviewing the discussions by which they have been evolved. As Professor Mahaffy remarks, "Conclusions alone are remembered, but the process by which they are reached, the antecedent doubts, difficulties and failures, are a necessary part of the demonstration."

Each metaphysical system portrays the growth of some individual representing a period of thought and is modified by those changes of opinion which are incident to progress. Thought can be accurately delineated only when it is clear, but with such profound problems as are attempted by philosophers this ideal is seldom reached. The chief advantage of the his-

torical method of demonstration is that of addressing each logical sect in the terminology of its chosen master, for almost every thoughtful person is attached to some form of dialectical art which he deems it his duty to support. It is true that an agreement as to the meaning of universals would remove this sectarianism from philosophy, but the great difficulty is that universal terms can be defined only by performing in advance an ultimate analysis. In the following review of philosophical systems, therefore, the endeavor will be made to measure the approach of each metaphysical school to that goal of thought known as a last analysis of existence.

Although there is no doubt that Hellenic science and philosophy owe much to earlier nations, it is conceded that the Greeks founded the most accessible schools of ancient thought, and have transmitted to us the present types of ontological inquiry. For this reason Greek philosophy assumes a peculiar interest, affording as it does a view of the development of the art of generalization, the only means by which we are to gain a comprehension of the origin and the destiny of man.

THALES

The earliest Hellenic philosopher was Thales, born at Miletus, a Greek Colony in Asia Minor, about 640 B. C. His mathematical and astronomical knowledge was acquired, according to Eudemus, in Phoenicia and Egypt. An evidence of this knowledge was his prediction of the solar eclipse 585 B. C. In common with many great thinkers of antiquity, Thales took part in public affairs. With the Greeks, wisdom meant familiarity with civil as well as with natural laws. It was on

account of statesmanship, therefore, as well as of scientific acquirements, that this philosopher was placed at the head of the seven wise men.

Thales believed that water is the source of all things. In assuming that a substance is the most general of facts, or the ultimate reality, the quest was begun which has since resulted in the discovery of evolution.

To the thoughtful Greek, six hundred years before our era, the universe was an infinity of unexplained and irreconcilable changes. The physical forces had not as yet been distinguished from the substances manifesting them. To the mind of Thales, matter and its attributes were one. How significant it is that the highest enlightenment has finally coincided with this earliest of intuitions. It is now well known that matter and force are indistinguishable one from the other. Some modern physicists, however, are so much impressed with the distinctions made between the physical forces and the substances manifesting them, that they unfortunately consider the separation as absolute. They neglect to restore to phenomena that fundamental unity which the ancients perceived intuitively.

It is difficult for us to realize the darkness that enshrouded all nature at the time of Thales, and yet, by assuming the identity of matter and force, the earliest Greek thinkers came near to that universal unity which has so long escaped us. How often has it happened that the last word of science has come to the support of primitive theory.

The method of mental procedure is constant. Thought establishes its base line, triangulating its advances toward a universal principle, or toward that most

general fact by which all others may be explained. Thales, the founder of the line of ancient physicists known as the Ionian school, was the first among the Greeks to seek in nature a primal cause. In fixing upon a physical antecedent of all that he saw about him, his induction was far greater than would at first appear. It was during his time that a spirit of investigation first appeared among the Greeks. Hitherto men had contented themselves with the familiar aspects of things, remanding all obscure phenomena to the realm of superstition.

The choice of water as the ultimate or formative principle was the result of extended observation and thought. Even at that epoch, to the investigator of nature, the omnipresence of moisture was manifest. Moisture abounded in animals and plants, on the earth and in the sky, and by it seeds were apparently nourished. To the presence of water all life seemed due. Nor did this first attempt to discover the ultimate principle of nature escape the prevailing influence of myths, as indicated by the tradition that the earth floated upon the waters. To Thales, therefore, the evolution of seed germs, vivified by moisture, seemed to account for the universe.

ANAXIMENES

Anaximenes, who was born in the same Greek Colony as Thales, about 588 B. C., agreed fundamentally with his predecessor. Rejecting water as the first cause, he conceived air to be life. To him, air appeared to be infinite, and in its pure state invisible, and he, therefore, regarded it as the origin of all things. He maintained that only through its qualities, heat, cold, moisture and

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motion, could it be known. To its eternal motion he attributed all change. Reasoning that motion is the only agency manifested in the transformations of nature, he concluded that the condensation of air had produced the earth, which was flat and supported by air. He believed that all the heavenly bodies were also flat, although he saw that the moon shone by the sun's light.

Going a step farther than Thales, Anaximenes deduced general, from individual life. He viewed the cosmos as a living organism. The profundity of his thought is attested by his attempt to evolve consciousness from nature.

ADIOGENES OF APOLLONIA

About a century later, Diogenes* of Apollonia (B. C. 440), offered another theory of the universe. Following the suggestion of Anaximenes, Diogenes reasoned that air is the origin of all things, but, giving it a deeper significance, compared it to the soul. This identification of physical and psychical energy has strong support from the recent investigations of German biologists in cellular psychology. Diogenes believed that universal energy accounts for mind as well as for matter. He defended the monism of Anaximenes against the doctrine of Anaxagoras, who held to a world ordering spirit.

According to Thales, the primary substance was more than moisture; it was water endowed with vital energy. To Diogenes air was more than atmosphere; it was that tenuous force which we now call ether, such as light and radiant heat—the soul of nature.

Diogenes conceived intelligence as a form of uni-

* Not Diogenes the Cynic.

versal energy. "Without reason," he said, "it would be impossible for it to be so ordered that one should find the proportion of all things, of winter and summer, night and day, rain and fair weather, ordered in the best possible manner."*

Thus to Diogenes ether and intelligence meant the same thing, because to him both seemed to represent the order of nature. "That which has knowledge is what men call air. By it all things are governed and regulated, and so it seems to me its use is to pervade all and to be in all, and there is nothing which has not some share in it."† The belief of Diogenes that intelligence is a manifestation of the order of nature is now generally conceded to be the most advanced theory of mind, far nearer the truth than the Kantian idea that mind accounts for the order of nature.

ANAXIMANDER

Thus the ancient physicists, Thales, Anaximenes and Diogenes, endeavored to explain the universe from a dynamical basis, citing respectively living water, air, and air-life, as the cause of all things. There was a contemporary of Thales, however, who divined perhaps more clearly than the other Ionians, the great truth that nature itself is ultimate or, in other words, the life or motion of the universe. Discussions concerning the meaning of matter, such as occur in the writings of Aristotle, were unknown to these early Greeks, so that we have no choice but to admire the penetration of Anaximander in taking a position in harmony with the most advanced modern theories of the cosmos. It is true that many teachers of physical science still affirm that

* Simpl. Phys. 1, 4, 32-v.

† Simpl. Phys. III., 5 and Diog. Laert. 112

inert matter is the final fact. To assume that atoms have absolute weight and extension is to believe in absolute rest, whereas the best authorities now agree that substance, which is our symbol for rest, is itself a form of motion.

Anaximander, who was born about 610 B. C., taught that the infinite (*τὸ ἄπειρον*) is the ultimate reality. This principle, he said, "is the origin of all things."

In thus recognizing a relation as the ultimate generalization, Anaximander rose above materialism, for he intuitively perceived the interdependence of the dynamical and the statical aspects of existence. The relation which he conceived as ultimate he called infinite in order to express the endless evolutions of the world. He reasoned that the primary cause must be infinite in order to suffice for the variety of phenomena.

Although Aristotle long afterwards characterized this infinite as a multiplicity of primary elements, to the mind of Anaximander it was evidently an ever-producing energy.

It is alleged that among the earliest philosophical writings of the Greeks was a treatise by Anaximander upon the size and distance of the heavenly bodies. His introduction of the sun-dial and his invention of geographical maps place him among the pioneers of science.

When Anaximander proclaimed that being is a relation, he struck the keynote of philosophy, that is to say, he reached a generalization that all subsequent research has failed to overthrow. When it is remembered, however, that the doctrines of Anaximander, as well as those of his contemporaries, had analogies in earlier philosophies, as will appear by reference to the Egyptians, the

Hebrews, the Chaldeans and the Hindus, we realize how remote and how widespread are the origins of ontological inquiry.

PYTHAGORAS

Pythagoras, about the time of whose birth there is a dispute, opinions varying from 586 to 569 B. C., founded the first systematic school of thought. To him we owe the term philosopher, for it was in declaring himself a lover of wisdom that the word was coined. "A philosopher," says Pythagoras, "is one who seeks wisdom for its own sake."* This great teacher maintained that thought is the noblest exercise of man, because the improvement of social conditions depends upon the progress of science and religion. It never occurred to him that our discoveries in natural phenomena were anything less than divine revelations. His life was devoted to investigating the methods of the architect of the universe. This was the avowed aim of his secret society, the influence of which survived among the Greeks long after the death of its founder.

Ancient accounts depict a spirit of exclusiveness as prevailing among early scientists. The general lack of education prevented all but a favored few from divining the secrets of nature. From remotest antiquity the profoundest suggestions of the cosmos have been held sacred. In order to guard these treasures of knowledge from sacrilege, secret religious orders were inaugurated with elaborate ceremonies and a ritual. These prehistoric attempts to preserve and to develop the germs of knowledge still survive in the form of religious and masonic worship, all of which celebrate the early dis-

* Iambl. Vita. pp. 58, 59.

coveries of science, the rapture of the dawn of knowledge. As the Psalmist says, "The Heavens declare the glory of God and the firmament showeth His handiwork."

The constitution of the Pythagoreans was probably derived from the religious orders of Egypt and of the Orient. It provided that initiation was to follow years of probation devised as a test of character. So severe were these trials, chief among them the injunction of secrecy, that many novices surrendered in despair, "unworthy to enter the sanctuary of science."

The motto of the Pythagoreans was: "Not unto all should all be made known." Although the accounts of this fraternity are richly embellished with fable, we are not without reliable evidence concerning its teachings. As above indicated, the Pythagoreans appealed to the devotional instincts in behalf of better methods of government. The principles of harmony which they discerned in nature they endeavored to apply to civil institutions, just as in our time, we would identify righteousness with the order of the universe. They taught that justice is the chief end of man and that its precepts constitute the highest of religions. This sublime rationalism, however, did not save the founder of the sect from the charge of being a miracle worker, for then, as now, the populace attributed intimacy with the principles of existence to the favor of a personal deity.*

The Pythagoreans perceived that it is necessary to classify ultimate terms as a means of solving the problem of being. Their co-ordinates, consisting of ten pairs of antithetical terms, no doubt suggested to Aristotle

* Iambl. Vita., pp. 68, 80, 226-228. Diog. Laert. VIII. 6. 8. Gell. Noct. Att. j. 9.

his categories, which, being single principles, came nearer to universals.

In the *Metaphysics* Aristotle says that the Pythagoreans, who were nurtured in mathematics, believed that number is the principle of all things. They saw in nature a greater analogy to number than to such elements as fire, earth and water, for in the relations of numerals they discerned the harmonies of the universe. They even said that consciousness and justice could be arithmetically represented.

The Pythagoreans, continued Aristotle, believed that the number ten is capable of expressing not only the arrangement of the heavenly bodies but the causes of all existence. In number they saw both unity and variety. They identified the even and the odd with the finite and the infinite. They connected the most general principles of existence with the number ten, postulating the following series of co-ordinates:

“Finite and Infinite.

One and Many.

Even and Odd.

Right and Left.

Male and Female.

Rest and Motion.

Square and Oblong.

Straight and Curved.

Light and Darkness.

Good and Evil.”

“In these ten co-ordinates,” continues Aristotle, “the Pythagoreans saw the principle of universal harmony; whereupon they affirmed that number is the substance of all things.”*

* Arist. Met. 1, 5, 3.

Until the time of Socrates all knowledge of the Pythagoreans was in the form of tradition. We are told that these prehistoric scientists understood the rotation of the earth on its axis, and advanced a theory of atoms with a world-ordering spirit; and that they also advocated the doctrine of contraries, so highly developed in recent times by Hegel.

The somewhat contemptuous attitude of Aristotle toward the mysteries of the Pythagoreans has been since imitated by many learned authorities, but it is now known that this secret religious association possessed a knowledge of natural proportion more profound than that enjoyed even at the present time.

The wisdom religions from which descended the ancient mysteries inculcated principles of natural proportion. This ultimate analysis of form stands at the very threshold of the sciences. It is the law of unity in variety or the law of natural beauty, and was consciously exercised by ancient and medieval artists as the chief inspiration of their work.* When its universality is understood it will unite science and religion.

"I undertake to prove," says Kepler in the preface of his great work, "that God in creating the universe and arranging the order of the cosmos had in mind the five regular geometrical bodies known since the days of Pythagoras and Plato, and that He has fixed, according to their dimensions, the number of heavens, their proportions and the relation of their movements." Whether this quaint phraseology of Kepler was due in part to dread of the Inquisition, or wholly to the innate dis-

* See address by Jay Hambidge before the Hellenic Society, London Athenæum, November 15, 1902; also "Nature" of same date.

position to regard the powers of nature as divine, will perhaps never be known. The fact remains, however, that the highest conception of nature and of deity are the same, namely: the infinite and the eternal order of the cosmos expressed in proportion or beauty.

In regard to their capacity for solving the problems of existence, the ancient Greeks were our peers. If introspection alone could have achieved the solution, we would have inherited it from them in the same perfection as that in which their art has reached us. Neither with ancients nor with moderns has there been lack of intellectual acumen. The cause of the failure, thus far, to unify the principles of existence, is to be found in the arbitrary restrictions placed upon our conception of knowledge. In its deepest sense, knowledge is life. Adequately to conceive the unity of mind and nature it is necessary to identify knowledge with life, and life with universal change, a generalization which the discovery of evolution has at last made possible.

Although psychology and ethics are interdependent inquiries, they are still taught separately because the psychologist and the moralist have not as yet come to an agreement concerning the meaning of universals. The definition of universals, therefore, is the reform most needed in educational work, for there can be no real comprehension of the true or of the good until we have reduced mind and nature to proportion or beauty, or, in other words, until we have reduced those universals known as the categories of thought, or the most general terms of existence to a single principle.

The ancients were aware that deity represents a principle, not a person. The best thinkers of all ages

have perceived that we live, not under the tutelage of an individual, but in an empire of cause and effect.

As will later appear, the trend of human progress is toward the identification of mental and physical force, or toward the development of psychology from biology. Even without the aid of biological analysis, however, the ancients penetrated to the underlying principle of existence, which is, that reality is more general than mind or language, or that facts express themselves, which is the same thing. The failure to interpret experiences aright is a want of harmony between the individual and his surroundings, a mal-adjustment of inner to outer relations. Knowledge is an organization of changes, expressing relations which have their terms in other changes, and so on to infinity. The deepest meaning of change is motion, that ultimate relation expressed in terms of time and space. In analyzing terrestrial phenomena to determine affinities or proportions, we compare one change with another, measuring them by a unit. In comparing the phenomena of the heavens, we enlarge the scale, but preserve the same method. In studying humanity to determine the principles of its development, we use the same method and the results are expressed in the same terms of force or motion.

Philosophy has always essayed to comprehend existence. Forgetting that knowledge and life have neither beginning nor end, it has striven to look beyond them. Resolutely it has maintained this attitude, but in the meantime the distances it has approached, as through a mist, have become gradually filled with facts; for science has steadily enlarged the sphere of the known, until we now contemplate a field of experience wide enough to challenge the greatest efforts of the mind.

An unrelated entity or absolutely independent individual is a fiction. There are no unrelated facts; no absolute persons; no unconditioned being. Mind and nature express alike the principle of activity; the universal fact of motion. Both the spiritual and the material are at last recognized as phenomena, that is to say, as relations having for their terms other relations.

Throughout ancient and modern thought a single purpose can be recognized. The aim has always been to reduce diversity to unity, the many to the one. This unity is not a time or a place but a relation. To discover this relation, which is the end of analysis and the beginning of synthesis, is to accomplish the object of philosophy.

In a broad sense science is classified experience; symbols never having been more than an attempt to represent experiences. As above indicated, the difference between the enlightenment of the past and the present is the degree of scientific development attained. The attempt to perform an ultimate analysis is as evident with Thales and Pythagoras, as with Descartes, Spinoza and Kant. They all strove to reduce diversity to unity, the many to the one.

This final unity has been variously denominated relation, truth, fact, cause, principle, energy, force, substance, matter, being, reality and motion. In the paucity of their scientific acquirements, Thales thought that it was living water; Diogenes of Apollonia, that it was living air; and Anaximander, that it was the eternal motion of the infinite. Descartes believed it to be thought expressed both as mind and as matter. Spinoza called it God. Kant found this ultimate reality in reason alone, and Herbert Spencer in the "Persistence of Force."

Wherever we turn, this relation confronts us as an inseparable quality of our existence. It will be demonstrated that each science in its particular sphere of investigation postulates as ultimate, a principle having for its terms the subjective and the objective aspects of existence, known as time and space. As before mentioned, mathematics calls this principle motion; physics, force; biology, life; psychology, mind; grammar, the verb; law, justice; ethics, action; and religion, God. As will later appear all these terms have the same final meaning, for the last fact in each of the sciences signifies the same thing as the verb, the symbol of action or being, and finds expression in terms of its aspects, time and space.

The chief difficulty in the way of demonstrating the universality of motion is that of identifying matter and space as synonymous terms. Matter is the generalization of the statical aspect of phenomena. Space or extension is also the generalization of the statical aspect of phenomena. It will be found that whether considered subjectively or objectively these conceptions are ultimately one. As is shown in the analysis of these conceptions by Herbert Spencer, the idea of matter and of space spring from our sense of resistance. The definitions of these relatively distinct terms when logically produced converge in motion.

The effect upon philosophy of the identification of matter and space can hardly be over-estimated. The categories of thought, or the generally accepted universals, are space, time, matter, force and motion. Some writers add cause, but it is now admitted that cause stands for merely one aspect of every phenomenon, the opposite being effect. Others, again, assume that con-

consciousness is an ultimate reality, or an irreducible principle, but this error is met and set aside by Lewes and Haeckel, who affiliate consciousness with vital activity.

The identification of matter and space overcomes the difficulty of unifying the categories, because both substance and extension are then recognized as forms of motion. Motion is the ultimate; time its subjective (internal), and space its objective (external) aspect. Otherwise expressed, time is motion, considered apart from space; space is motion, considered apart from time.

Some scientists reject this ultimate analysis because they cannot conceive of "motion without something to move," on the same principle that some religionists are unable to conceive God as the all, the divine principle, but insist that deity is a person which means a limited existence. They cannot understand that matter, space and infinity are terms having the same ultimate meaning. Never having analyzed our conception of matter and of space they fail to perceive their interdependence. They do not realize that the definitions of these relatively distinct terms converge in motion.

Thus, after remaining separate throughout the history of thought, the categories are at last correlated. The term infinite has no signification beyond that of space, which is the most convenient name for the statical aspect of motion. Co-existence, extension, and unlimited, are synonyms of space. On the other hand, the term absolute has no signification beyond that of time. Sequence, invariable fluctuation, and unconditioned, stand for the dynamical aspect of motion, the most convenient name for which is time. Thus it will be found that the categories of thought or the most general terms of existence can be reduced to a single principle.

CHAPTER II

THE PRE-SOCRATIC PERIOD

Xenophanes — Parmenides — Zeno of Elea — Heraclitus
Empedocles — Democritus — Anaxagoras

XENOPHANES was the first Greek philosopher to lend a devotional character to thought. His contention was that religious sentiment may be refined by harmonizing our ideas with nature, or by bringing belief into accord with experience. The theory of divine unity or, as he expressed it, "The Unity of all things" was the basis of his philosophy. Among the surviving fragments of his poem on nature is the dictum "God is the One."

This great teacher was born at Colophon in Ionia early in the sixth century B. C., and was, therefore, a contemporary of Solon and Cræsus. During youth he was banished from his native city on account of unorthodox beliefs, and for the remainder of a long life wandered over Sicily and through the cities of lower Italy, teaching as poet and rhapsodist. At Elea, in Southern Italy, he founded the school afterward so renowned.

Xenophanes opposed the superstitious beliefs of his time by advocating a pure monotheism in place of the worship of many gods. The theologians of the ancient Greeks were their poets and artists. This joyous race held in adoration the creations of genius. No people of antiquity united so great a desire for knowledge with

such enthusiasm for proportion or beauty. Occupying on the main land the path between Europe and Asia, and maintaining intercourse with all parts of the Archipelago, they led a life of singular activity and freedom. Untrammelled by dogmatic systems, and without a priesthood, they evolved a flexible but deeply natural theogony, and as an accompaniment an unrivaled philosophy.

Almost all the devotional ideas of the Greeks were associated with the Homeric and Hesiodic divinities. Xenophanes protested against the worship of these gods, for although not indifferent to the beauty of the great epics, he resented such characterizations of divine conduct. This view was shared by Plato, as can be seen by the second and third books of the "Republic." Indeed, we are still admonished by the lines of Xenophanes:

"Such things of the Gods are reported by Homer and Hesiod,
As would be shame and abiding disgrace to any of mankind;
Promises broken and thefts, and the one deceiving the other."

The Eleatics conceived all phenomena as resolved into unity.* In the words of the founder of the school they worshipped the

"One God of all things, divine and human, the greatest;
Neither in body alike unto mortals, neither in spirit;
Without labor he ruleth all things by reason and insight."†

Xenophanes considered that it was idolatrous to believe in a multiplicity of ultimate elements just as much as in a multiplicity of gods. All laws, whether civil or natural, he regarded as forms of one universal relation, or, in other terms, he conceived the universe as governed, not by a person, but by principle, which is the highest conception of righteousness and power.

* Simpl. Arist., fol. 6. a. † Clem. Alex., Strom., V. 601. C.

PARMENIDES

Plato says more than once that Socrates, when a boy at Athens, came under the influence of Parmenides. This renowned sage belonged to a powerful family of Elea. His early life was wasted in dissipation. Not until his friends, Aminias and Diochaetes, persuaded him to join the Pythagoreans did he embrace philosophy.

Parmenides taught that to perceive truth we must rely on reason alone, trusting not to the senses, which lead to variable opinion. The division of perception into the elements of sentiency and thought at so early a period is of historic interest as foreshadowing the now familiar doctrine of innate ideas.

Like Xenophanes, Parmenides advocated the doctrine of the eternity and the infinity of God, which he conceived, not as a person, but as the ultimate reality. Being, he contended, fills space, while the fullness of all being is thought or mental force. Non-being can not be, because nothing can come of nothing. He regarded the senses as the cause of error, for, as he said, they reflect plurality and mutability, obliging us to follow many impressions, concealing the *One*, the divine truth in its reality.

To Parmenides is ascribed a treatise entitled "Nature," divided into two principal parts. The first dealt with truth disclosed by the reason which he regarded as absolute. The second attempted to explain the difference between facts disclosed by the reason and those reached through the senses. Here we have one of the earliest instances of formal idealism, or the theory of absolute ideas. This theory was afterward developed by Plato, and in modern times has been revived by the Transcendentalists. The question of the origin of ideas

or of the relation of sense to intellect will receive attention in the second division of the present work, which is devoted to psychology.

Both Aristotle and Plato regarded Parmenides as the greatest of the Eleatic philosophers.* So wise and salutary did his code of laws prove to be that his fellow citizens yearly renewed a vow to abide by them.

Considering how incomplete were their investigations of nature, the intuitions of the ancients were wonderful. So familiar to us are the disclosures of modern science that it is with difficulty that we realize how desolate the mind was when without them. Parmenides held that man originated in the lowest organic substance or in "terrestrial slime," and that his development has been an evolution of nature. He contended and with justice, that thought is a form of physical organization. In his opinion the generation of the greatest activity or heat in the body was connected with the highest reason.† The modern scientific definition of mind, as "that part of the sensorium capable of the greatest molecular activity," is in accord with these intuitions.

The chief tenet of Parmenides was that we should not trust the senses but must rely upon reason alone. This theory, afterward exaggerated by the idealists of the Platonic school, did not prevent Parmenides from perceiving the organic nature of the intellect. He held that thought is composite, or made up of co-operating parts, reducible by analysis to the simplest organic reactions, a theory admirably expressed in his great dictum, "Such as to every man is the nature of his many jointed limbs, such also is the intelligence of each man; for it is the nature of limbs (organization) which

* Plat. *Theat.*, page 183, Arist., *Met.* I, 5. † Diog. Laert. IX, 3. 4.

thinketh in men, both in one and all. . . . The highest degree of organization gives the highest degree of thought.”* An advanced psychological theory as viewed even from this century.

Parmenides explained the plurality of existence as a mere appearance. He agreed with Xenophanes that the unity of all phenomena, including mind, is a necessary inference from universal unity.

The capital error of Parmenides was that he defined the ultimate reality as *unmoved* and *unchanging*; whereas being can be reduced by analysis to motion or change.

ZENO OF ELEA

Zeno,† who was the pupil and adopted son of Parmenides, did not essay such sublime heights as did his master, but by means of paradoxes, penetrated farther into the constitution of being. He silenced the critics of Parmenides by demonstrating the impossibility of reducing nature to absolute number and quantity.

There are two theories of the universe. One views existence as an ultimate duality, the other as an ultimate unity. The former is the theory that mind and matter are absolutely distinct, the latter postulates their unity. Ontology began by attempting to measure and count existence, which resulted in the discovery that number and quantity are merely other names for time and space, the opposite aspects of motion.

To count is to establish relations of time or sequence. To measure is to establish relations of space or co-existence. Number and quantity therefore are the subjective and the objective aspects of the ultimate reality or unity.

* Arist., *Met.* III, 5.

† Not Zeno the Stoic.

All theories of an ultimate duality can be reduced to the relative distinction between time and space, the subjective and the objective aspects of motion.

Although inheriting social as well as political power, Zeno manifested early in life a disdain for rank and office, preferring the seclusion necessary to thought. Some accounts charge him with misanthropy, but it was the corruption in public office that repelled him. "If the blame of my fellow-citizens," said he, "did not cause me pain, their approbation would give me no pleasure."

The death by torture of this patriot, for complicity in the conspiracy against the tyrant of Elea, is still held as among the highest examples of civic devotion.

Zeno was the first of the Eleatics to write in prose and to employ dialogue as a method of instruction. Credited by Aristotle with the invention of dialectics, and classed among the Sophists on account of the subtlety of his arguments, he was esteemed the greatest of Pre-Socratic thinkers. Believing in the unity of mind and nature, he taught that all phenomena, whether spiritual or material, were forms of one ultimate relation. The data necessary to complete this generalization were lacking, but Zeno maintained it as a necessary conclusion, the contrary being inconceivable. Had he known that number and quantity are relative, he might have successfully combated the idea of an ultimate plurality of being. He postulated the infinite divisibility of space, but neglected the correlative theory of the infinite divisibility of time, afterward propounded by Aristotle. Time and space are alike infinitely divisible because continuous. Through their continuity they can be recognized as aspects of motion.

By means of his paradoxes Zeno supported the theory

of divine unity propounded by his master, Parmenides. These famous paradoxes gave a powerful impetus to the discussion of the problem of motion.

His argument against the possibility of one body passing another in space, as presented in the imaginary race between Achilles and the tortoise, was until recent times considered unanswerable.* The difficulty of this problem arises from the neglect of the time consumed in the progress of the race. It is true that the initial space between the contestants can be indefinitely divided, but where is the time to be had for this endless process? Refusing to wait for infinite subdivisions of the intervening space the swifter of foot moves in triumph past his opponent.

Zeno believed that motion exists only in appearance. He contended that every object filling a space equal to its size is at any given moment at rest in that space, as an arrow flying through the air is at each moment at rest in each successive space occupied.† This theory is disposed of by the discovery that there is no absolute rest. Of course space is here reduced to its most minute particles, and therefore Zeno concluded that motion is not, but is only an appearance or a number of spaces in which the object is momentarily at rest.

If it be assumed that matter and space are **one**, the question of motion is simplified. What Zeno tried to prove was that a body in motion never moves away from the position that it occupies, which is equivalent to saying that a thing cannot move away from itself, a postulate so sensible, that we do not wonder at the force with which it struck the ancients. If matter and space are one, the motion of an object is in a sense the object

* "Bayle's Dictionary of the Sciences." † Diog. Laert. IX, 5, 8.

itself. There is no hard and fast line between its substance and its extension nor between its molecular and its molar action. There is no essence more real than activity, which implies substance as well as extension. It is through their activity that all things have their being.

Since mental action is indissolubly connected with nature, that is to say, since it is the function of an organism, it is for the most part unconscious. The conditions of thought can be recognized in every living being, for they are a form of the adjustment of organism and environment. The bee is a practical geometrician. Although without language, and therefore incapable of making extended generalizations, it displays the instinct of calculation, or the faculty of adjusting means to an end. For want of words its thoughts and actions are indistinguishable; they are alike an expression of the necessities of its existence. In the construction of its cell the bee employs the best angle for saving space and securing strength, because it has inherited a nervous structure embodying the habits of its race. The employment of this best adapted angle may be viewed either as an instance of the Darwinian theory of the "survival of the fittest" or of Spencer's theory of the "direct adaptation of organism and environment." From the point of view of either theory, however, it is undeniable that the actions of the bee are determined by the necessities of its existence which have become latent in its structure. The formation of the proper angle for its cell is the logical expression of its molecular and mechanical constitution. As Parmenides said, "It is the nature of limbs (organization) that thinketh in men, both in one and all."

Thus it is evident that there is no absolute difference between intelligence and other forms of action. Organic action produces our reasoning faculties, our appreciation of truth. So deeply practical is intelligence that it is now conceded that the only justification of thought is the illumination of conduct. The degree of complexity in structure is the only difference between gravitation and reason.

What surprises us in Zeno is the facility with which he followed out the intricacies of introspection. Such distinctions as he made were possible only in a community familiar with all the artifices of dialectical argument. His reasoning is so profound that it will always confuse those who have not discerned the organic nature of mind.

HERACLITUS

Heraclitus, so widely known as "the weeping philosopher," is coupled in fable with Democritus, to whom the follies of mankind were an unfailing source of amusement:—

"One pitied, one condemned the woeful times;
One laughed at follies, and one wept o'er crimes."

These characterizations, although conceded to be mythical, are not without foundation in fact.

Heraclitus was born at Ephesus about 503 B. C. Melancholy and haughty of temperament, he held in contempt the ordinary pursuits of men. The legend that he was too proud to accept the office tendered by his native city, ascribes his refusal to an aversion for the society of politicians.

The following letter to Darius, in reply to an invitation to visit the Persian Court, throws light upon the character of the Philosopher:

"Heraclitus of Ephesus to the King Darius, Son of Hystaspes, health:

"All men are far removed from truth and justice. They are given to folly which leads them to covetousness and vain ambition. I, however, forgetting all their unworthiness, shunning satiety and wishing to avoid envy and all appearance of arrogance, can never go to Persia. Content with a little, all my desires are gratified."*

In opposition to the mathematical school, which held that reason is the origin of truth, and that the senses are the source of all uncertainties, Heraclitus taught that we imbibe all knowledge through the organs of sense. Only the ill-educated sense gives false impressions.

With Heraclitus, as well as with Parmenides, the question was the origin of truth or reality. From remotest antiquity thinkers upon this subject are divided under two sects, those who, with Parmenides, lean toward idealism, or the theory that mind is the source of truth, and those who hold with Heraclitus, that all knowledge is derived through the senses or from nature.

The nature of mind can be discerned only through the identification of subject and object. From these opposite points of view are evolved the opposite aspects of general existence known as time and space.

In ancient Greece the questions of ontology were debated substantially as at the present time, excepting that the ancients were perforce more original than we are. They did not find every variety of metaphysical opinion ready-made at hand. Such a redundancy of exploited theories makes the modern metaphysician seem a delver in an exhausted soil. Nor can we complain of this opinion concerning metaphysicians

* Diog. Laert. Bk. IX. Life of Heraclitus.

when we consider that the current understanding of consciousness at the present time shows no appreciable advance beyond that of the Aristotelian epoch. Some modern writers hold with Herbert Spencer that metaphysics is an effete science. These very writers, however, are compelled to take up the question of the relation of subject and object as the only means of solving the problem of mind.

By reducing both mind and matter to the "persistence of force," Spencer identified subject and object with nature. But because he failed to identify the "persistence of force" with motion he was driven to the conclusion that time and space, which are the subjective and objective aspects of motion, are inconceivable or unknowable.

Reasoning intuitively that heat is a form of motion, Heraclitus conceived the human mind, as a portion of that universal energy which he called the soul. It was, therefore, an emanation of infinite reason or of fire. The individual, being only a part of the whole, must necessarily be imperfect and transient. Hence the aggregate called Society approaches nearer to the truth, just as many parts approach nearer to the whole than one part. The intelligence of society which is higher than that of the individual finds expression in that organic growth called language, which is the first condition of civilization.

To Heraclitus fire or heat was God, or the One from which all things emanate and to which all finally return. Life he conceived as a constant change, all things following one another in a perpetual flux and reflux; the quicker and fuller the motion the higher and fuller the form of existence.

Thus it appears that Heraclitus, as well as other Pre-Socratic thinkers, conceived both life and knowledge as forms of motion. In their opinion the infinite and eternal energy tends toward an end which they viewed as a transition. This vital energy or ceaseless change they interpreted as phenomena, and they consequently denied that there is absolute rest. Since the harmony of the world is evolved from its ever-conflicting impulses, they regarded consciousness itself as a system of highly co-ordinated changes. It is scarcely necessary to say that these conclusions are in harmony with the results of the latest psychological research.

EMPEDOCLES

Empedocles, a native of Agrigentum in Sicily, belonged to the fifth century, B. C., during which his native city rose to splendor as the rival of Syracuse. A member of the governing class, he further increased his influence by espousing the cause of the people. His father, Meton, had been leader of the Agrigentum democracy. The son, however, inclining more to religion than to politics, became famous as a prophet, a physician and a worker of miracles. So great was his love of distinction that he permitted a belief in his divinity. Arrayed in gorgeous robes, with golden girdle and the Delphic crown, he surrounded himself with a train of courtly attendants. Some of his biographers calmly assert that he controlled the winds and could call the dead to life. It can be discerned, even through the glamour of fable, that he possessed a profound knowledge of nature, and that he was disinterested and generous. He declined the government of Agrigentum, when tendered by the citizens, and it is said that he employed his wealth in

bestowing dowries upon young girls so that they might marry men of rank.

The mystic theology of Empedocles is allied to the Orphic-Pythagorean doctrines. Alcidas called him a disciple of Parmenides. Like Leucippus, he explained genesis as a combination, and decay as a separation, of the elements foreshadowing the atomic theory of the universe. The primordial substances he conceived as related elements, qualitatively distinct and quantitatively divisible.

In his didactic poem "On Nature," Empedocles posits as the origin of all things the four elements, earth, water, air, and fire, to which he adds love and hate as respectively the uniting and separating forces. In his opinion, therefore, the formative periods of nature could be simulated by a conflict of emotions.

To present the operations of nature in terms of emotion is to follow to its logical consequence the theory of idealism. Any theory that represents individual sentiment or thought as universal is a species of idealism, for it disregards the limits of organic life, or, in other terms, it attempts the impossibility of transcending nature.

DEMOCRITUS

The atomic theory founded by Leucippus, a contemporary of Empedocles, is still the faith of the scientific world. The modern chemist speaks of absolute atoms with ingenuous confidence. His science is founded on the relations of substances, but he forgets that all substances are relative. Oblivious that structure and function are only other words for quantity and quality, he insists that the latter are absolute. A plurality of

immutable (or absolute) substances cannot be reconciled with the principle of evolution or of universal change.

Democritus, who was a contemporary of Plato and a pupil of Leucippus, first applied the atomic theory to natural science by postulating an ultimate plurality, or a variety of unchangeable substances. This theory implies that matter is composed of unchangeable particles, having an absolute void in which to move. The modern physicist is convinced that there is no absolute vacuum, and that, since matter is a form of motion, there is no absolute rest. It is true that the chemical elements have not been as yet fully correlated, but all competent authorities are now convinced that they are constant types of energy or relatively fixed forms of motion.

By some historians Democritus is classed with the Ionians. Hegel refers to him as the successor of Heraclitus, while Ritter places him with the Sophists. The attempt of this great thinker to apply the atomic theory of the universe to the natural science of his time is not to be judged by modern standards. How could he have formed a conception of nature such as is possible to us who are able to generalize all phenomena, cosmical and social, recognizing even mind and duty as forms of motion? How could Democritus have known that light and radiant heat are different aspects of one energy; that the ray of light reaching us from the farthest star is not a fluid passing from space to space, but a definite agitation of infinite extension, proving that the difference between resistance and non-resistance, or between matter and space, is only relative? How could he have known that all words signifying unlimited, such as infinite, co-existence, extension, or matter considered

apart from force, are simply outgrowths of the conception of space, meaning nothing more than is implied in the objective aspect of motion? Or, how could he have known that all words meaning unconditioned, such as absolute, sequence (or force considered apart from matter), are conceptions of time, and that they signify nothing more than is given in the subjective aspect of motion.

This deepest of truths, the idea of three in one, or of existence viewed from its subjective and its objective aspects, was dimly present in the minds of the earliest thinkers. All cosmologies as well as all theologies present more or less distinctly this fundamental truth. It is the unification of knowledge, or the co-ordination of time and space as terms of the ultimate relation.

Democritus declared that being consists of an infinite number of minute invisible bodies moving in the void. These were the primary elements, all production being caused by a change of relation among them. Non-being, or an absolute void, he maintained, is a necessary environment of these ultimate particles, for, absolute in size, they must occupy absolute space. Motion he accepted as something eternal but did not attempt to explain it. He said that atoms exist because they are indivisible. All nature consists of atoms and the void.*

Although impossible to sustain, this theory of Democritus was indeed profound. He assumed that every substance perceptible to the senses is divisible, changeable and of determinate quality. In his opinion, magnitude directly involves weight, for weight belongs to every mass. According to his theory, therefore, matter being homogeneous, weight must belong equally to all

* Simpl. Phys. 1. 2. 5. r. Simpl. Phys. III, 4. 106. v.

bodies. That is to say, all bodies of the same mass are of the same weight.

Briefly stated, the theory of Democritus is that the weight of particular bodies is exclusively conditioned by their masses and corresponds entirely therewith. When a large body appears to be lighter than a smaller one, it is because it contains more empty space, and therefore is really less in mass than the other. Thus, according to Democritus, atoms have weight, and an equal specific weight; for they must differ in magnitude in the same ratio as in weight.

It is difficult to perceive what progress the modern physicist, who postulates absolute quantity and quality, has made beyond this belief of Democritus.

The theory of ultimate particles of absolute size differs from that of evolution in the same manner that the arithmetical differs from the geometrical method of measurement. The first exact notions of quantity were founded on the consideration of number, because concrete quantities are measured and calculated by the help of numbers, but number is discontinuous, whereas the geometrical method of measurement represents the continuity of Nature. Both spectrum and mental analysis prove that quantity and quality are not absolute but relative, or in other terms all structure and function are types of energy or forms of motion.

ANAXAGORAS

The age of Pericles had now dawned. Great commercial and military activity marked the approaching zenith of Athenian power. In ancient Greece the highest development of art and letters was reached just as the State began its decline. This brilliant period

was ushered in by a reign of doubt ensuing upon the efforts of the Pre-Socratic thinkers to solve the problems of existence. Philosophy, discouraged, had fallen into a profound skepticism from which, however, it was soon to be aroused by a new era of investigation.

Should the reader complain of the monotony of ontological inquiry, he will do well to recall how little the thinkers of only a generation ago expected from investigations into the nature of being. The application of the theory of evolution to the problem of existence now promises definite results; but it is only a generation since Lewes wrote: "Philosophy has ever been in movement, but the movement has been circular; and this fact is thrown into stronger relief by contrast with the linear progress of science. There is not a fact discovered but has its bearings upon the whole body of science; not a mechanical improvement in the construction of instruments but opens fresh sources of discovery. Onward and forever onward, mightier and forever mightier, rolls the wondrous tide of discovery, and the 'thoughts of men are widened by the process of the suns.' While the first principles of philosophy are to this day as much a matter of dispute as they were two thousand years ago, the first principles of science are securely established and form the guiding lights of European progress. Precisely the same questions are agitated in Germany at the present moment as were agitated in ancient Greece; and with no more certain methods of solving them, with no nearer hopes of ultimate success."*

The first period of Greek philosophy was brought to a close by Anaxagoras. After a long struggle against the

* See Introduction to his "History of Philosophy."

prejudices of the people, this teacher established at Athens a revival of the Ionian school of thought which he expounded as follows: "The Greeks are wrong regarding the beginning and end of things, for nothing comes into being or is destroyed but is formed in combination or through separation by existing forces. So that they might more rightly call the coming into existence 'becoming combined,' and the being destroyed 'becoming separate.'" This idea recalls Spencer's definition of evolution, "The progress from the simple, indefinite and homogeneous to the complex, definite and heterogeneous."

The *nous* of Anaxagoras is employed as the creative principle or ultimate fact of both mind and nature. The mistake which the critics of this system generally make is to imagine that this *nous* is similar to human intelligence. Anaxagoras meant by it the ultimate relation of which intelligence is only a form. He conceived the *nous* as the order of the universe, and identified it with universal change. The rarest and purest of all things, it was above the confusion of phenomena, its characteristics being singleness, power and life. Fate and chance he rejected as empty words.

Anaxagoras, who was named with distinction among the most ancient mathematicians and astronomers, devoted himself to science to the neglect of his property. A short time before the Peloponnesian war, he was accused by his enemies of impiety, and was tried and condemned to banishment. Far advanced in years, he retired to Lampsacus where, upon his death, which occurred about the time of the birth of Plato, the public authorities erected to his memory a sepulchre with the inscription:

“This tomb great Anaxagoras confines,
Whose mind explored the heavenly paths of truth.”*

Democritus, who was the chief advocate of the atomic theory, found in Anaxagoras an invincible opponent. An unfailing source of contention between these thinkers was the question of the constitution of bodies.

The ancient atomists reasoned that matter is composed of ultimate particles of unchangeable weight and extension. Twenty-five centuries later Boscovich, greatest among modern expounders of monadism, attributed to atoms unchanging weight and extension, but afterward, in order to avoid inconsistency, affirmed that each atom has of itself no extension or mass, but is a geometrical centre of force which is an acknowledgment that motion is ultimate.

An ultimate analysis demonstrates that force, which is a synonym of motion, implies both space and time. The difficulty with the atomists, ancient and modern, is that they endeavor to express the nature of substance in numerical instead of in geometrical terms, the former indicating discontinuous quantities, while the latter denote the continuity of nature.

* Diog. Laert., 11, 3, 10.

CHAPTER III

THE CLIMAX OF GREEK THOUGHT

The Sophists—Socrates—Plato

Among the greatest of ancient Greeks were Socrates, Plato and Aristotle. Just before their time a feeling of doubt gained possession of the Hellenic mind; that is to say, there was widespread dissatisfaction with the results of philosophy as then formulated. The leaders of this revolt were known as the Sophists. Their advent marked the decline, under the influence of skepticism, of the first schools of thought.

The supremacy attained by the Sophists as educators fills an interval of more than a century from the close of the Pre-Socratic era to the establishment of the great Athenian schools beginning with the Academy. The aim of the Sophists was to promote liberal education. Neglecting philosophy and the arts, they prepared the student for public life, the career of the Athenian citizen being always civic. The instruction given by these teachers, therefore, dealt principally with politics, including controversial rhetoric and oratory.

Even the greatest of the Sophists failed to revive the declining interest in metaphysics. Protagoras, Gorgias and Isocrates contributed little to the solution of

the fundamental questions of existence, and even Socrates, although his theories were sublime in an ethical sense, remained silent as to the nature of being. The metaphysical speculations of the Sophists consisted chiefly of a comparison of the various schools of thought made with the hope of harmonizing them, a method afterwards known as Eclecticism. Thus Greece awaited the genius of Plato, and of Aristotle, to restore to ontology its rightful sway.

Protagoras, the most accomplished of the Sophists, was born at Abdera early in the Fifth Century B. C. He insisted that thought was derived from, and limited by, sensation, which, being relative, is imperfect. The effect of this doctrine upon Protagoras was outright skepticism.* His dictum, "Each man is the measure of all things," implied that there was no criterion of truth, all knowledge consisting, according to his view, of unverifiable opinion.

"Matter," said Protagoras, "is in a state of perpetual flux, of accretion and loss, and the senses are also constantly changing, both according to age and health. The inward nature of all phenomena is inherent in matter. Whatever matter may be in itself, it is to each man only what it appears. For men have at different times different perceptions, according to the changes in their conditions. The man who is in a healthy state perceives those things in nature which can be perceived in a healthy state; those who are in bad health perceive those things which can be perceived in an unhealthy condition. And in regard to the aged, and whether asleep or awake, the same fact holds true. Therefore, it re-

* Diog. Laert. IX., 51.

sults from this, that man is the criterion of things which exist, for all things which are perceived by man exist, and the things which are perceived by no man do not exist.”*

We shall not readily find a more definite version of idealism than this theory of Protagoras. How appalling is the doctrine that existence in general is only a consequence of individual perception. Yet in deriving thought from sensation, Protagoras foreshadowed the greatest achievement of modern psychology, namely, the demonstration of the physical basis of mind. This demonstration leads to the conclusion that mind is a form of motion.

The speech of Callicles in Plato's *Gorgias* shows what a poor opinion the Sophists had of philosophy.

“Philosophy,” says Callicles, “is an elegant accomplishment if one pursues it moderately and at the proper age; but if one continues it longer it is ruin. Even if a man has good powers, be he ever so highly gifted, still, if he philosophize to an advanced period of life, it is impossible for him to be versed in those accomplishments which every gentleman, every man of consideration, should possess. He remains inexperienced in the laws of the state and in the language which ought to be used in the dealings of men with men, whether private or public, and utterly ignorant of worldly pleasures and devices, and of human character in general. And people of this sort, when they betake themselves to politics or business, are as ridiculous as I suppose men of the world are when they are admitted to your reunions or the discussions which there take place. The true principle is, I think, to unite them. It is good to have just such a tincture of philosophy as may serve the ends of a liberal training, and it is, therefore, no discredit to a young man to philosophize; but, when one is more advanced in years the thing be-

* Sect. Emp. Pyrrhon Hopy., i., 32. (211-219.)

comes ridiculous. * * * And if he continue the study in later life, I think he ought to be flogged."

Although failing to develop the full meaning of skepticism, the Sophists were deeply influenced by the doctrine. Having lost faith in the power of man to comprehend nature, they centered their attention on the problems of practical life.

The Skeptics, as well as the Sophists, were convinced of the unreliability of all knowledge, but the former developed the doctrine of skepticism to its full significance, while the latter turned from abstract speculation to practical education.

Plato represents Protagoras as arguing that the wise man is the physician of the soul. Since all thoughts have the same measure of truth, he cannot, indeed, induct truer thoughts into the mind, but he can induct better and more profitable ones. "Thus he may heal the soul not merely of individuals but also of states, since by the power of oratory he may introduce good and useful sentiments and opinions in the place of the base and the harmful."*

With so much bitterness were the Sophists attacked by Plato and his followers, that in modern times defenders, such as Grote and Lewes, have come to their rescue. The criticisms made by Socrates,† however, were free from the party spirit characterizing the attacks of the Platonists.

By the practice of their profession the Sophists acquired both wealth and influence. The grievance of Plato against them was that they sought knowledge, not for its own sake, but as a matter of expediency, and

* Theaet., 167.

† See Xenophon.

hence were not to be regarded as philosophers. Plato believed that thought was the chief end of life. He opposed the Sophistical doctrine of expediency because he considered ideas as the chief object of worship. The question arises whether ideas are to be venerated for their own sake, or only as a means to an end. The reply to this question is the axiom that "the only justification of thought is the illumination of conduct."

According to their adversaries, the Sophists held that the criterion of right is personal good. They were charged with carrying this rule of expediency to such extremes as to make all law and justice yield to individual interest. The adversaries of the Sophists, however, overlooked the fact that in the last analysis private and public rights are one, because conventions or laws are the function of necessary conditions. In other words, if we take a wide view of life individual interests become merged with those of humanity.

Under the training of the Sophists, disputation became an important art. Moved by their own eloquence they doubtless occasionally made the worse cause appear the better; but to say that much of the immorality of the time was attributable to their teachings is beyond reason.

In Greece at this time, undeniably, egotism reigned supreme. State trampled upon state. Having lost all respect for law, the people were not slow in violating private as well as public rights. The litigious nature of the Greeks, their excessive love of law-suits, led them to place the highest value upon oratory. Skill in argument became a necessity, for the citizen had to appear before the tribunals of justice to plead his own cause. The art of disputation thus became the stepping-stone to

all manner of advancement. There is no doubt of our indebtedness to the Sophists. As Lewes says, they proved that if forensic oratory does at times make the worse cause appear the better, it also has the power of showing the good in all its strength.

SOCRATES

No more impressive event is recorded in history than the trial and death of Socrates. Born about 470 B. C., this teacher was identified with the most illustrious period of Hellenic development. The impairment of manhood and patriotism marking the decline of the Athenian power seemed to call him into being.

Modern psychology proves that thought is an activity, not wholly of the individual but also of society. We live in an atmosphere of language charged with thought. Prophecy is the intelligence of society reflected in some individual. In the case of moralists or prophets, such as Socrates, that which enraptures others is not a supernatural power of divination, but the command of truth expressed in their lives. Their powers of prediction are wholly natural. Living in harmony with their environment, they perceive intuitively the underlying principles of existence, and apply them to the future. Feeling and thinking more deeply than others, they have a wider view of destiny.

We can judge the future only by the past. Our most reliable conjecture is the voice of experience. What, then, may be said of prophecy contradicting all experience? To be rational, language must voice possibilities, because every thought is subordinate to the broad generalization that life is the individual form of a universal

principle without beginning or end. To be individualized this principle must be organized.

The science of organic life known as Biology is gradually leading us to the conclusion that since organism implies limits, there can be no limitless personal existence. Individual life is a span reaching from birth to death. To add another life is to provide another birth and complete it with another death. Under the title of the self-contradictory, therefore, must fall all prophecies of an unlimited personality, because they ignore the conditions of life. Immortality, or continuous life, is a chain composed of individual links. It is the race passing through its generations. To become a moral aspiration the hope of immortality must conform to divine laws as expressed in the conditions of individuality.

Plato's account of the faith of Socrates constitutes one of the earliest attempts to establish a philosophical basis for the belief in immortality or in an unconditioned existence. All civilized nations, as well as almost all savages, believe in a limitless individual life. This faith is held by almost all systems of religion and of thought. The purification of language, resulting from an increased definiteness in the use of general terms, subjects this faith to a higher and higher discipline. Since it has been discovered that individuality is only another name for organism, that is to say that psychical and physical life are inseparable, both being the function of a limiting membrane, the theory of personal immortality is becoming less and less tenable.

Closely allied to the theory of a limitless personal futurity is that of a design in nature, known as the doc-

trine of teleology or a providential shaping of ends. These beliefs, logically inseparable, were entertained by the great moralist of ancient Greece, as represented in the Platonic dialogues.

If it is true that we must die, may not a knowledge of the fact prove beneficial? There can be no higher virtue than courage, no more sublime trait of character than the grace of calmly meeting the inevitable. Nothing can so refine the sympathies as a comprehension of the limits of personality. An appreciation of the boundaries of individual life gives to opportunity a higher value; to duty a deeper meaning.

Why should not the tragedy of the cross which has so long inspired us receive its true interpretation? The essence of salvation is not to die but to *live* for others, for that is the only way open to all of giving our lives for our fellow men.

Social organization is as yet too feeble to allow the masses to recognize the limitations of individuality. The great majority of thinking beings instinctively avoid this question because it is so much easier to hope for another life than to make the one we have sublime.

The hope of personal immortality is the unenlightened instinct of self-preservation. To enlighten this instinct is to reveal the highest meaning of duty, for righteousness signifies self-preservation, providing, always, the term self is enlarged until it embraces humanity. If the highest meaning of good is the welfare of the race, an enlightened and a righteous hope of immortality will find its realization in the future of humanity. There is no greater unselfishness than submission to divine laws. There can be no higher religion than trust in the order of nature.

As represented in the Platonic dialogues, therefore, Socrates was the first great thinker to give to the belief in immortality a systematic basis.* The arguments thus adduced in support of a future life and an over-ruling Providence still inspire writers on natural theology. These arguments center in the principle that righteousness is the will of an infinite ruling power. The highest interpretation of the Platonic theory of immortality is that all human beings partake of eternal life to the extent of their obedience to an over-ruling Providence. But, according to Plato, divinity is the order of nature, and justice is a form of this universal harmony. Hence righteousness is obedience to the infinite and the eternal life, which, however, according to Plato, is a principle, not a person; a method of action, not an individual.

In the mind of Socrates devout ideas were constantly uppermost. "Do you not recognize," said he, "the fact that the oldest and wisest of human communities both of cities and nations, are the most God-worshipping, and that men at the most reflective period of their lives are the most religious?"† "Consider, too, my friend," he continued, "that your soul, existing within your body, orders the latter according to its own will; so that you are bound to believe that the intelligence which subsists in each object directs that object agreeably to itself, and you must not imagine that while your vision is capable of ranging over a distance of many furlongs, the eye of the Deity is unable to survey the universe at a glance.

* There are grave doubts that the real Socrates believed in the immortality of the soul.

† Xenophon Mem., Bk. I., ch. 4, sec. 16.

You may thus recognize the fact that the nature of the Deity is so stupendously constituted as to be able to see all things, and to be present everywhere, and to take cognizance of everything at the same time."

The aim of Socrates was the enlightenment of youth. He saw that intellectual progress depended chiefly upon the rising generation, because of its freedom from prejudice. In his opinion there was more honor in making wise and virtuous citizens than in obtaining for one's self even the greatest political power. Although willing to help others to acquire knowledge, he held that the learner must conquer the truth for himself. The key to his philosophy was the injunction of the Delphic God, "know thyself." Although counted among the Sophists, he strenuously opposed their tenet that there is no reliable knowledge, no criterion of truth.

By insisting upon clear definitions, Socrates did much toward establishing a true psychology. It was in this manner that he laid the foundations of that logical science afterward so highly developed by Aristotle. One cannot proceed to any great lengths in reasoning without the aid of naming or classification. Socrates' method was to require his pupils to classify principles. Thus he was not only a logician, but a moralist, for he ever sought to establish clearer conceptions of duty. Some of his biographers assert that he produced a revolution in thought, initiated the inductive method, and founded Greek Philosophy. Although one of the subtlest of disputants, he was not a metaphysician. Philosophy had not as yet acquired a vocabulary capable of isolating metaphysics. Such a rigorous isolation as Socrates would have demanded was at

that time out of the question. Selecting for his topics the experiences of daily life, he explained with great distinctness the motives of conduct. If he failed to distinguish the human from the divine, he at least saw that virtue means human life, or in other words, that justice is the social aspect of universal order. This truth he demonstrated by identifying virtue with knowledge.

Socrates refused to exchange the world of facts for that of words. To this extent he avoided the entanglements of the metaphysicians. It is true that he failed to grasp the interdependence of mind and matter in the fullness with which it can be understood to-day, for the discovery of this identity of function and structure is the greatest result of modern science. On the contrary, recognizing change as the rule of nature, he vainly sought for an unchanging existence, or for "the immutable one." He never declared, however, that the immutable one was an inherent quality of ideas rather than of objects. This unwarranted assumption was made by his disciple, Plato, who built upon it a system from which modern idealism has sprung.

PLATO

The metaphysic of Plato is an attempt to define an "unchanging existence" or a "divine essence" more real than nature.

The Pre-Socratic thinkers had already indicated a center of reality, a point where all analysis ends and all synthesis begins. From the theory of Parmenides, which demarcated the perception of the senses from that of the reason, Plato evolved a theory of "an unchanging existence," which he called ideas.

The prevalent notion concerning Plato is that he was visionary. Although it is undeniable that the theory of absolute subjectivity presides over all his writings, we will look in vain for a more rigorous logician, or a more devoted student of the mind.

In expounding the thought of Socrates, Plato dealt with both psychological and ethical problems, but ever in that mystical vein which provoked from Aristotle in reply, the *Ethics* and the *Politics*.

Plato was born at Ægina (429 B. C.) during the Peloponnesian war, and about the time of the death of Pericles. The Greeks held that body and mind should be developed together. The education of Plato embraced athletics as well as dialectics. In early youth he was instructed in music and poetry, but at the age of twenty, becoming acquainted with Socrates, everything was abandoned for the profounder problems of the mind.

This remarkable scholar was much given to the contemplation of nature. Skepticism, that fever of the age, was not without effect upon him, but there came with doubt the craving for belief. Under the guidance of his beloved master, the life-long quest for truth was begun.

At the trial of Socrates, Plato sought to defend the accused before the court. Failing in this he offered a sum sufficient to redeem the life of his friend, but Socrates disdained to evade the process of the law.

The resort of Plato and his pupils was a public garden called the *Academia*,* in the neighborhood of Athens. Here the ideas were promulgated which still

* Diog. Laert. III., 1, 5.

obtain at almost every seat of learning in Christendom. It will be of interest, therefore, to discover the subtle error underlying the reasoning of this greatest of ancient dialecticians.

The story so widely circulated that there was an inscription over the door of the academy, "Let none but Geometricians enter here," is supposed to have originated in the purely argumentative nature of the discourses. Objections have been made to the authenticity of this story on the ground that Plato regarded mathematics as distinct from philosophy, although it is well known that he used mathematics in philosophy. Plato made no attempt, however, to harmonize poetry with abstract thought. Poets he held to be inspired mad men, not responsible for the truth that fell from their lips.*

During a long life of thought, changes of opinion are inevitable. Some writers maintain that in his old age Plato rejected the greatest idea of Socrates, which was the identification of virtue and knowledge, and of vice and ignorance.

Like Socrates, Plato remained in doubt concerning the certainty of knowledge. His life was devoted to the search for the ultimate truth, but without professing to have found it.

Socrates relied on the inductive method, and on definitions, but these did not satisfy Plato, who found it necessary to go still further and to insist upon analysis as a philosophic process. It was impossible to understand the whole without first understanding the parts, or, as he expressed it, "seeing the one in the many."†

Long before the time of Plato, the idea had become

* Phaedrus, 245. † Phileas in Parmenides, 137 and following.

prevalent that sense-perception is unreliable, because its object is the changeable, or phenomena. Heraclitus had already taught that reality signifies change, which can only mean that the cause sought as the underlying fact of being is motion.* In "transitory phenomena" Plato did not perceive true existence, but only its image. He held, and with justice, that to know "real existence" one must seek unity in variety, or the one in the many.

During the summer of 1881, I visited, at Concord, Massachusetts, a School of Philosophy, founded upon the principles of Transcendentalism. The first lecture attended was upon the idealism of Plato, and it was given in the tone of a disciple of that master. One of the illustrations used, as a presentation of the Platonic reasoning, was that "the St. Louis Bridge is not in reality the structure that spans the Mississippi; the real bridge is the idea of the structure existing in the mind of the engineer."

Here is Plato's answer to Diogenes, who thought he could demolish the theory of idealism by saying, "I see indeed a table, but I see no idea of a table." Plato replied, "because you see with your eyes and not with your reason."† Twenty-four centuries after this reply was made, the followers of Plato still insist that the perception of the senses is unreal, the only reality being the perception of the reason.

Plato and his modern disciples agree that phenomena, the changing or the unreal, is perceived by the senses, and that noumena, the unchanging or the real, is perceived by the reason.

Plato often asserts that human knowledge is neces-

* Heraclitus. † Diog. Laert. VI., 2, 6.

sarily imperfect: "Sensation troubles the intellectual eye; only when the soul is free from the hindrances of the body shall we be able to discern things in all the ineffable splendor of truth."* It is undeniable that the "ineffable splendor of truth" is far to seek, and that its appreciation requires education of the emotions as well as of the reason. The fact remains, however, that perception depends upon an organism; that is to say, upon the adjustment of the individual and its environment. Reason is a development of sense, the perception of the senses being the means to an intellectual end. There is no absolute separation of sentiency and thought, or of the physical and the spiritual, both being forms of motion.

The idealism inaugurated by Plato, and long afterward revived by the transcendentalists, rests upon the postulate that there are two absolutely different kinds of perception; namely, that of reason, and that of sense; the product of the former being noumena, ideas, or reality, and of the latter phenomena, objects, or change.

In Part II. of the present work, which is devoted to Psychology, the proposition that reason is a development of sense will be proven. For the present we have to deal with the dialectical aspects of the question, and, therefore, to depend upon the demonstrated significance of universal terms. If the ultimate reality is motion or change, how can phenomena, which are continually changing, prove less real than noumena, a term used to denote unchanging existence? Where shall we find unchanging existence? The idealist regards reality and change as opposite in meaning, a distinction which

* Phaedo 66 fol.

illuminates the whole question, for an ultimate analysis teaches that change and reality mean the same thing.

There is another theory held by Plato, namely, that ideas are real while objects are unreal. Aristotle says: "Plato followed Socrates respecting definitions, but, accustomed, as he was, to inquiries into universals, he supposed that definitions should be those of intelligibles (*i. e.*, noumena), rather than of sensibles (*i. e.*, phenomena): for it is impossible to give a general definition to sensible objects which are always changing. Those intelligible essences he called ideas, and received from them their names; for it is in consequence of their participation in ideas that all objects of the same genus receive the same name as the ideas."*

It is with reluctance that I make this quotation, for although one of the clearest of all the interpretations of Platonic idealism, it has about it that fatal mist which has enshrouded so many powerful minds. Here is the mystical fog in which so many great thinkers have been lost. It is in their efforts to escape that they have made enduring fame.

To repeat: "Definitions should be those of intelligibles (*i. e.*, noumena) rather than of sensibles (*i. e.*, phenomena), for it is impossible to give a general definition to sensible objects, which are always changing." Intelligibles which are afterward identified with ideas have unchanging existence (*i. e.*, are noumena), and sensibles afterward identified with objects have changing existence (*i. e.*, are phenomena). The object of Plato was to prove that intelligibles, ideas, unchanging existence, noumena,—which are terms now identified as having the

* Arist., Met. 1, 6.

same ultimate meaning—represent reality; and that sensibles, objects, changing existence, phenomena,—terms also identified as having the same meaning,—represent the phantasmal or the unreal. This points out Plato's central theory, of the truth of which we are now able to judge, namely, that unchanging means real, and that changing means unreal.

Minds trained in the idealistic school find it difficult to realize that the central fact of the universe is change. Plato never wearied in the search for the "One among the multiplicity of phenomena." He declared it to be the "essence of matter." He also sought the "One among the multiplicity of ideas," and declared this unity to be God. Like all idealists, he insisted upon an absolute separation of ideas from phenomena, as though mental life were not a phase of universal activity.

Thus, Plato ever sought the "divine unity of existence," and at the same time ever denied it, but, if this fundamental error of his system can be overlooked, a fair inference from his thought would be that God is the one being comprising within Himself all existence, the "cause of all things spiritual as well as physical." What better expression could there be of the unity of mind and nature?

Platonists, however, insist that God is the supreme idea or ego, and that ideas are real, but that phenomena are unreal. Would it not be more reasonable to acknowledge that mind, functioning in thought and language, is an expression of nature and, therefore, no more nor less real than any other existence? Are not natural forces infinite, and is not the infinite power divine?

Plato held that intelligence was another name for God; that in this world of changing phenomena evil dwells. To overcome this evil we must lead the life of the gods. What is the life of the gods? Every Platonist will tell you that it is the life of the eternal contemplation of truths, or *ideas*. According to Plato, therefore, man must find his salvation in thought, whereas evolution teaches that the salvation of man does not lie in thought, but in its embodiment in action.

A glance at the Psychology of Plato will afford a still clearer view of his theories, and of their divergence from what, in our time, is considered as scientific conclusion. According to Plato, the soul is a self-subsisting essence, the principle of all motion in the universe. It always has been and always will be. It does not depend for its existence upon union with the body. It existed before such union, and shall exist after the separation. Plato taught that everywhere the soul is the moving force. Intelligent beings have a soul moving them from within, while unconscious nature is moved from without. The soul cannot be produced, neither can it decay, else all motion would eventually cease.

A broad view of biology leads to the conclusion that all organic activities, including psychical phenomena, are forms of motion. Had Plato known of the discoveries of cellular psychology which correlate psychical and physical life, he would have had little difficulty in recognizing motion as the ultimate of both mind and matter. He would have perceived that the theory of personal immortality is simply the theory of perpetual motion applied to mind. As a principle, motion is eternal, but none of its forms are perpetual.

Some of the devotees of the Platonic philosophy have even demurred when their doctrine has been described as idealistic. All Platonists concede, however, that their master was an inveterate dialectician. According to Aristotle, general terms or ideas were invested by Plato with an absolute or unchanging existence. He maintained that there is the Abstract Man no less than the Concrete Man; but that the latter is a man only in so far as he participates in the ideal man. As the word is generally understood, this is idealism; but since as years passed Plato changed some of his most important convictions, differences of opinion regarding them are inevitable.

The influence of Plato has been second only to that of Aristotle. From the time of the Alexandrian school, until the second century of our era, when the doctrines of the Neo-Platonists were founded, idealism remained predominant. The theory marks the transition from the worship of individuality or of character to the appreciation of universal order.

The second generation of Neo-Platonists degenerated into mysticism. The sect was much given to citing texts from the writings of their "God-enlightened master," as authority for many extravagances, among which was the revival of the interpretation of visions, a belief strongly condemned by Plato himself. Plutarch and Boethius, the last of the Neo-Platonists, redeemed somewhat the character of their chosen philosophy, but from the time when the Emperor Justinian interdicted all instruction in the Platonic schools, the system gradually declined.

The early Christian Fathers owed their theology not

only to the genius of the Hebrews, but also to that of Plato. Justin Martyr, Jerome and Lactantius speak of him as the greatest and wisest of philosophers, while St. Augustine ascribed to the same mind much of the influence that led to his conversion, thanking God that he became acquainted with the Dialogues first, and with the Gospels afterward.

It is admitted by Biblical scholars that the Christian versions of the tragedy of the Cross bear a striking resemblance to the Platonic accounts of the death of Socrates, and that other portions of the New Testament are strangely like passages of the Dialogues. Throughout the dark ages when the classics were read only by monks and churchmen, the writings of Plato were preserved. Later on, these writings, with their logical opponent, the Aristotelian system, gave birth to that coalition of science and theology known as Scholasticism.

When the revival of learning in Europe re-established independent thought, the influence of Plato again asserted itself and the modern idealists, chief among whom are the German dialecticians, have perpetuated not only the truths, but the cardinal error of their great master.

CHAPTER IV

ARISTOTLE, THE CYNICS, THE STOICS, AND THE SKEPTICS OF THE NEW ACADEMY

*Aristotle — Diogenes — Zeno the Stoic — Epicurus —
Pyrrho-Arcesilaus—Carneades*

It is generally conceded that Aristotle stands first among the ancients for power of thought. He created and practically finished the science of logic. His *History of Animals* naturalists still consult with profit. Among works upon government there has yet to appear a rival of *The Politics*. His metaphysical treatises are in one sense a completion, but in another a refutation, of the dialectic of his master, Plato.

In common with thinkers of all epochs Aristotle attempted to define the principles of being. His progress in this direction is indicated by the ten categories so prominently connected with his name. With the exception of the "four causes" postulated by the same author, this table of realities was the nearest approach made at that epoch to an ultimate analysis.

The influence of Aristotle can be discerned in the development of every European nation. Long after the decline of Greece and Rome, Nestorians, who had fled into Persia, translated the Aristotelian writings into Syriac. About the Ninth Century the Mohammedan

conquerors of Africa and the East rendered them into Arabic. Thus arose that philosophical literature afterwards so potent a factor in the revival of learning in Europe.

After the subjugation of the Greek States, Philip of Macedon entrusted to Aristotle the education of his son, Alexander. For four years master and pupil were together. At the beginning of the Macedonian war the preceptor repaired to Athens to open his school, while Alexander, taking with him Callisthenes, a pupil and kinsman of Aristotle, soon afterward departed on his Persian expedition.

Tradition asserts that the friendship of both Philip and Alexander for the philosopher was of much value to science. Pliny relates that as many as three thousand men were placed at the disposal of Aristotle to aid him in the search for specimens for his *History of Animals*. According to Athenæus eight hundred talents (nearly one million dollars) were given by Alexander for this purpose. Great as the sum appears, it is not inconsistent with the accounts of the wealth acquired by the plunder of the Persian treasures.

The critics of all subsequent ages agree that Aristotle wrote more intelligently upon a greater number of subjects, than any other man. Although some of his writings have become obsolete, others, such as the *Organon* and *The Politics*, have never been superseded. His classification of the types of government, like that of animals, is fundamental. The tyranny, the monarchy, and the republic will always represent, respectively, the sentiments of fear, of honor, and of virtue. In a tyranny the people have no protection against the ruling power, and, consequently, fear is the domi-

nant sentiment. Under a monarchy they have a partial protection under the constitution of laws; hence they are actuated by the sentiment of loyalty or honor. In a republic the people protect themselves, which is the essence of virtue, for freedom harmonizes might and right—the prime elements of social order.*

If, from *The Politics*, we turn to the Aristotelian astronomy and physics, intensely interesting rudiments of science are encountered. What can be more instructive than the efforts of so great a mind to comprehend natural phenomena? Many discoveries, now familiar to us, were then scarcely suspected. To Aristotle the earth was the fixed centre of the universe. "If the earth," says our author, "be carried around, whether in the centre or apart from the centre, such motion must necessarily be violent or contra-nature. Such motion does not belong naturally to the earth itself, for if such were the fact it would belong equally to each portion of the earth; whereas we see that all these portions are carried in a straight line to the centre. Being thus violent or contra-nature, it cannot possibly be eternal. But the order of the Cosmos is eternal."† As to the earth's shape, Aristotle was correct. He proved it to be spherical.

During his lifetime the theories of Aristotle concerning astronomy were by no means generally accepted. The speculations of the Pythagorean school, and of Aristarchus of Samos, were opposed to the theory of the earth's position in the centre of the universe, devoid of

* See Montesquieu's *Esprit des Lois* as an outgrowth of *The Politics*.

† *De Coelo*, 11, 14.

any motion of translation. In the second century of our era, however, Ptolemy, the Alexandrian astronomer, reaffirmed the doctrine of the Aristotelians; and that system, obtaining general acceptance, satisfied men's minds until, with Copernicus and Galileo, modern astronomy began.

The firm hold obtained upon the public mind by the theories of Aristotle, both true and false, is shown by the fact that during the time of Shakespeare and Milton the universities of Europe taught that the sun turns round the earth. The Christian Church long accepted this view as elaborated by Ptolemy and St. Thomas Aquinas, but, enlightened by modern discovery, these crude opinions have since been frequently modified.

Hence, the Cosmology of Aristotle was a combination of verified and unverified opinion. The natural philosophy of our time, going back to the Principia of Newton, considers the fundamental facts of existence as beyond its sphere, but Aristotle was convinced of the interdependence of all knowledge, and strove to reduce both mental and physical life to one system. His aim was to co-ordinate sensible experiences and universals. He denied that there is any absolute creation or beginning to the universe. The region from which all things have sprung he described as the *possible* or *potential*, the transition from this realm bringing us to the actual. To him *possibility* and *actuality* were the opposite poles of reality. In this manner he defined the meaning of the often-recurring "is" and "became."

Nature was explained by Aristotle as "a principle of motion and rest essentially inherent in things, whether that motion be locomotion, increase, decay or alteration." There is only one Universe or Cosmos; outside of this

there is "neither space nor vacuum, nor time."* "The things outside of the Cosmos are neither in place, nor is there any time to affect them with old age, nor do they undergo change of any kind. They are without any change of quality, and without susceptibility of suffering; they remain throughout the entire Aeon, in the best and most self-sufficing life."†

Many of the vagaries of theology have sprung from these speculations of Aristotle concerning a life of joy in a region "beyond space," where there are no changes of any kind, no personality, no growth, and no decay. Modern science declares that existence itself is *change*, and that there can be no life without the phenomena of personality, growth, and decay.

Descending from the region "beyond space," where it is alleged that there is life without change, we come, in the Aristotelian system, to the "First Heaven," the region of fixed stars, revolving with great velocity from the East to the West. These stars are composed of ether, that fifth element or *quinta essentia* which enters into the composition of the human soul. The sun, moon and stars are living beings, and their condition is that of perfect happiness. Curious as they now appear, these theories were in harmony with the beliefs of the learned at that time.

The difference between the faith of Aristotle and of his master, Plato, is definite. Aristotle was a scientist; Plato was in a philosophical sense a theologian. The former endeavored to systematize knowledge; the latter, aiming at an expression of divine truth, fixed upon mind or personality as the ultimate cause. From

* Phys., ii 192, . b. 19

† De Coelo, 1, 9.

these two schools emanate science and theology; or patient investigation accompanied by verification and the contemplation of universals.

Throughout the Aristotelian writings, the influence of Plato is manifest. The *Politics* were written by the pupil in order to refute the theories of the master as set forth in the *Republic*. Aristotle believed that the idealism of Plato had its origin in unverified introspection rather than in actual research. He held that we have no proof of the absolute separation of the universal and the material, because from the point of view of each individual, both the thoughts and feelings of others are external or objective. He, therefore, denied to ideas a purely subjective being.

Nor could Aristotle, like Plato, give to qualities, such as weight, size and color, an existence other than that of attributes. Plato believed that from one, man could arrive at all ideas without the aid of objective experience. Aristotle maintained that, since all knowledge comes from experience, all ideas must spring from the same source, and are, therefore, the result of the interaction of individual and environment.

Though both of these writers regarded ideas as generalizations or universals, one attributed real existence to reason, advocating the contemplation of ideas in themselves; while the other gave experience as the source of knowledge, teaching men to observe and question nature. The truth underlying these opposite theories is that, in the last analysis, reason and experience are one.

If Aristotle adhered to the scientific method, the question arises, How could he have been at the same time so renowned a metaphysician? The answer is suggested

by the nature of metaphysical inquiry. Before the appearance of Lewes' *Problems of Life and Mind*, the most exact ontological thought was, doubtless, to be found in the writings of Herbert Spencer; and yet, Spencer would have objected to being called a metaphysician. The fact is, we cannot view life thoughtfully without becoming metaphysical, because thought leads inevitably to generalizations or principles. All inquiries tend toward the simplification or the unification of knowledge.*

The *categories* or the principles which Aristotle conceived as ultimate, are as follows:

ORIGINAL	TRANSLATION	
	<i>Literal.</i>	<i>Free.</i>
οὐσία	Essence.	Substance or matter.
ποσόν	How much?	Quantity.
ποιόν	What manner?	Quality.
πρός τι	To something.	Relation.
ποῦ	Where?	Space.
ποτέ	When?	Time.
κεῖσθαι	To what posture?	Position in Space.
ἔχειν	To have.	Possession.
ποιεῖν	To do.	Action.
πάσχειν	To be affected.	Passion or reaction.

With the light of our time these principles can be simplified. Some are repetitions and many are composite. The ten categories of Aristotle suggest the

*William James says that metaphysics mean nothing more than an unusually obstinate attempt to think clearly. If I could only appeal to the obstinacy of Dr. James to the extent of obtaining his recognition of motion as the ultimate reality, much could be accomplished in the way of educational reform, for so many teachers of psychology in America are influenced by the charm of his personality and the candor and breadth of his expositions.

co-ordinates of the Pythagoreans. In reducing ten double principles to as many single ones, Aristotle made an advance toward an ultimate analysis. Modern philosophy has reduced the ten categories of Aristotle to five universals. Spencer's system denominates them: Space, Time, Matter, Force and Motion.*

It will be found that a generalization of these universals is possible, for, as already shown in Chap. I, space, time, matter and force may be resolved into motion.

But to return to the categories of Aristotle, the elements composing them are the ultimate reality with its opposite aspects, and the relative fact of individuality or species.

As will be shown, Aristotle confused individual with general existence. Personal and impersonal or individual and general mean ultimately the subjective and the objective aspects of existence or the one. Individuality and species are terms that can be used interconvertibly. The widest meaning of individual is species, or the lines within which organic beings reproduce or preserve themselves.

Aristotle was conscious that the ultimate type of individuality is species, but he failed to perceive the relationship between individual and general existence, and those aspects of motion known as time and space. As a consequence some of his categories, instead of being simple, are composite; that is to say, they can be further reduced by analysis.

* In *First Principles* Spencer postulates a sixth ultimate, consciousness being added to the five above cited. A fair inference from other portions of his writings, however, is that consciousness is a relative, not an absolute fact.

The reduction of the categories to ten had of necessity a history. The object of thought had been to find a *summum genus*, an essence, or, better still, an existence, which by continued abstractions of differences might be comprehended as a common universal, or, in other terms, the object was to find the ultimate reality.

To meet this requirement, Aristotle proposed as the first of the categories, 1. Substance (*οὐσία*). By employing the mathematical ultimate motion, in the place of substance, we shall find that the aim of Aristotle is attained. It did not occur to him that the ultimate, which he called substance, could explain all relations, because he had not identified substance with universal change expressed in terms of number and quantity or time and space. He, therefore, specifies nine additional categories, which can be decomposed as follows:

2. Quantity, if unlimited, signifies both the infinite and the eternal or space and time which taken together are equivalent to motion. The ultimate meaning of limit is individual as distinguished from general. A limited quantity, therefore, is individuality added to substance.

3. Quality is action and reaction added to substance.

Then follow: 4. Relation; 5. Where? 6. When? The ultimate relation is motion. Relations are of co-existence and of sequence, or of space (where), and time (when), which are united in motion.

7. Position is limit and rest added to space.

8. Possession is individuality added to substance.

9. Action is individuality added to motion.

10. Passion, or reaction, is individuality added to action (or inter-action).

It will be observed that apart from motion and its objective and subjective aspects, the term most frequently

employed in these definitions is individuality or species. Now, individuality is the cause of consciousness or of the separation of the subjective and objective aspects of general existence. In other terms, the division of motion into time and space is the result of the interaction of species and environment. Language is implied by species, because it is a form of consciousness.

Aristotle discovered that the infinite divisibility of time is a correlative of the infinitive divisibility of space. In other terms, time and space are the opposite aspects of that universal continuity called motion.

The transcendentalists admit that thinking involves change, but they also maintain that thought is a deeper reality than motion. Those who through scientific analysis have reached the conclusion that reality, change and motion are synonymous terms will ask how the transcendentalists can remove thought to a region beyond space, since space is an aspect of motion.

To turn from the transcendentalists to the materialists, some scientists persist in imagining force as the cause of motion. The ancient materialists conceived matter to be *in itself* inert and propelled by *force*; the two being in some way conjoined so as to produce motion. They then introduced time as a necessary element, and supplied for its convenience an infinite space. These preliminaries being arranged, the universe proceeded without difficulty. How strange it is that all these universal principles should work together so harmoniously in spite of the inartistic manner in which man has put them together.

Dr. Holmes once remarked that when he met a mathematician he could hear the click of the wheels in his head. If the regular sequences of mathematics suggest

the leverage of wheels, what a leverage the physicist must exert who calmly unites disconnected principles so as to produce the continuity of nature?

Would it not be more in accord with our attitude, as students of nature, to recognize that fundamental unity which we symbolize in so many ways? As above indicated, this unity has many names. Each science, according to its point of view, gives it a distinctive appellation, but the terms employed are all symbols of power. In this synthesis of universals even religion joins by reaching the same ultimate as the sciences. Most significant is it that the definition of deity, which, according to the theologians, is the union of the infinite and the absolute, should correspond exactly with the simplest interpretation of motion, the union of the infinite and the absolute, or of space and time.

The extremes, known as idealism and ancient materialism, are to be avoided. Idealism holds that mind is independent of motion, while the ancient materialists held that matter is independent of motion, or, in other terms, that until force is added it is inert or immutable. To the idealist, reality is the immutable soul; to the ancient materialist, it was the immutable substance. It is now known that both soul and substance are forms of motion.

Philosophy will have accomplished its object when it has identified the forces of mind with those of nature. The degree of intellectual development necessary to enable us to reach this synthesis can be inferred from the fact that at almost all universities not only are the energies of the intellect unidentified with physical force, but even those basic types of energy revealed by the solar spectrum, and known as chemical elements, are conceived

as absolutely separate existences, instead of as interdependent forms of motion.

The metaphysics of Aristotle were as coherent as the science of their time. With singular unanimity of purpose, the earliest philosophers sought the first cause. The causes of Aristotle came nearer to an ultimate analysis than did his categories. They were four in number; namely, first, the material cause or essence; second, the formal; third, the efficient or the principle of motion; fourth, the final cause or the purpose and end.

To synthesize these causes, all that is necessary is to identify essence with existence or motion; form with matter or space, and purpose with individuality or species; for the final cause is identical with the ultimate reality.

Thought consists of the interaction of hypothesis and verification. The strength of Aristotle lay in his command of facts and in his power of generalizing them. Plato will always be regarded as a finer writer, and, in a literary sense, as a greater genius. Aristotle never reached such sublime heights of abstraction. He was content to apply himself to the evolution of principles from nature.

THE CYNICS

Antisthenes, an Athenian, was a pupil of Gorgias the Sophist. Upon making the acquaintance of Socrates, and in order to become his pupil, he abandoned the school he had established at Athens, persuading his disciples to follow his example. This course was, perhaps, suggested by the remark of Socrates: "I see thy

vanity, Antisthenes, peering through the holes of thy cloak.”*

After the death of their master, and in disregard of the Socratic moderation, Antisthenes and his disciples carried poverty to such extremes as to receive from the refined Athenians the name of Cynics. Holding all social amenities in contempt, their habits soon came to resemble those of dogs. Denouncing the luxury and indulgence of the time, the Cynics advocated a return to the olden simplicity. “I would rather go mad,” said the founder of this sect, “than become sensuous.”†

Diogenes of Sinope, most noted of the Cynics, was a pupil of Antisthenes. His father, a banker, was accused of debasing the coin. The son, becoming implicated, fled to Athens, where he soon fell into poverty. Antisthenes would have repelled the newcomer, but Diogenes refused to depart. Upon the master threatening to use his staff, “Strike!” said Diogenes, “you will not find any stick hard enough to drive me away, while you continue to speak.”‡ So conciliatory was the reply that it was not made in vain.

The joyous life of the Athenians repelled the Cynics. Such was their zeal that they lost sight of the meaning of virtue which the Greeks defined as “moderation or the saving of tendencies from excess.”

The Cynics combatted idealism with skepticism. They ridiculed the Socratic theory, that a definition is the essence of a thing, because they regarded phenomena and reality as one.

They denied that motion does not exist, because to them mind signified nature in movement. They did not

* Diog. Laert. VI. 1. 8. † Diog. Laert. VI. 1. 3. ‡ Diog. Laert. VI. 2. 2.

perceive, however, that existence and motion have the same ultimate meaning. To them philosophy was the art of life, but a life stripped of joy. Language they regarded as metaphorical. They saw that as facts express themselves, they are, in a sense, independent of words. They failed, however, to recognize that the ultimate fact is proportion or beauty.

The fanatical distrust of pleasure manifested by the Cynics was inconsistent. Their lives clearly exemplified the influence of skepticism upon conduct. Although recognizing mind as a part of nature, they regarded the former as holy, and the latter as unholy. In proportion to the accompanying pleasure, therefore, they considered physical functions as degrading. It is true that in the excesses of the age they had a certain excuse for this belief, but the effect of their theory was to make of pain a virtue.

The Stoics agreed with the Cynics in recognizing the superiority of intellectual pleasures. Both were proud of poverty, for they considered it an aid in the search for truth, but the Stoics saw no reproach in reasonable enjoyment, whereas the Cynics made of privation an object of worship instead of a means to an end.

THE STOICS

The Stoics devoted themselves to a criticism of religion, of manners and of government. Their doctrines, although widely diversified, proposed no original conception of mind. The pronounced skeptics, however, were different, for they had a well-defined theory of knowledge. Although no longer maintained as a separate school, the doctrine of skepticism, immortalized by Pyrrho and Carneades, still has its adherents.

The Stoics formulated a more definite theory of morals than any other philosophical sect. So exalted were their principles, that had they believed in a personal deity and in individual immortality, their faith would have become a religion.

Until the discovery of evolution organized religion remained faithful to the theory of a personal God. It was not to be expected that the church would surrender its faith in an absolute individual until all species were shown to be mutable. The Stoics held that, according to nature, death is the end of the individual. They said with Job, "Man lieth down and riseth not." To the Stoics God was a principle and not a person, the infinite and eternal order of the universe and not an individual.

The Christian religion has deified one who died for his kind. The Stoic martyrs freely gave their lives for their principles. Tacitus said that Nero, in killing Soranus and Thraseas, sought to destroy virtue itself. In that age death or banishment was a common fate of the Stoics, who more fearlessly than any other sect opposed superstition and tyranny.

The names of the Stoics will ever illuminate human history. In Greece and Rome from the close of the Fourth Century before our era, for five hundred years, they were the chief advocates of human freedom. Much of this period was fraught with the deepest oppression, for the cruelties of tyrants and the superstitions of the people were triumphant; but the era terminated in nearly a century of political liberty and of literary activity, known to Rome as the reign of the Stoics.

From the time of Zeno, the first of the Stoics, to that of Marcus Aurelius, occur the best and worst rulers the world has known. Renan declares that Antoninus

Pius would have had no rival as the best of sovereigns, had he not designated Marcus Aurelius as his successor, while history reveals no stronger types of inhumanity than Caligula and Nero. The hymn of Cleanthes, belonging to the opening of the Stoic literature, breathes a lofty spirit of trust in the order of nature, while the words of Epictetus and of Seneca will ever live for their grandeur and benignity.

Compared with that of the Epicureans, the virtue of the Stoics was severe. The aim of the former was happiness, that of the latter, duty. To harmonize these principles, a higher social order was needed, for when not expressed in government, altruism is only a dream.

Many of the sublime precepts of the New Testament bear a striking resemblance to the teachings of the Stoics, but why raise the question of priority as between these bodies of ancient writings? High aims have but one ultimate authority,—the weal of humanity.

The Stoics were nearly related in their doctrines to Socrates, and classed themselves among his followers. In their opinion, dialectics and physics were subordinate to ethics, for they held that the central problem of life is conduct. Righteousness they esteemed as the highest good, because it suffices for happiness.

The Stoic philosophers sought to harmonize theology with science. Although they were chiefly absorbed in ethical problems, incidentally they endeavored to find ultimate principles in nature. To them matter and force were opposite sides of reality. Force, or the underlying principle of matter, they called God.

The founder of the Stoic sect was Zeno, born at Citium, a small city in the island of Cyprus. During youth he engaged with his father in commerce, but

upon hearing of Socrates, decided to devote his life to philosophy. At a mature age, when first visiting Athens, he was shipwrecked. Losing all of his possessions, he joined the Cynics, allured by their display of poverty, but it was not long before their grossness repelled him.

After many years of study in different countries, Zeno returned to Athens and established a school. The place selected was the Painted Porch or Stoa, the former resort of the poets.

The character of Zeno was greatly admired by the Athenians, who at a time of danger intrusted the keys of the citadel to his keeping. For ages afterwards his monuments proclaimed that his life was in harmony with his beliefs.

Macedon had now supplanted Athens, and the civilization of the Greeks was in its decline. Discouraged by the degeneracy of his race, Zeno turned to ethics in the hope of establishing the principles of human freedom upon those of virtue.

With the Stoics the criterion of truth was distinctness of mental representation, or, as Descartes long afterward expressed it, "All clear and distinct ideas are true." According to Sextus Empiricus,* the Stoics named this criterion the *Cataleptic Phantasm*; that is the *sensuous apprehension*, or the harmony of sense and reason.†

* Sext. Emp., VII., 160.

† A comparison of the sensuous and the intellectual apprehension has been made in the review of Plato in the preceding chapter. This subject will be more fully examined when the writings of Spencer and Lewes are reached.

EPICURUS

The Stoics were not alone in opposing the Cynics, for in their adverse criticism they were joined by the Epicureans. As Epicurus said: "We cannot live pleasantly unless we live prudently, nobly, and justly; nor can we live prudently, nobly and justly without living pleasantly. * * * Our happiness depends not only upon how long, but upon how wisely and virtuously we live. Out of the natural distinction between such pains and pleasures as increase our happiness, and such as diminish it, arises the moral law."*

There is an impression that the Epicureans were devotees of pleasure. The term has come to mean a voluptuary, or a luxurious and dainty eater. The sect, however, was noted for abstemiousness. Over the door of the garden at Athens, where Epicurus led a life of calm enjoyment with his friends, was the inscription: "The hospitable keeper of this mansion, where you will find pleasure the highest good, will present you liberally with barley cakes, and water fresh from the spring. The gardens will not provoke your appetite by artificial dainties, but satisfy it with natural supplies. Will you not be well entertained?"

A boast of Epicurus was that his own food cost not more than a penny a day. He confessed that he needed only bread and water to equal Jupiter in happiness. "Send me a little Kytherian cheese," he wrote to a friend, "so that if I wish a feast, I may have the means."†

All schools have contributed to the advancement of truth, and all have been guilty of perversions. Cynics despise pleasure; Stoics control it; while Epicureans

* Diog. Laert. X. 140. † Diog. Laert. X. 6.

recognize in it the highest good. The fact is that pleasure and righteousness are terms of the same ultimate significance.

Epicurus, whose father was a school teacher, was born about 340 B. C., at Samos, off the Ionian coast. At the age of eighteen he visited Xenocrates, who was then teaching at the Academy, while Aristotle was at Chalcis. After studying for a time at the Academy, he left the Athenian capital to reside in various other Hellenic cities. He afterward established at Athens the school over which he presided until his death.

During this period at Athens there was every facility for studying philosophy. The Platonists had their Academic Grove; the Aristotelians the shaded walks of the Lyceum. At the Cynosarges, the Cynics assembled; the Stoics met at the porch; while the Epicureans enjoyed their favorite garden. It is not surprising that with such competition immortal truths were evolved.

Epicurus regarded philosophy as the art of life rather than of truth. Ideas and arguments were the means of happiness, not the end. Instead of transitory pleasures, his aim was the uninterrupted course of happiness throughout life; a result to be attained not by the gratification of the senses, but through the lasting enjoyments of the mind. To him virtue was inseparable from real happiness. He did not condemn luxuries, but contended that simplicity of life conduces to happiness. With him wealth consisted not in great possessions, but in moderate wants.

Thus in morals Epicurus sought a refuge from the skepticism of the age. The numerous works accredited to his pen have been lost; but Diogenes Laertius preserved three letters giving a summary of the Epicurean

philosophy, besides which there are the criticisms of the Stoic writers.

The critics of all subsequent ages concede that the ideas of Epicurus were sublime. He regarded the dialectical method of Plato as misleading. "Representations are enduring images or perceptions." "Beliefs are true or false according as they are confirmed or refuted by perceptions."*

With Epicurus the test of truth was the satisfaction, not the suppression, of doubt. He contended that animals and men were developed from the earth, the rise of man to higher stages of culture being an evolution. Words were originally formed, not arbitrarily, but by a natural process, in correspondence with our sensations and ideas. Belief or opinion is due to the continued workings of impressions upon us. The will is aroused, but not necessarily determined, by ideas. Freedom of the will is independence of causes in self-determination.†

Nowhere, even among modern writers, shall we find the principles of consciousness so briefly and so accurately stated.

Epicurus was called the glory of the Greeks, not only on account of the beauty of his thoughts, but also of his friendships. Beginning with an obscure few, his disciples became a great party, placing his teachings among the most potent of Greek influences.

This remarkable thinker was revered for having freed his friends, and through them multitudes of his fellow-men, from fear of the gods, demons and fates, by showing them how to explain everything by natural causes.

Diog. Laert. X., 22.

† Diog. Laert. X., 27.

“It is necessary for true happiness,” said he, “that the soul should be protected against superstitious fears and useless longings.”

THE SKEPTICS

Although Socrates led a revolt against skepticism, which shows the priority of the doctrine, Pyrrho founded the first systematic school of doubt. Later on this school of Pyrrho developed into the new Academy, that body of Platonists who, although holding that truth is beyond reach, still longed for certitude. The names of Cotta and Varro, as well as of Horace, and Cicero, are to be found among these Agnostics of old.

Inextricably involved, as are the doctrines of Pyrrho, with those of his pupils, all alike centre in the tenet that there is no criterion of truth. The best description extant of the skeptical propaganda is given by Sextus Empiricus.*

The celebrity of the school of Pyrrho was chiefly due to the prominence of the doctrines it combated. It is far easier to destroy than to build up. The Skeptics attacked the teachings of Socrates, Plato, and Aristotle, and for a time well-nigh brought them to naught. Although philosophy was thus condemned on account of its errors, nothing was offered capable of taking its place.

Exaggeration is always a weakness, even when it takes the form of doubt. Faith is trust, skepticism is distrust, in appearances. Appearance and disappearance are forms of universal change. Thought is a response to these changes. To experiment and to verify is the course of mental activity. The actions and reactions

* Hypot. Pyrron. 1, 11, 111.

constituting intellectual progress presuppose extremes of faith and doubt. Scientific conclusion is the mean of these extremes.

Belief is a reaction from doubt; it is a confession of our inability to disbelieve. Skepticism is loyalty to doubt, and is, therefore, a distinct form of faith. The feeling of the Skeptic with regard to belief is like that of the misanthrope who said that he was most happy when alone, but nevertheless confessed the need of at least one person to whom to confide the happiness.

The chief tenet of Skepticism is that there is no criterion of truth. The reason given for this belief is that we have no absolute standard by which to measure facts, and, if we had, it would be of no avail, because there is a noumenon behind facts more real than nature.

Noumenon means unchanging existence, whereas facts are changing existences. The whole argument, therefore, depends upon whether there is an unchanging existence. Since evolution demonstrates that life, existence and change mean ultimately the same thing, may we not call upon the Skeptic to prove that there *is* such a thing as unchanging existence, before accepting his statement that *noumena* constitute a deeper truth than phenomena? Existence cannot be other than changing, and, therefore, unchanging existence must be a contradiction in terms.

The assertion of the Skeptic that perceptions bear no conformity to the objects perceived, and, if they were to, the conformity never could be known, might be parodied as follows: In viewing oneself in a mirror one must *believe* that one is looking at some one else, or that one *is* some one else; or, if not, it does not

matter, as one cannot know who one is. And yet it is said that Skeptics believe nothing!

Doubtless, Arcesilaus and Carneadis would have regarded this illustration as flippant, but some of the most solemn arguments have a humorous aspect. It is not my wish to convey the impression that the pronounced Skeptics, who so puzzled the Greeks and confounded the Romans, were stumbling over obvious errors. I would prove simply that Skeptics, as well as others, hold beliefs, and that these beliefs, in so far as they deny the validity of knowledge, are mistaken. Scepticism is the belief that to be perfect knowledge should be absolute, whereas it is, by nature, relative.

Arcesilaus, born at Pitane, in Asia Minor, about 316 B. C., succeeded Crates in the Academic chair. Between the Academicians and the uncompromising Skeptics there was a marked difference. The former declared that all things are incomprehensible while the latter refused to affirm anything, even that all things are incomprehensible. The modesty of these latter Skeptics is open to suspicion, for to be thoroughly convinced that we know nothing requires considerable knowledge.

Carneades, the most illustrious of the Academicians, was born probably 213 B. C., at Cyrene, in Africa. His teacher was Diogenes, the Cynic. While at Rome as ambassador the eloquence of Carneades astonished all who listened. In attempting to prove the uncertainty of human knowledge, he denounced justice as vehemently as he had formerly upheld it. Indeed, one of his pupils confessed that so skilled was his master in disputation that it was impossible to discover his real opinion. Fearing that such sophistries might corrupt

the Roman youth, Cato, the Censor, hastened to have the Skeptic dismissed from the city.

While admitting the argument of Plato against the validity of sense perception, Arcesilaus supported Aristotle in his opposition to the ideal theory. Nothing was left him, therefore, but skepticism.

The question propounded by the Academicians was this: Is every modification of the mind a true response to the external object causing the modification, or, in other terms, do we know things as they are? The fact that knowledge is derived from the senses caused the Academicians to doubt its accuracy. Since the senses are the outposts of the understanding,—that is to say, since there is no absolute dividing line between the activities of the senses and those which take place within the citadel of thought,—it is manifestly impossible to say where sense ends and where reason begins. The Skeptic is as powerless to make this division as we are. All reason has a sensuous aspect, and all sense a reasonable aspect. In other words, these faculties are interdependent; they are different sides of one process.

When we receive impressions through the senses, and, by a complex organism, they are elaborated into an idea, or when the act of reason occurs, we have sequent groups of changes, or a chain of cause and effect, uniting external phenomena, sensuous apprehension, and ideas. The greater the number of changes co-ordinated by the mind, (made possible by accumulated modifications of the mental structure) the greater the scope of reason, the wider and deeper the generalization. To say that things are not in reality what they seem is a gratuitous assertion, for we know things to the extent that they affect us. These impressions are the re-

action of a definite structure, and as the modifications of the structure increase, the reaction or response becomes more and more definite. To know an object in the sense that the Skeptic imagines that we should know it, (to have an absolute knowledge of it) would be to become the object itself, or, in other terms, to include it in our existence. Employing a theological figure, this is the way in which God *knows*, because divinity shares existence with everything. Whether it be regarded as fortunate or otherwise, we are individuals. Our perceptions are neither more nor less than the relationship or inter-action of ourselves and our surroundings. In the silent contemplation of nature we come face to face with reality. The moment we attempt to give this reality expression, to communicate it to others, we encounter insuperable difficulties. Nothing is more certain than action; nothing more uncertain than its translation into symbols or words. As language, the medium of thought, extends the lives of all who use it; it is also a source of endless confusion to those who do not realize the meaning of its terms.

The issue I would take with the Skeptic is now apparent. Skepticism is the theory that knowledge should be absolute. Contrary to its teachings, I hold that all knowledge is comparative or relative and that relative knowledge is valid.

CHAPTER V

THE ALEXANDRIAN SCHOOL, SCHOLASTICISM AND THE REVIVAL OF LEARNING

Philo — Plotinus — Abelard — Bruno — Bacon

In ancient Greece, thought declined with political freedom, and the intellectual forces, so long assembled at Athens, found a new center at Alexandria. At the latter place, during the early centuries of our era, there occurred that coalition of Greek philosophy and Judaism, which accounts for Christian theology.

Long before this period Alexandria had become the scene of great literary as well as commercial activity. Its vast library, founded by the Ptolemies, was a treasury of Egyptian, Hellenic and Oriental letters. The thoughtful world will never cease to regret the loss of this collection, burned by Christian fanatics under the Archbishop Theodosius toward the close of the Fourth Century.

The history of reason and of faith are inseparable. The development of the Alexandrian school of philosophy explains the genesis of Christian dogma. The religious belief of each community expresses the popular idea of government,—a problem that can be solved only by determining the nature of God and the human soul. Belief in an individual deity and in individual immortality will

persist until it is generally understood that God is more than a person. When deity is recognized as the order of the universe, it will be seen that there is no absolute personal existence,—for all individuality is relative.

From the close of the Second to that of the Fifth Century the school of Alexandria competed with the Christian Church for the spiritual control of Europe. The rivalry was not, as might be supposed, between reason and faith, for the philosophical form of the doctrine of faith originated with the Alexandrians. This doctrine had not as yet lent itself to the defense of religious orthodoxy. It was the chief tenet of the Alexandrians, devised by them as a reply to skepticism. Only in after years was it employed in the defense of ecclesiastical dogma.

The contention between the Alexandrians and the Christians was not, therefore, a conflict between rationalism and orthodoxy, but between two kinds of religious faith. It was the rivalry inherent between the God of Plato and the God of Israel, between deity conceived as universal order and as an all-powerful person. The Platonic creed, however, was not without grave inconsistencies, confusing the individual and the general, for Platonist and Christian believed alike in the immortality of the soul and in an overruling Providence.

Philosophy has long attempted the allied problems of mind and duty, or of consciousness and justice. These great questions presented little difficulty to the explainers of revelation. The early Christian Church confidently resolved the problems of existence, and it is to the authority of its conclusions that the attention of the reader is now invited.

The deification of some individual is a phase of de-

velopment through which every race must pass. A personal God is an idealization of character. The charm of personality is inseparable from devotion; for the highest influences are exerted not by reason alone, but also by example. So essential to religious teaching is example that in order to control the actions of the majority of men, principles must be clothed as persons; they must live as heroic beings. The spiritual religions, therefore, are necessary object-lessons of duty.

The theologians of the Greeks were their poets and artists. Every civilization has need of these interpreters of divine truth, for they endow principles with the authority of proportion or beauty.

To the mind trained to generalize it suffices to say that God is the order of the universe, that a true creed is science, and that our origin and destiny are developments of nature; but philosophy is not content with reducing existence to abstract principles; it will ever strive to make itself intelligible to the masses by supplementing the analysis of being with a synthesis of life so real and so beautiful as to inspire devotion. When it is generally understood that consciousness and justice are evolutions of nature, the most abstract principles of existence will assume the form of a sublime and an imperishable example.

In tracing the growth of religious dogma it will be well to remember that society has as yet evolved no institution capable of taking the place of the Church, unless it be the hierarchy of justice. With the exception of jurisprudence, as embodied in family and state, the Church is the most powerful progenitor of righteousness. Its mission is to found a government of love as a preparation for a reign of justice.

The Alexandrians derived the doctrine of faith from their necessities. Skepticism, "that theory which rejects experience as the criterion of truth," had defeated the reason. The propaganda of doubt had challenged the validity of the understanding, but it is impossible so deeply to discredit experience as to deprive it of all authority. The authority that the Alexandrians offered was faith. It was, therefore, to the ingenuity of those defenders of thought who, having been defeated by skepticism, sought another source of knowledge than reason, that religion owes the bulwark of its creed, the argument of faith.

PHILO

Christian theology took its rise in the interpretations of deity evolved by the schools at Alexandria, chief among which was the Neo Platonic.

Philo Judæus, who was the precursor of this school, was born at Alexandria shortly before the beginning of our era, and was, therefore, a contemporary of Jesus. Although belonging to the same race, these two sublime characters were separated by insurmountable barriers. At that epoch, the inestimable treasures of Greek literature were unknown to the orthodox Jews of Palestine, because the writings of all other nations, together with the only liberal Jewish culture of the time, belonged to a body of learning strictly interdicted by the Sandhedrins. Such was the stigma of Atheism which the Jewish authorities visited upon the heathen theology, that the grandeur and beauty of human thought and feeling—as revealed in Hellenic and Oriental letters—were veiled from the worshippers of Jehovah.

Having imbibed the doctrines of the New Academy,

Philo made no pretense of refuting the theories of the skeptics. His endeavor was to build a system of belief which could endure in spite of all skepticism. The source of truth, he maintained, is the innate faculty of faith. "The senses may deceive, reason may be powerless, but there is still a faculty in man; there is faith." "Real science is the gift of God; its cause is piety."

With great subtlety, Philo combined with theology adherence to the law and ritual of his race. If anywhere God is conceived as an individual, it is in the Hebrew Scriptures. There we find a deity of passions, making plans and repenting of them; taking vengeance and offering forgiveness.

To the conception of the personal God of Israel Philo added the Platonic idea of universal unity. He contended that God is to be worshipped not only as an individual, but also as the most general of existences. To Philo, therefore, God was both a person and the universal principle, a limited as well as an unlimited existence.

Plato sought to identify the ideas of good and of divinity, but Philo maintained that God is exalted above all goodness. Had the latter conceived of deity as a principle alone, he would have been justified in separating the idea of righteousness from that of divinity, for divinity is universal, whereas the meaning of good is limited to species. What is for the advantage of one species cannot be so for all, because nature ordains that each form of life, as a condition of existence, shall prey upon other living things.

The aim of philosophy is to discover not only the criterion of truth, but of right, or the meaning of good. Biology informs us that the elements of life, or

the basic organic functions, are assimilation and reproduction. Life is only another name for the coincidence of these forces. Language, as an intellectual environment, aids the assimilation and reproduction of ideas, just as the physical medium co-operates in corresponding corporeal activities. Thus, all life, whether spiritual or physical, is a form of assimilation and reproduction, and these basic instincts indicate duty, because upon them existence depends.

Existence or self-preservation is the first law of nature, and, therefore, of God, but in order to conceive this principle as a moral law, it is necessary to extend the meaning of self until it includes the race. Righteousness, therefore, is another name for the right line of assimilation and reproduction, or the true development of property and of family, the means by which living beings maintain themselves. Hence, duty is the line of least resistance for the preservation of each species. Only within the pale of species is might modified by right. Within this ethical sphere the strong should protect the weak. Beyond this natural boundary of justice, force is the only law.

Hence, Philo was right in saying that deity is exalted above all goodness, unless by goodness is meant that universal order to which every individual owes not only its life, but also its sentence of death.

If deity were a person, he would belong to a race, for there can be no individuality without species. To him the preservation of race would be the criterion of right. There is no need, therefore, of confusing the principle of universal order with righteousness, for the former signifies motion, and the latter, species.

Philo, who was a believing Jew, inaugurated a school

of philosophy which existed for centuries as a rival of the Christian faith. His teachings were gradually incorporated by the church in its creeds. Hence, the doctrines of the Platonists have insensibly passed into the confession of every Christian denomination. The three constituent factors of Christian theology are the God of Israel, the Platonic idea of divinity as interpreted by the Alexandrians, and that ancient doctrine of mysticism,—the necessity of a mediator between God and man by which to surmount the otherwise inaccessible nature of deity.

AMMONIUS SACCAS

Early in the third century Ammonius Saccas was instrumental in founding the school of Alexandria,—a movement which attracted many great minds. For nearly three centuries this school flourished, its rivalry with Christianity spreading its renown throughout the world. Under its auspices the idealism of Plato was revived by Plotinus. His successors, Porphyry and Iamblicus, endeavored to show that idealism is superior to Christianity; while Proclus sought to harmonize religion and philosophy.

The intellectual center in which the dogmatic of the Christian era took its rise was truly cosmopolitan. Not far from the temple of Serapis, Greek skepticism, Platonism, Judaism and Christianity, each found exponents.

The method of the Alexandrian Eclecticism was to place in juxtaposition the various systems of thought, in the hope that the truth might be evolved. Long afterward in France, this method was revived by Victor Cousin and his contemporaries. Although an out-

growth of the doctrines of Plato, the Eclecticism of Alexandria produced by degrees a mystic pantheism wholly foreign to Greek thought. The confusion then prevailing concerning the attributes of deity can be judged of by the fact that Theology and Theosophy were used as convertible terms.

PLOTINUS

Not only by reason of the sublimity of its thought, but on account of its mysticism, for a time the school of Ammonius Saccas succeeded as a rival of the Christian faith. The Alexandrians were Puritans. Their tendency was to despise the corporeal, for they believed that the material and the ideal are incompatible. Plotinus blushed because he had a body. Contempt for human nature could go no further. This austere thinker originated the Alexandrian metaphysic; a system of absolute idealism long afterward rehabilitated by the German transcendentalists. Its theories all spring from the fact that subject and object are the opposite terms of the relation known as thought; but as expounded by Plotinus, the ideas of the school became so involved as to be almost impossible of explanation. The object of Plotinus was to reach an ultimate analysis by proving that the varieties of the universe are modes of divine being—variety and unity being the opposite aspects of existence. Viewing deity as the universal principle, this theory is correct. But Plotinus failed because he conceived deity as an absolute individual, or ego, whereas all individuality is relative.

The discovery that knowledge is relative, or that intelligence depends upon organic functions, has proved fatal to pantheism or the doctrine that deity is an

absolute and omnipresent consciousness. Plotinus taught that the sensible world or nature is a dynamic manifestation of the ideal, or, as Kant afterward expressed it, that nature is a result of ideas. He also taught the mystical belief in an "ecstatic vision of the infinite,"—the theory that deity, or the ultimate reality, although inscrutable to man's normal faculties, may nevertheless be apprehended through a state of mind called ecstasy. If knowledge is relative there can be no absolute difference between divine and human intelligence. There is no need, therefore, of "ecstatic vision" in order to perceive the order of nature, unless by ecstasy is meant devotion to truth.

The dispute between the Alexandrians and the Christians concerning the Trinity is of deep philosophic interest. Each side claims priority for its doctrines. Both views are derived from beliefs of the highest antiquity. In the Athanasian creed is to be found the most concise statement of the Christian belief. "That we worship one God in Trinity, and Trinity in Unity, neither confounding the persons nor dividing the substance; for there is one person of the Father, another of the Son, and another of the Holy Ghost. But the Godhead of the Father, and of the Son and of the Holy Ghost is all one; the glory equal, the majesty co-eternal."

One of the principal explanations offered in support of this elaborate dogma is, that the names applied to God in the Old Testament, such as Elohim, having a plural signification and yet being used as the subject of a singular verb, suggest both unity and variety in the Godhead. One will look in vain among the traditions of Moses for any of these subtle divisions of deity in which the Jews and Christians of Alexandria so de-

lighted. The great legislator of the Hebrews is exonerated from any complicity in the idea of three Gods in one, by the artless manner in which he is made to speak of Yahveh in the Ten Commandments and other Hebrew Scriptures.*

In his explanation of the Trinity, Plotinus was more philosophical than the Christians. He explained the hypostases or substances of deity as a completion of the theory of Semitic monotheism.

Jules Simon maintains that there is only a slight resemblance between the Alexandrian and the Christian doctrine of the Trinity. The Christian Trinity, says this author, is the unity of three different persons, or hypostases or substances in one being. The persons of the Christian Trinity know and love one another, whereas the hypostases of Plotinus know and love only the one higher than themselves, being unconscious of the inferior ones until unity is realized which has nothing above, and knows and loves nothing. Plotinus' idea of deity was similar to that offered long afterward by Spinoza, when he said that: "No one can desire to be loved by God, for it would be to desire that God cease to be perfect."

The Christian conception of the Trinity is poetical, for it divides deity into three equal persons, between whom the love is reciprocal. The Trinity of Plotinus is philosophical, for it symbolizes the ultimate three in one, or the universal principle, with its subjective and objective aspects, which is the real source of all theories of a tripartite divinity.

* Also notably consult Exod. iii: 14; Deut. xxxii: 39.

ROMAN LAW

In passing from ancient to modern philosophy, we encounter the civilization of the Romans in which the science of mind, as compared with that of jurisprudence, held so inferior a position. During and long after the Augustinian age, the Romans looked to Alexandria for their philosophy, and the Church of Rome derived from the same source its profoundest theories of existence.

With the Romans, philosophic originality took the form of law. In creating their marvellous legal system they were impelled not by a motive of conscious literary production, but by the instinct of social development. Thus the treasures of Roman jurisprudence were accumulated as a result of the organic growth of the state. In this great commonwealth the source of authority was the will of the people, voiced by the decrees of magistrates empowered by the people to legislate. Hence Roman law is one of the surest historical foundations of human liberty.

The civil edicts of the Romans were formulated with singular independence. Before the law of contract, of inheritance and of family relationship, the plebeian and the patrician were equal. To the edicts of the Roman magistrates we owe nearly all the legal principles under which we now live. They were the basis of canon-law, for the ecclesiastical courts administered them after Rome lost her sovereignty. Thence they passed into our common-law. Indeed, so profound has been the influence of this system upon the nations of Christendom, that in a legal sense we are to a great extent a perpetuation of the Roman state.

Up to the time of Tiberius, when the foundations of the vast tribunal or court system were laid, the Romans

had no law schools, no professional lawyers, no professional judges. The inconceivable riches of their jurisprudence were contributed by soldiers, by statesmen and by land owners, by men who devoted only part of their time to the practice of law. From the many persons daily besieging their homes in quest of legal advice the Roman jurists never thought of asking recompense. They solved legal problems just as the problems of other sciences have been solved, for the sake of truth.

To the Roman people we are indebted for the only coordinated legal system of antiquity, an institution which, as above indicated, arose spontaneously as a result of social development. Like the art and the philosophy of the Greeks, the legal science of the Romans has never been superseded. As language is the structure of thought, so law is the structure of morals. The Romans, therefore, have laid for us the foundations of ethical science.

CHURCH DOGMATISM

From the decline of the school of Alexandria to the revival of learning in Europe, philosophy remained subservient to the Church. During the centuries known as the Dark Ages, the cloister provided learning with a home; but when the mind of Christendom, encouraged by growing civil liberties, sought to regain independence, it found in its ecclesiastical protector a powerful and a determined enemy.

The opposition of the Church to scientific progress, says Turgot, does not imply the advocacy of error; "what opposes the progress of truth is indolence, obstinacy and the spirit of routine."

The Christian religion teaches one central truth.

To the believing Christian, God is made manifest through Christ. The character of deity is revealed in the life of Jesus. The controlling motive of Jesus was love working regeneration. This doctrine of devotion to the race as the source of social progress is the root of all that Christian practice has steadfastly taught, and moreover, it contains all the elements of a true system of ethics.

The civil character of the early Christians was formed under the guidance of Roman law, and their minds were developed in a community enlightened by the ideals of Grecian Philosophy. The fathers of the Church instinctively availed themselves of these monuments of knowledge for their own work. The civil organization of Rome determined the form of the Church, for that institution was built upon the existing lines of the Imperial Government. The dioceses of the Church were identical with the subdivisions of the Empire, and her local counsels were a reproduction of the political "Concilia." The Bishop and the priests of a province composed a synod, while the *Sacerdos Provinciæ* with his deputies (*legati*) constituted the partly civil and partly religious councils of the Empire. Thus it was by following the lines of existing civil institutions that the Christian hierarchy gradually absorbed the functions of the decaying Roman state.

Neo-Platonism had created a literature in which the Hellenic and Hebraic faiths found a certain reconciliation. The worship of Jehovah and the Platonic idea of divine unity joined in a mystic theosophy. From this competition of personal and universal authority modern civilization has sprung.

Where conflicting principles are assembled reactions

inevitably ensue;—hence the wars of the heresies which distinguished the early epochs of Christian development. From this tumult asceticism retired. A great monastic system appeared, at whose doors have been laid the darkest of crimes, grotesquely mingled with the sublimest virtues. The treasures of ancient art and letters preserved at the Vatican silently reproach the Christian monks, who destroyed the statues of the Greeks and the library of the Alexandrians, and yet, where are we to find higher examples of devotion than have been offered by Christian ascetics? Asceticism is a pietistic extreme. Like bigotry and superstition, it is reactionary. The power which enabled the Church to supplant the Roman commonwealth was not gained by extreme measures. It came from the offer of place and emolument alike to the haughty Roman citizen and to his bondman, and of asylum to the oppressed. It came from the offer of spiritual freedom to the greater part of the people who were slaves, and of social influence conferred by proclaiming the religious equality of women. The facts of Christian development illustrate the immortal dictum of Montesquieu: “I will ever repeat it, mankind is governed not by extremes, but by principles of moderation.” These righteous and moderate influences strengthened the authority of the Church and gradually converted the Roman Empire.

In competing with other religions, Christianity added many extraneous beliefs to the idea with which it began. This idea was the original doctrine of regeneration symbolized by a Kingdom of God founded upon Love, but it gradually became obscured by accretions of dogma and ritual.

We are told that of all nations of antiquity the Jews

made most manifest the distinction between holiness and sin. The divine gift of holiness they regarded as inseparable from their laws and rites. They believed that its benefits were intended exclusively for their own race. But Jesus belonged to a class of reformers who strove to give the advantage of salvation to the whole world.

The first form assumed by Christianity, therefore, was the distinctively Hebraic faith in a Messiah,—the race deliverer, the innovation upon the old belief consisting in the offer of salvation not to a favored race, but to all mankind.

THE CHRISTIAN MYSTERIES

In the dogmatic development of the Church there early appeared the mysteries of the Incarnation, the Redemption, and the Trinity, each of which may be found in a developed form in other and older religions. The annals of the Patristic teaching tell us how these ancient mysteries were gradually absorbed by Christianity, and incorporated in its creeds, and how the complicated visions of the Gnostics and the Manichæans were rejected in favor of simpler forms of theosophy.

The Apostolic Fathers were occupied in the struggle between Jewish and Pauline Christianity, or between Christ sustained by the law of Moses and Christ alone. The triumph of the latter resulted in the utter separation of ecclesiasticism from Judaism and the independent development of a hierarchical Church.

THE PATRISTIC FATHERS

JUSTIN MARTYR

Justin Martyr, who followed immediately after the Apostolic Fathers, gave his allegiance first to the Stoics and to Plato, and afterwards to Christianity. The inspiration of the Greek philosophers and poets he ascribed to the Divine Spirit, but maintained that a more complete revelation was to be sought in Christ. The middle of the Second Century found Justin advocating the moral law of the Jews, and the Pharisaic doctrine of a conditional future life arranged so that the soul might receive rewards and punishments after death. This great Father also espoused the Persian dogma of the resurrection of the body, and the original Christian theory of a millennial reign of Christ to precede the final judgment.

CLEMENT OF ALEXANDRIA AND ORIGEN

Clement of Alexandria and Origen declared that the condition of salvation is active obedience to the divine law. These Fathers disagreed, therefore, with the teaching of Justin and Irenæus, for they held that the soul is immortal by nature, existing before and after the body. In their opinion the fate of the soul, whether that of happiness or of damnation, depended upon the favor of God as a gift of divine grace.

Clement and Origen maintained that the goodness of God could be better illustrated by bringing to an end the punishment of the transgressor so that he could return to original blessedness. This humane doctrine is in contrast with the theory that since the sin of our first

parents, we do not inherit original blessedness, but, on the contrary, we are born in a state of total depravity from which we can be saved, not by good actions, but only by the gift of God's grace. The Council of Nicæa (A. D. 325) gave sanction to the theory of total depravity in the vain attempt to establish, by ecclesiastical authority, harmony among the conflicting dogmas held in the Church.

GREGORY OF NYSSA

The Church had already gained a recognized supremacy in the Roman state when Gregory of Nyssa promulgated the doctrine of Election, the theory that God, knowing in advance how each human being would decide concerning salvation, rejects some and elects others. If decided in advance, man's fate cannot depend upon his own actions. Gregory professed to think that divine justice would not permit eternal punishment. He advocated the more humane doctrine that punishment is a purification, or that by the ultimate triumph of the divine will all shall be saved.

ST. AUGUSTINE

The most prominent figure among the Patristic Fathers was the African St. Augustine, to whom we are indebted for a refutation of the benignant teaching of Gregory concerning the will of God. In attempting to vindicate the dogma of eternal damnation, St. Augustine reasoned that the vast number of human beings condemned by Providence to endless suffering are instances of divine justice.

St. Augustine also taught, with undoubted sincerity, that that which faith holds to be certain should also be comprehended by the reason. In the *De Vera Religione*,

he asserts that philosophy and religion should be one. It is worthy of note, however, that in the last literary production of this eminent theologian, *The Retractions*, written a few years before his death, A. D. 430, he recants his earlier views, deemed too favorable to the sciences and to human freedom, in order that his writings might coincide with the teachings of the Church.

These conflicts of opinion concerning rewards and punishments,—disputes which have been coextensive with the history of the Church,—will ultimately yield to psychology and ethics. These great sciences will eventually explain the nature of God and the human soul, or, in more modern parlance, they will enlighten us as to the ultimate nature of authority.

SCHOLASTICISM

To the modern mind accustomed to regard the state as the sovereign power, the condition of Europe during the Middle Ages is scarcely conceivable, because the chief governing power, instead of being political, was ecclesiastical. The Roman Church having become a state within a state, its influence in political as well as in spiritual matters was supreme.

The fact that Europe was divided into a multitude of small territories, in each of which the civil government had but feeble control, causing justice to depend upon force of arms, gave to the hierarchy universal sway. Owing to the inefficient political organizations, the Church was often the only protector of the poor and helpless. In the disputes of rulers it frequently assumed the function of arbiter by persuading princes that its sanction was necessary to their authority.

The influence upon thought of this religious autocracy

was as enervating as might have been expected. Like all unrestricted authority, it corrupted those who wielded it. But, as often happens, the suppression of truth resulted finally in its vindication. Through the admirable sincerity of the religious dogmatist science was enabled eventually to triumph; for, as the history of scholasticism shows, the more the dogmatist meditated upon his beliefs the more outspoken he became in his conviction that the Church doctrines could not be reconciled with reason.

Scholasticism represents the intellectual life of the Middle Ages. It includes the chief theological and scientific controversies of that epoch. During this period the natural sciences were cultivated only in a slight degree. The all-pervading ecclesiastical power centered attention upon theology, and, as a consequence, the most learned and gifted persons in all Europe were absorbed in questions of systematic divinity. But as the modern mind became disenchanted, public interest in theology declined. Reason gradually became the arbiter of faith for the Renaissance ushered in an era of free investigation which obtained at last the reluctant sanction of orthodoxy.

JOHANNES SCOTUS

The earliest noteworthy philosopher of the Scholastic period was Johannes Scotus, or Erigena. He was educated, it is said, early in the Ninth Century at the schools then flourishing in Ireland. In 843 Charles the Bald invited him to take charge of the Court School at Paris.

The Fathers did not hesitate to interpret the Scriptures allegorically, modifying them in accordance with

their own views. This treatment of Holy Writ resulted naturally in the habit of dogmatizing. In after years the Scholastics treated the writings of the Church Fathers with the same reverence as they accorded the Scriptures. An examination of the conclusions arrived at shows that the Scholastic attempts to reconcile the Bible and the Fathers inevitably led to contradictions.

The course of truth never runs smoothly. The first Scholastic philosopher began by getting into trouble with Rome. At all times ready to assert the authority of the councils, the hierarchy was unceasingly occupied with heretical controversy. Rome did not realize that "Truth makes revelation, not revelation, truth." As knowledge slowly developed, a greater and greater number of dogmas were found incapable of demonstration. One of the sources of this revolt of reason against dogmatism was the Aristotelian philosophy, which constantly inspired a spirit of original investigation. As a consequence there arose in the very bosom of the Church a feeling of antagonism toward the peripatetic system, notwithstanding the fact that it had so long enjoyed the protection of orthodoxy.

Pope Nicholas I. complained to the King of France that Scotus did not submit his translation of *Dionysius Areopagita* to his censorship. To such close pontifical scrutiny can be traced much of the uneasiness still felt concerning certain versions of the ancients.

Scotus was an independent thinker and endeavored to harmonize philosophy and religion. Where there was conflict with ecclesiastical authority, he gave the preference to reason. Very delicately, however, was this independence expressed. "We must," says Scotus, "piously accept the teachings of the Fathers; yet it is permitted

us to give preference to what appears in the judgment of the reason, more in accordance with divine knowledge, especially where the ancient teachers of the Church are in contradiction." So deep-seated, however, was the disagreement among the Fathers, that the appeal of Scotus to reason had eventually the effect of overthrowing the intellectual authority of the Church.

There is a general impression that the writings of the Scholastics were arid and their reasonings specious. As a rule, they adopted a severe dialectical method, often giving minute attention to matters now considered as puerile. When we find them, for instance, earnestly debating how many spirits can dance upon the point of a needle, we are apt to question the sense of their inquiries. And yet for those who believed in disembodied spirits nothing could have been more natural than the question of the room they require. Had it been possible for the Scholastics to have consulted a biologist, they would have learned that there can be no function without structure. Hence even spiritual or intellectual functions occupy space.

In the first book of Scotus an attempt is made to co-ordinate the categories of thought, or to discover the relationship of universals. This author regarded not motion alone, but motion and rest, as ultimate. Since it has been discovered that both substance and rest are arrested motion, it is clear that some of the Scholastics came very near to a last analysis.

According to Scotus, Predestination, which means fore-ordained punishment for man, is a proof of the goodness and justice of God. In attempting to justify this doctrine, he offered the comforting reflection that

it is better that a few should be saved than that all should be lost.

By this time the heresies had become so numerous as to present almost every possible shade of dissenting opinion. Although there was a body of dogmas serving the purpose of a creed, the trend of orthodoxy was by no means clearly defined. Then, as now, it was not uncommon to hear bishops complaining of the infidelity of their more thoughtful contemporaries. New interpretations of the Incarnation, the Redemption and the Trinity, were constantly appearing. In this ceaseless war of opinion there was conspicuously lacking a standard of faith. The Apostolic Fathers could not agree concerning the meaning of the Scriptures, the Scholastics could not agree concerning the beliefs of the Fathers, or the decrees of the councils, while reason vehemently protested against all but one of the Christian dogmas, whether heretical or orthodox. And yet, so essential to human happiness is a theory of existence that throughout this vast conflict of opinion the Christian retained his faith.

The only Christian doctrine that represents the aim of the Church and at the same time appeals to the reason is that of love working regeneration. This doctrine develops naturally into a sublime and an imperishable example.

ROSCCELLINUS

Roscellinus, canon of Compiègne, was the first advocate of Nominalism against the pretensions of Idealism, a theory which was then called Realism. He believed that words and ideas represent facts, whereas the Realist believed that facts represent ideas. Between these extremes lies the truth, for when it is understood that in

the deepest sense thought is action, there can be no dispute concerning the comparative reality of ideas and facts.

Roscellinus maintained that universals, or general ideas, derive their reality from the facts which they classify, and, therefore, that the general idea of the Trinity can become a reality only in its individuals, their unity of substance disappearing as a mere name. For this tritheistic doctrine Roscellinus was impeached by the Council of Soissons in 1092. The members of the Council, representing extreme Realism, maintained that facts are only copies of ideas, and hence the Father, the Son and the Holy Ghost, which they assumed to be facts, are not individual realities but only copies of the one idea of God.

The worthy Roscellinus reluctantly acquiesced in the decree of the Council. His recantation, confessing that the three individual Godheads are not separate realities, had the good fortune of agreeing not only with orthodoxy, but with reason.

ANSELM

Of all the Scholastics the most orthodox was Anselm, Archbishop of Canterbury. Both in thought and deed, he required absolute submission to ecclesiastical authority. On the score of originality, therefore, we need have no fear of his opinions.

The fervent piety of Anselm caused him to subordinate philosophy to theology. His aim was to place on a logical basis, not only the monotheism of the Trinity, but the mystery of the Incarnation, although many eminent Scholastics, even including Thomas Aquinas, frankly admitted that these mysteries could not be conceived as rational, but should be accepted upon the authority of

revelation or by faith. The Archbishop, however, believing implicitly in Church dogma, labored to prove the rationality of his creed, which is an instance of the homage sincerity instinctively offers to truth.

Anselm reasoned that since man's sin is infinite, it requires infinite punishment. If, therefore, it were the fate of all mankind to be eternally damned, it would still be in accordance with divine justice; but such severity being contrary to divine goodness we have need of the Christian scheme of atonement. Thus the greatest of all revelations, which is that justice and goodness are one, found no favor in the sight of this worthy archbishop.

ABELARD

The aversion of the ecclesiastical authorities of the Middle Ages to independent thought was modified in the case of Abelard, a scholar and dialectician known to fame not only for intellectual prowess, but also because of his devotion to the brilliant Heloise.

Although he taught theology after the approved Aristotelian method, Abelard's views were rationalistic. "Words," said this author, "were invented by men to express their thoughts, and must conform to facts." From this it is evident that Abelard was not a Realist, for in that case he would have said that facts must conform to words. He opposed the realistic tendency to account for phenomena by ideas, because he saw that thought is related to phenomena in the same manner as a reflection to its object. Of course, the reflection itself can be viewed as an object. If thought is made an object of thought, the result is a re-reflection. To each individual the ideas of others are external, or a part of objective phenomena. When it is realized that

both are forms of motion, there will be no question as to the comparative reality of ideas and facts.

The engrossing interest of Scholasticism was the contention between Nominalism and Realism. Some writers class Abelard as a Nominalist, others as a Realist, and still others as a Conceptualist. Throughout all post-Greecian philosophy one distinction can be traced, originating in the divergence between the teachings of Plato and Aristotle. Plato invested ideas with absolute existence. He believed that thoughts come nearer to reality than facts or nature; and as we recognize ideas only by means of names, he gave to ideas and to their names a deeper reality than to phenomena. This was the metaphysical theory of Plato, and is best known by the term Idealism.

The opposite of the idealistic theory is the method of investigation accompanied by verification and the grouping of the results into more and more general truths. The ideas of science are always subordinate to facts, because evolved from them. This, in general terms, was Aristotle's method, and is distinguished from Plato's in that the latter regarded ideas themselves as the source of reality.

Realism is the theory that certain kinds of ideas, known as general, such as animal—man—truth—have an absolute existence, separate from the facts which they generalize.

Idealism maintains that all ideas have an absolute existence, such as both the idea of a given man, and the idea of man in general, or that of a given animal and the order animal.

Nominalism, on the other hand, is the ultra-scientific theory. It holds that names and the ideas they represent are signs of facts and their relations; that a general

name, such as circle, stands simply for the relation of a circumference to its center. This relation can be generalized by applying it to many single facts; but in each case it is the function of a fact and has no absolutely separate existence.

To repeat, Realism holds that the name circle stands for an existence more real than the conditions of a circle. It is a form of the Idealism of Plato which believed in divine Archetypes, from which all concrete embodiments are derived. But this theory of Plato has fallen into such disrepute that the word ideal has come to signify the opposite of real. To us real means the actual or the verifiable as distinguished from the ideal or the phantasmal.

It is not surprising, therefore, since the terms are generally understood as having an opposite meaning, that the general reader should be puzzled when told by the historian that Realism is a species of Idealism. In short, Idealism holds that *all* reality is in the mind; while Realism maintains that only the greater part of reality is in the mind. Nominalism, on the other hand, proclaims that the mind is the function of organic conditions and that its vehicle, language, is purely symbolic. Now, evolution proves that mind and phenomena are simply different points of view of nature, and that nature and reality are one.

Imagine, therefore, the confusion arising from the contention of the Scholastics that Aristotle, who stood for the rational or scientific method, was a Realist or a quasi-Idealist. The fact is that Aristotle endeavored to oppose the Idealism of Plato, but he became so entangled in its mystical phraseology that, in the Middle Ages, certain of Aristotle's works were interpreted in the

spirit of Scholastic Realism, and were identified with religious orthodoxy. Hence we shall not be surprised to find a line of reformers from Abelard to Francis Bacon, attacking Idealism by denouncing the orthodox versions of Aristotle.

Even those who place no credence in religious dogma may commiserate with the Church on account of the number of heresies that arose against it. The simplest form of religion is the aspiration for a higher life. Without this aim the Church could not subsist, for eventually it is by reason of their utility that all institutions survive. The accretions of dogma, clinging to the structure of Christian faith, have been thus far supported by the mighty human purpose beneath.

The Church received its beliefs from numberless sources. The wonder is not that so many doctrines were rejected, but that so many were accepted. The hospitality of the hierarchy to the tenets of other religions is well known. From the worship of Isis and of Buddha; from the cults of the Greeks and Romans; from the teachings of the Jews and of the Neo-Platonists; and from the philosophy of the Aristotelians, the Stoics and the Scholastics; the Church of Christ has received beliefs connecting it by countless invisible ties with the intellectual and the devotional life of the past. Yet, many opinions arose for which no room could be found in the Christian household. Over the question of the acceptance of these doctrines wars were waged. It would be wrong to suppose that in the majority of these conflicts the hierarchy was the aggressor. As a rule, the Church opposed heresies only when its authority was endangered. In resisting heterodoxy the hierarchy was contending with overwhelming

forces of disintegration, which threatened not only religion, but the order of society.

We are wont to condemn organized religion because it is an intellectual despotism, but until we can find a better guide for the great majority of men, who, alas, will always depend upon others for thought, we must concede its utility. True criticism is not destructive, it is always constructive. The religion of Christ will never be destroyed. It will be superseded by a better and a higher faith, to which, in the course of evolution, it will give birth and through which its sublime principles will live again.

Nestorius, a Fifth Century patriarch of Constantinople, proclaimed that the Virgin Mary was not the mother of God, for the reason that divinity could not be a member of a species. He was condemned at Ephesus and exiled to Egypt, but his followers became so numerous and powerful that the orthodox party declared war upon them, and they were driven into Syria. Before the time of Mohammed, Nestorians, who resided among the Arabs as physicians, translated the works of Plato and Aristotle into Arabic. Through this medium the medieval Christians were destined to gain their knowledge of Greek Philosophy. In the meantime, while Hellenic thought flourished among the Mohammedans, among the Christians it declined, for the decree of Justinian, suppressing Neo-Platonism, had for many centuries the effect of debarring the faithful from the inestimable benefits of the Greek language and literature.

ALBERTUS MAGNUS

Albertus Magnus, who belonged to the Thirteenth Century, was the first Scholastic to revive interest in the Peripatetic school. For generations Aristotle had been known in the Church in a fragmentary way, but Albertus restored to light the system as a whole, thereby unconsciously preparing the way for the subsequent revolt of reason. Unacquainted with the original, in his presentation he followed Avicenna and Averroes, as well as the Jewish philosopher, Maimonides, but he did not hesitate to modify the doctrines of the great Stagirite to meet the views of the Church.

THOMAS AQUINAS

The chief interest of the Scholastic period centers in Thomas Aquinas, the pupil of Albertus Magnus. Aquinas taught that Christian dogma cannot correspond with reason but is revealed only unto faith. Such a belief could not fail eventually to injure orthodoxy, for in the last analysis reason and truth are one. The writings of Aquinas, which are acknowledged to be the completion of orthodoxy, repeatedly aver that theological dogmas have never even professed to be scientifically true.

Theology, or systematic divinity, has always sought to transcend nature. To romance nothing is impossible. Theology is the romance of divinity, the story of an unknown world peopled with unknowable beings. If to persuade an enlightened people to acknowledge the authority of reason, it is necessary to appeal to the imagination, the examples or characters employed should conform as nearly as possible to nature, the source of all truth; for when discrepancies are dis-

covered between the teachings of the Church and those of experience the former invariably suffers.

The people are guided by authority rather than by reason. The masses yield to personal suasion; "they seek not to understand, but to obey." But it is no longer safe to rely upon popular submission to ecclesiastical authority. The instinct for truth is ever active, and the Church must find a way of conforming its teachings to the revelations of nature.

Until reconstituted after their return from captivity under Ezra, the ancient Hebrews were a collection of tribes lacking political solidarity. The hierarchy taught them the principle of nationality, and the temple was the center of religious and political unity. Their faith in Jehovah was therefore a necessity. The Christian nations are learning that the highest nationality is community of human interests. The realization of this ideal of a common humanity was the aim of the medieval church and the essence of its catholicity. Hence the worship of a personal God is preparing the way for that highest catholicity known as the reign of justice.

Aquinas said: "The doctrines of the creation of the world in time, of original sin, of the Incarnation of the Logos, of purgatory, of the resurrection of the flesh, the judgment of the world, and eternal salvation and damnation are not to be demonstrated by natural reason, for reason cannot from its own principles advance to the demonstration of these dogmas."* In other terms, the mind cannot develop naturally and believe in them. "The fact that these dogmas cannot be proved," he continues, "is a sort of merit attaching to faith, for the in-

* Sum. Theol., 1 In. 32 Art. 1.

tellec assents to them not because convinced by proof, but in obedience to the will.”*

Here is an example of complete submission to ecclesiastical authority, or of surrender of the mind to the Church. None of the earlier Scholastics or of the Church Fathers made so clear the distinction between dogmatism and reason. Although a partisan of the Church, Aquinas was always honest. The sincerity with which he dwelt upon the discrepancy between dogma and reason has gone far toward enabling later generations to triumph over superstition.

With the advent of the Renaissance and Humanism came a general revolt against sacerdotal rule,—a movement requiring no little courage on the part of its leaders, for at that time nearly all Christendom believed that the soul could be saved only by the assistance of the priesthood. All accounts agree that the popular heart was set upon attaining salvation. The opportunity thus afforded was, perhaps, utilized by the Church in the best possible manner at a time when great allowance must be made for feeble political organization and its consequent unenlightenment. It is difficult to read the ecclesiastical chronicles of this epoch without indignation. Before giving way to resentment, however, it will be well to remember the vast services rendered to society by the Church even during the reign of sacerdotal crime. The devotional life of a community is an outgrowth of the political status. Undeveloped ideas of deity mean undeveloped civil institutions, for, after all, religion is always a reflection of the popular conception of justice.

* Sum. Theol., 11, 2.

THE REFORMATION

Although the Reformation resulted eventually in enlightening society, its leaders were by no means intellectually free. Luther, who, next to Erasmus, was the greatest opponent of papal tyranny and corruption, said that "Reason is the devil's harlot and can do nothing but blaspheme." Salvation through the priesthood was the old regime. The order introduced by Protestantism was salvation through faith; but a faith consisting of an unquestioning reception of the Scriptures. Instead of the Pontiff, the Bible was made the autocrat;—that book which of all others requires the most delicate and sympathetic analysis in order to disengage the spirit of righteousness which it contains; that book which is capable of so many different interpretations that each of the three hundred or more conflicting sects of Protestantism has drawn from it a separate rule of faith.

The Reformation was not only an assault upon sacerdotalism. Luther also bitterly opposed the writings of the ancients. Blindly attacking the learning which the Church had conserved, he regarded some of the greatest intellectual achievements of the race as part and parcel of the hated hierarchy. In his enthusiasm for the Bible, he would have made it the repository of all knowledge. Unwittingly selecting the master of ancient thought as the object of his wrath, he said: "If Aristotle had not been of flesh, I should not hesitate to affirm him to have been truly a devil."

The Scriptures, however, proved to be but human literature, and when the Protestant Church began the task of educating its ministry, it was compelled to look beyond Holy Writ for the foundations of knowledge. Melancthon, Luther's associate, soon discovered that the

ancient classics were indispensable and finally confessed, as even Luther did afterward, that the new Church could not dispense with the monuments of Aristotle.

GIORDANO BRUNO

Philosophy as well as religion has had its martyrs. In Rome, on the 16th of January, 1600, Giordano Bruno suffered death at the stake on account of his opinions. This great reformer was the first to give to modern science a true method and evolution.

The devout society of the time was not wholly without sympathy for advanced thought. Many Italian rationalists were priests who enjoyed the protection of powerful prelates. These free thinkers created within the Church a body of independent learning which was afterwards generalized by Bruno.

At this time, through progressive methods, the pursuit of knowledge found new life. Before the renewed investigations of nature the mystical form of all the sciences were giving way. The astronomy of Aristotle and Ptolemy was revolutionized by the discoveries of Copernicus. To the mind of Bruno the universe was infinite in time and space, instead of being, as the theologians taught, limited in both. The solar system was one of innumerable stellar systems. God was the power of nature. Recognizing the unity of mind and matter, Bruno saw in the monad properties not only physical but psychical, thus connecting the evolutionary theories of Aristotle with those of modern times.

Soon after entering the Dominican order at Naples, where he had been educated, Bruno journeyed to the Republic of Genoa and thence to Venice and Geneva in quest of a broader horizon, but the reformed orthodoxy

of the latter place repelled him as much as had Roman Catholicism. At the Sorbonne, at Oxford and at the German seats of learning, this apostle of advanced thought was heard. With such vehemence did he attack the science of Aristotle and Ptolemy that at some of the universities debates of great moment were organized to oppose him. These intellectual tournaments were a feature of the age, providing for philosophical discussion the opportunity now afforded by the modern periodical.

At that time almost all learning was confined to the Church. The works of Aristotle were regarded with the same reverence as that in which the Bible is now held. The Aristotelian logic and physics, and the Ptolemaic system of astronomy were integral parts of the accepted faith. Around these germs of science ecclesiastical dogma had crystallized, and all who, for any reason, opposed the orthodox position were persecuted as enemies of society. The hold upon the public mind obtained by this miscellaneous body of opinion is to us scarcely conceivable. In 1624—a quarter of a century after Bruno's martyrdom—the Parliament of Paris issued a decree banishing all who publicly maintained theses against Aristotle; and in 1629, at the urgent remonstrance of the Sorbonne, it again decreed that to contradict the principles of Aristotle was to contradict the Church. A student, so runs an anecdote of the time, having detected spots in the sun, communicated his discovery to a worthy priest. "My son," replied the priest, "I have read Aristotle many times, and I assure you there is nothing of the kind mentioned by him. Go rest in peace; and be certain that the spots which you have seen are in your eyes, not in the sun."

From the time of the Alexandrian school and of the Neo-Platonists, for more than a thousand years, philosophy remained subservient to the Church, gradually degenerating into a mystic theosophy. Against this practice Bruno led a rebellion, seeking to free the mind from its appalling bondage. For this great service to humanity, during the six years preceding his martyrdom the reformer languished in prison deprived of books and writing materials.

But the progress of thought is irresistible. Beginning with the debates of the later Scholastics, the revival of learning steadily advanced, demanding, finally, definitions of universals.

FRANCIS BACON

Although no age has been without the aid of induction or the scientific method, we are, even yet, far from appreciating its importance. Bacon endeavored to make the authority of experience supreme. To no one more than to him are we indebted for those reforms which are gradually emancipating the modern mind from occultism and superstition. "Turn where we will," exclaims Macaulay, "the trophies of that mighty intellect are full in view."

The life of Bacon was cast in times of profound religious disturbance. The discoveries of science were beginning to arouse the deepest interest. All Europe trembled with the efforts of independent investigation. Throughout the Dark Ages religion and science had gone unsuspectingly hand in hand, but were now parting, never again to be united except through the identification of their principles.

The revival of learning found science indeed feeble,

for hitherto the Church had been the arbiter of all questions of the understanding. The devotion of Bacon to the method of experiment and verification and his heroic opposition to unenlightened tradition give him a high place among the founders of education.

Although known as the father of experimental philosophy, Bacon gave but little heed to metaphysics. Notwithstanding its avoidance of ontological problems, the power of the *Novum Organum* lies in its grasp upon the principles of existence. Without performing an ultimate analysis, Bacon perceived that consciousness is *organic*. Seeing that mind springs primarily from conditions wider and deeper than personality, he declared that all knowledge is evolved from the action and reaction of organism and environment.

"Man," says Bacon, "who is the servant and interpreter of nature can act and understand no further than he has either in operation or in contemplation observed the method and order of nature."* In other terms, to understand we must have had experience. If our experiences do not enable us to perceive general truths, we must multiply and classify them as the only means of advancing knowledge. To reduce the method of Bacon to a sentence, he endeavored, in the words of St. Paul, to "Prove all things," and "hold fast that which is good." His plan was the systematization of graduated verification as the sole method of research.

"There are two ways," continues our author, "of searching after and discovering truth; the one from sense and particulars, rises directly to the most general axioms and, resting upon these principles and their unshaken truths, finds out intermediate axioms, and this

* *Novum Organum*, 1. aph. 1.

is the method in use; the other raises axioms from sense and particulars by a continued gradual ascent, till at last it arrives at the most general axioms—which is the true but hitherto untried way. The understanding, when left to itself, takes the first of these ways and prepares it in logical order; for the mind delights in springing up to the most general axioms that it may find rest; but after a short stay here it disdains experience, and these mischiefs are at length increased by logic for the ostentation of dispute.”*

Thus Bacon sought to acquire knowledge by interpreting nature, and yet he failed to perceive that the greatest need of the race is a point of beginning, so that the “graduated verifications,” upon which he so earnestly insisted, might take their rise from one incontrovertible truth.

That he felt the need of the unification of knowledge, however, is evident from the following: “But let none expect any great promotion of the sciences, especially in their effective part, unless natural philosophy be drawn out to particular sciences; and again, unless these particular sciences be brought back again to natural philosophy. From this defect it is that astronomy, optics, music, many mechanical arts, and, what seems stranger, even moral and civil philosophy and logic rise but little above their foundations and only skim over the variety and surfaces of things, viz.: because after these particular sciences are formed and divided off, they are no longer nourished by natural philosophy, which might give them strength and increase and, therefore, no wonder if the sciences thrive not when separated from their roots.”†

**Novum Organum*, 1. aph. 19-20. †*Novum Organum*, 1. aph. 79-80.

From this it is evident that although Bacon regarded knowledge as an evolution, he made no attempt to reduce mind and nature to an ultimate principle. So deeply impressed was he with the importance of graduated verification, that its complement, the deductive method, seemed to him a mere labyrinth of error. Notwithstanding his devotion to the scientific method, Aristotle did not ignore deduction. It was Bacon's aversion to all forms of dialectical or deductive reasoning which led him to complain that Aristotle corrupted the simple truths of natural philosophy with logic. And yet for centuries Aristotle was regarded as the originator of the inductive or scientific method, the very system which arrives at general truths through particulars.

Through the co-ordination of the most general terms of existence, Aristotle endeavored to reach an ultimate principle. To this end he framed his categories. But these higher peripatetic speculations met with no sympathy from the Baconian empiricism, and nevertheless it was from the great Stagirite that Bacon inherited the title of "Father of the Inductive Method."

Induction and Deduction are reciprocal methods of investigation, and always imply each other. The former is synthesis, the latter analysis. To analyze is to take for granted a synthesis, to synthesize is to imply an analysis. They are correlatives. One system is the complement of the other.

During the time of Aristotle, as well as of his remote successor, Bacon, knowledge was regarded by the masses as sacred; its categories were held to be divine mysteries and their analysis a sacrilege.

Both Aristotle and Bacon taught that experience is

the criterion of truth, and that the order of nature is the only law. Thus, although failing to recognize the achievements of the father of induction, Bacon advocated the peripatetic method of evolving knowledge from experience.

NOTE.—It would be ungrateful to close this chapter without acknowledging the benefits derived from a long and intimate association with my lamented friend, Prof. D. O. Kellogg, of Vineland, N. J. This profound scholar and theologian gave me the inestimable advantage of his criticism, especially concerning the evolution of Christian belief.

CHAPTER VI

MODERN PHILOSOPHY

*Descartes — Spinoza — Hobbes — Locke — Hartley —
Leibniz—Berkeley—Hume*

The Cartesian philosophy marks the transition from mediæval to modern thought. Like his contemporary, Galileo, Descartes suffered much from the religious intolerance of his time. While studying under the Jesuits at La Flèche, he was impressed with the insufficiency of the theories of Christian orthodoxy. In despair he exclaimed: "Our studies enable us to discern only the hopelessness of our ignorance." As a last resource he turned to the sciences in the search for truth.

The course of reasoning which led to his application of Algebra to Geometry, Descartes described as follows: "The long chains of simple and easy reasons which geometers employ in arriving at their most difficult demonstrations, made me fancy that all things which are the objects of human knowledge are similarly interdependent; and that, providing we abstain from assuming anything false, and observe the correct order in deducing things one from another, there are none so remote that we cannot reach, or so hidden that we cannot discover them. I was at no trouble in finding out

where to begin; for considering that the mathematicians only had attained to some certainty, and this because they occupied themselves about the easiest subject of all, I thought I should examine this first. To explain the mathematical sciences by the briefest possible symbols, I should borrow all that was best from geometrical analysis and from algebra and correct the defects of each by the other.”*

This method of graduated verification opened up to Descartes new fields of discovery. Beginning with mathematics, he applied the principle to physical science, and even entertained the hope of employing it in the study of mind. “Not that I venture,” continues he, “to examine forthwith all manner of problems, which would have been a violation of my rules, but, knowing that their principles must all be derived from (first) philosophy, in which I could as yet find none that were certain, I thought that here, above all, I ought to establish them.”

At the age of thirty (1624), we find Descartes working in seclusion in Holland. Eight years afterward he published the *Discourse on Method* and the *Meditations*, which at once interested the learned world. Charles the First of England, and Christina of Sweden urged the philosopher to visit their courts. The decision in favor of Stockholm proved fatal, for he soon fell a victim to the rigor of the Scandinavian winter; but not before founding, with Christina’s aid, the Academy of Sciences.

In accordance with the best theories of the ancients concerning the constitution of matter, Descartes identified matter and extension. He perceived that vacuum, or absolutely empty space, is impossible. “The essence,

* “Discourse on Method,” 2d section, Algebra and Geometry.

or first principle of matter, or substance," says Descartes, "is extension, and wherever there is extension there is matter. The substance which fills all space must be assumed as divided into equal angular parts. Why must this be assumed? Because it is the most simple, therefore the most natural, supposition. This substance being set in motion, the parts are ground into a spherical form, and the corners thus rubbed off, like filings or sawdust, form a second or more subtle kind of substance. There is, besides, a kind of substance coarser and less fitted for motion. The first kind makes luminous bodies, such as the sun and fixed stars; the second makes the transparent substance of the skies; the third kind is the material of opaque bodies, such as earth, planets, etc. We may also assume that the motions of these parts take the form of revolving circular currents or *vortices*. By this means the matter will be collected to the center of each vortex, while the second or subtle matter surrounds it, and by its centrifugal effort constitutes light." "The planets are carried round the sun by the motion of this vortex, each planet being at such a distance from the sun as to be in a part of the vortex suitable to its solidity and mobility."* Although these theories can be traced as far back as the ancient Ionians, the interpretation given them by Descartes was regarded as advanced at the beginning of the Seventeenth Century, their author being one of the foremost physicists of his time.

It is manifest that Descartes was not aware of the full significance of his theory maintaining the identity of matter and space, for if matter and space are one there can be no doubt of the unity of mind and nature. In-

* *Principia Philosophæ*, Pt. III., LIV.

stead of universal unity, he insisted that there is an ultimate duality consisting of substance and thought, and yet, following the example of Plato, he identified mind with general existence or God. Now modern psychology demonstrates that mind is that special form of general existence known as organic, and that it is therefore not universal but limited.

Descartes' famous dictum, "I think, therefore, I am," really constitutes two identical propositions. His assertion amounts to this: Existence being thought, I think, therefore I exist, or, I think, therefore I think. By his capital axiom, "All clear and distinct ideas are true," Descartes meant that those ideas alone are true which have overcome doubt. As more fully explained in Chapter XIV., certitude consists of the surrender of doubt or of our *inability* to sustain objections. Like all other intellectual activities, belief is instinctive and, therefore, largely unconscious, for it is a form of the adjustment of organism and environment. The equilibrium called belief occurs only when disturbing doubts are set at rest.

From Descartes, who read and admired Bacon, scientific investigation received a great impetus. His theories of the physical sciences were elaborated long before the other parts of the system, but their publication was delayed on account of the alarm felt at the persecution of Galileo.

Descartes' first publication was entitled *Discourse on the Method of Properly Guiding the Reason in the Research of Truth in the Sciences: also Dioptrics, Meteors, and Geometry, which are Essays in this Method*. In this great work the author treats of the nature of God and of the human soul. By a course of reasoning not with-

out inconsistencies, the conclusion is reached that the human soul is absolutely distinct from the body; because it is put there by a divine being infinitely perfect. In the opinion of Descartes this perfect being exists because we have ideas of perfection. Ideas of perfection disclose imperfection, as the positive discloses the negative, or as being discloses non-being. This argument of Descartes would have been more rational had he conceived God or the ultimate reality as the order of nature. The scholastic training of our author is revealed by his conception of deity as an individual consciousness. The conception of God as an individual is an emanation of that mysticism into which philosophy had degenerated while in the service of the Church. In deducing deity from personal existence Descartes reversed the order of nature, for deity or universal order is the ultimate reality from which all individual facts are derivations.

Notwithstanding the well-known theism of Descartes, that is to say, his loyalty to a personal deity, the theologians of the Seventeenth Century were far from satisfied with his doctrines. The publication of the *Discourse on Method* precipitated a fierce controversy. On one side were arrayed the Catholics and Calvinists, and on the other the Liberals. So offensive were some of the attacks upon the author that the magistrates of Utrecht ordered their suppression.

About four years after the appearance of the *Discourse on Method* the *Meditations* were published in Paris with the King's privilege, under the title, *Meditations Concerning the First Philosophy in which are demonstrated the existence of God and the Immortality of the Soul*. Copies of this work were submitted in advance to the

ablest scientists and theologians, so that their criticisms might be published with the author's rejoinders. A result of these criticisms, coming as they did from such men as Arnauld, Gassendi and Hobbes, was to change the discussion from the immortality to the immateriality of the soul,—the latter being more in accord with the manner in which Descartes had treated the subject.

Not feeling satisfied with his demonstration of the immateriality of the soul, Descartes adds (in the preface to the *Meditations*) that a strict proof of this theory would require a complete system of physics. A clear and distinct conception of the soul as separate from the body, he continues, is necessary, because substances thus clearly conceived to be distinct must really be so.

In replying to Hobbes' objections to this argument, Descartes admitted that we infer the difference between mind and body from the difference in their qualities or activities, which, of course, remands the whole question to the science of psychology or to the study of mind as the function of an organism.

Aroused by the aggressiveness of Leroy, a disciple of Descartes, the Protestant theologians of Utrecht and Leyden inaugurated a crusade against the Cartesians. This movement began with disputations by theses in the universities, and was followed with intense interest by the public. The debates were at first confined to scientific questions, but Leroy, wishing to force issue with his opponents, boldly announced, under the authority of Descartes, that man is a being composed of the elements of mind and extension; and is not, therefore, a substance *per se*, but a substance *per accidens*. This can only mean that man, including his soul, instead of being unconditioned, is an evolution of nature.

This announcement amounted to a direct challenge of the powerful orthodox party, which stood upon the absolute or the miraculous origin of man. The Protestants, represented by the rectors of the Universities of Utrecht and Leyden, promptly resented the Cartesian hypothesis of the evolution of man. These hostile theologians were also loyal to Aristotle and, therefore, opposed the Copernican theory of the earth's motion round the sun, which Descartes accepted.

Such, however, is the unity of all things, that in studying the mind we are compelled to develop a comprehension of nature. There is no doubt that the acuter thought of the Seventeenth Century was arrayed against Christian orthodoxy, but the opposition of the Church to original research did not spring from an aversion to progress. The discoveries of science so disturbed the orthodox conception of man's position in the universe that all ecclesiastical authority was endangered. At that time the theologians believed that the order of society depended upon the Church. Who will blame them for insisting that the sun turned round the earth, if they were convinced that virtue itself was dependent upon that arrangement of the solar system? They were unable to understand that the movements of the heavenly spheres are of the same order as spiritual development, and hence that the discoveries of science are advancements of divine knowledge.

An enlightened religion conceives deity as the order of the universe, and intelligence or the soul as a function of the social organism. When religion realizes that it derives its powers from the organization of knowledge, it will strive to enlist in its service the best efforts of the mind. On the other hand, the discov-

eries of science will always disturb the Church that worships persons instead of principles.

The attacks of the Calvinist theologians, headed by Voet, were so bitter that to put a stop to the persecution, it was necessary to appeal to the Prince of Orange. It was that Prince who prevented the expulsion of the theories of Descartes from the Dutch Universities, and forbade the public burning of his books by the hangman.

The beliefs of the theologians were founded not upon reason, but upon faith. The influence of the Church, both Protestant and Catholic, was directed, therefore, against the fundamental principle of the Cartesian philosophy, which was the sacredness of reason or of the right of private judgment.

The great triumphs of the Cartesian system are the discourses in mathematics and in the physical sciences. These investigations of nature enabled their author to advance the Aristotelian theory of evolution, for they showed that all phenomena can be reduced to time and space, or to number and quantity, which at that time was a bold announcement. So accustomed have we become to the statement that all phenomena can be reduced to motion, that its full significance escapes us. The meaning of this statement is that motion accounts for life, and life, for mind. Even Descartes failed to fully appreciate this conclusion; for, although it can be inferred from what he said that all phenomena can be expressed in terms of motion, the result of his analysis of existence is that mind and matter are absolutely distinct, constituting an ultimate duality, instead of the divine unity of existence.

The *Principles of Philosophy*, the first planned and

last published of the works of Descartes, is the most comprehensive. The author admits that as a treatise on physics this work is incomplete, because it does not include plants, animals, and lastly, man, or, in other words, because it did not evolve psychology from biology. This admission is one of many evidences that Descartes at least dimly foresaw the evolutionary philosophy, as later expounded by Darwin and Spencer. But his fundamental postulate that consciousness and extension are irreconcilable is in conflict with the theory of universal development.

SPINOZA

Since Aristotle, no greater thinker has appeared than Benedict Spinoza. Born in Amsterdam in 1632, he was destined by his parents, who were Hebrews, to the service of the church. While studying at the synagogue of his native city, Spinoza conceived a distrust of the principles of theology. Finding him obdurate, the Rabbis resorted to the then terrible penalty of excommunication, a course which they afterwards vainly regretted.

With the ancients, piety meant the sentiment of humanity. It related more to character than to belief. "He that is unjust," says Marcus Aurelius, "is also impious." This sentiment was the inspiration of Spinoza, whose life was a rare instance of devotion to truth.

Scholarship was not enough for the Jewish doctors of theology. In order to support himself, the novitiate of the priesthood was obliged to learn some mechanical art. Spinoza chose the industry of polishing glasses for optical instruments. At Leyden and Rynesburg, where he had fled to escape persecution, we find him engrossed in study, but relying upon his trade

for support. His philosophical acumen soon attracted the attention of scholars. Powerful friends appeared with offers of assistance, but he preferred obscurity and independence, deeming both necessary for success.

It is now generally acknowledged that the ideas of Spinoza are sublime. The difficulty in comprehending them is due to the mathematical method employed. Since mathematics reduces all phenomena to number and quantity, its use as a vehicle of thought is limited. In the desire for simplicity, this limit was overstepped by Spinoza.

The method of this great thinker may be discerned from the following definitions of universals taken from the "Ethics." Opposite to each "definition" is placed an explanation based upon an ultimate analysis of existence.

"DEFINITION III.—By Substance I understand that which exists in itself, and is conceived *per se*; in other words, the conception of which does not require the conception of anything else antecedent to it."

Substance was conceived by Spinoza as existence itself or as the ultimate reality.

"DEFINITION VI.—By God I understand the Being absolutely infinite, *i. e.*, the Substance consisting of infinite Attributes, each of which expresses an infinite and eternal essence."

The infinite means space and the absolute time. According to Spinoza, the attributes of God are the infinite and absolute which mean simply space and time, the aspects of motion. God, therefore, means that ultimate known in mathematics as motion.

"DEFINITION VIII.—By eternity I understand Existence itself, in so far as it is conceived necessarily to follow from the sole definition of an eternal thing."

There is but one clear meaning of eternity, and that is time, which is the subjective aspect of motion, and, therefore, of existence. In Definition III Spinoza says that substance is that which exists in itself, and in Definition VIII

that eternity is existence itself. He, therefore, employs both substance and eternity in the sense of the ultimate reality.

“PROPOSITION VII.—It pertains to the nature of Substance to exist.

“*Demonstration.*—Substance cannot be created by anything else, and is, therefore, the cause of itself; its essence necessarily involves existence; or it pertains to the nature of Substance to exist.”

“PROPOSITION VIII.—All Substance is necessarily infinite.

“*Demonstration.*—There exists but one Substance of the same Attribute; and it must either exist as infinite, or as finite. But not as finite, for as finite it must be limited by another substance of the same nature, and in that case there would be two Substances of the same Attribute, which is absurd. Substance, therefore, is infinite.”

The whole Spinozistic system hinges upon the meaning of *Substance*. Physicists now agree that substance is equilibrated force, the mathematical name for which is motion. The attempt of Spinoza at mathematical exactness serves admirably to bring out the final problem of philosophy. It points out the impracticability of using more than one term to denote the ultimate reality, unless the equivalence of meaning between it and other terms so employed is defined. In brief, the metaphysics of Spinoza forcibly illustrate the necessity of determining the relationship of the categories of thought. For instance, he employed the terms matter, substance, space, extension and infinite without any attempt to correlate their meaning; whereas in the deepest sense they are all synonymous. The definitions of substance which he offered demonstrate the impossibility of distinguishing between substance, space, and extension. Finally, he repeatedly used the terms essence, substance, God and existence, in a similar sense, which amounts to an acknowledgment that they are interdependent in meaning.

Although he did not fully succeed in refuting the theory, Spinoza was opposed to skepticism. He declared that our knowledge is real, that our impressions of things disclose their actual nature; whereas the skeptic maintains that as knowledge is of phenomena only, it does not disclose the actual nature of things,—as though there were any limit to phenomena, or any difference between reality and nature.

In the appendix to the book *De Deo*, Spinoza defines his attitude toward religion. Here we have his great argument against that form of teleology, known as the belief that the universe exists for man. “Men do all things for the sake of an end, namely, the good or useful which they desire, hence they seek to know the motive or cause of everything that happens, and if these causes are not apparent, they judge of them by the motives determining their own actions. By this means, they come to consider all natural things as devised for their benefit. Since they find that they have eyes to see with, and teeth to masticate with, vegetables and animals for food, and the sun to give them light, they conclude that some order of nature has provided all these things for them in order to subdue man, and to gain from him the highest honor. Thus this error has connected itself with superstition, and has become deeply rooted in men’s minds. And observe, I pray you, to what a point this belief has brought them. Together with the many useful things in Nature, they necessarily found not a few injurious things, namely, tempests, earthquakes, diseases, etc. These happened, they supposed, because the gods were angry on account of offenses committed against them by man, or because of faults incurred in their worship; and, although

experience every day protests and shows by infinite examples that benefits and injuries happen indifferently to pious, as well as to ungodly persons, they do not, therefore, renounce their inveterate prejudice."

This argument remands humanity to its true place in nature. It rebukes those kindred theories known as idealism and anthropomorphism. The former relegates all reality to mind, the latter consecrates all nature to the service of man.

The charge of Atheism, so often made against Spinoza, may be attributed to his use of the term substance in designating the ultimate reality or deity. It always shocks devotional feeling to identify deity with substance, which in its deepest sense means the objective or statical aspect of motion.

Spinoza used the term substance to designate the principle of existence or life, that is to say the ultimate reality, rather than the statical aspect of the universe which is usually called matter. No one who follows the ideas of this great thinker will doubt that he rose above the theory that inert matter is the ultimate of the physical and the mental universe, which theory is known as ancient materialism. Nor is there any doubt that he avoided the other extreme known as idealism, or the belief that mind is absolute, or unconditioned, instead of being an evolution of nature.

With Spinoza the ultimate fact was the one infinite substance of which all individuals are modes or limited expressions. This substance he denominated God. He held that God viewed as the infinite substance is the *natura naturans*, viewed as modes or manifestations he is the *natura naturata*. The attributes of deity he conceived as extension and thought, for to him extension

was visible thought, and thought invisible extension; the objective and subjective of which God is the identity. "There are many existing things, but only one existence; many forms, but only one substance. God is the *idea immanens*—the One and All."

If Spinoza meant that thought is the subjective or the most personal view of nature, who will reject his wonderful analysis, for in that case he meant that substance or space is the objective, and time the subjective aspect of the universal relation?

The truth underlying his analysis is manifest, for matter, which is a synonym of extension, is the name commonly given to tangible or visible existence, while time, being subjective, is, in a certain sense, invisible extension.

Spinoza laid himself open, however, to the charge of Pantheism—that theory which invests all nature, animate and inanimate, with an inherent faculty of thought. Pantheism confuses mind and nature. It disseminates, as it were, a thinking spirit throughout the universe. It is a magnificent fetichism, the theory of an omnipresent mind. How much higher is that conception of deity which regards personality or mind as an organism, or as a limited existence, and God as the order of nature.

Spinoza, therefore, did not carry his impeachment of teleology far enough. Although he exposed the presumption of the belief that nature moves for the benefit of man, he failed to limit mind to organic existence.* The belief that mind is the ultimate reality, is the basic error of teleology. This error accounts for the Cartesian dual-

* "God is a thinking being." Ethics II. Part Prop. I.

ism, as well as for its lineal descendant, the absolute ego of the German dialecticians.

Ethics Demonstrated by Geometrical Method is Spinoza's greatest work. All authorities agree that this attempt to define universals is a masterpiece of reasoning. From its pages the foregoing quotations have been taken.

In Holland, where he felt comparatively safe from persecution, Spinoza led a life of retirement and privation. Although afterward often referred to as "the God-intoxicated man," throughout the century following his death he was characterized as an atheist. To the Germans of Goethe's epoch, we are indebted for the recognition of his genius and of the sublimity of his life. Goethe said: "The man was represented as an atheist and his opinions as most abominable; but immediately after it is admitted that he was a good citizen, a sympathizing neighbor and friend;—a calm, reflective, and diligent scholar."

HOBBS

Toward the close of Descartes' career and before the unity of Spinoza's thought was revealed to the world, a mind of singular power made its appearance in England. Like most scientific men of his time, Thomas Hobbes was deeply interested in mathematics. He studied at Oxford, where they still conserved the Ptolemaic astronomy, and the scholastic metaphysic. This was prior to the discovery of the fluxional calculus and of universal gravitation, for Leibniz and Newton were in their boyhood. The circulation of the blood had just been announced by Harvey. Galileo had observed the spots on the sun, the satellites of Jupiter, and Saturn's rings, and was conferring upon these

topics with the monks of the Holy Inquisition, while Kepler was formulating his laws of the planetary motions.

At this time, by an attempt at an analysis of consciousness, Hobbes founded psychology in England. Bacon had insisted that experience alone was the source of knowledge. Proceeding by this slow but sure method, Hobbes came very near to an analysis of mind.

It is to be remembered that Hobbes had before him none of the modern examples of idealism, for Berkeley and Kant were as yet unborn. Nor do his writings indicate that he troubled himself much about Plato and the Skeptics; but there is no doubt that he comprehended the nature of language; witness his aphorism: "Words are wise men's counters; they do but reckon by them; but they are the money of fools." Hobbes perceived, therefore, that language is an artifice, or that truth has its source in nature, and is reflected in mind, of which language is a phase. Both thought and language are forms of motion inseparable in the sense of being parts of a whole. Instead of being materialistic, this view of the intellect is exalted; for it holds that life and mind are forms of one universal relation.

It is not surprising that Hobbes did not make a complete analysis of consciousness. With the scientific requirements of his time, that would have been impossible. With admirable simplicity, however, he described the connection between thought and sensation. This simplicity becomes apparent when his argument is compared with the tortuous explanations of the metaphysicians. It is now well known that sensation and thought are interdependent functions of the sentient organism. Thoughts are complex co-ordinations formed

by the highly-structured nervous system with the help of language, while sensations consist of impressions, comparatively simple or unorganized. As there is no absolute separation between nerve and muscle, there is none between psychical and physical phenomena, or between thought and sensation.

That Hobbes perceived the interdependence of body and mind is evident from the following, where he explains the origin of ideas: "When a body is once in motion, it moveth unless something hinder it externally, and whatsoever hindereth it cannot in an instant, but in time and by degrees, quite extinguish it; and as we see in the water, though the winds cease, the waves give not over rolling for a long time after, so also it happeneth in that motion which is made in the internal parts of man. For after the object is removed, or the eyes shut, we still retain an image of the things seen, though more obscure than when we saw it. The decay (subsiding) of sense in men waking is not the decay of the motion made in sense, but an obscuring of it, in such manner as the light of the sun obscureth the light of the stars; which stars do not less exercise their virtue by which they are less visible in the day than in the night. But because amongst many strokes which our eyes, ears, and other organs, receive from external bodies, the predominant is only visible, therefore the light of the sun being predominant, we are not affected with the action of the stars."

Moved by the influence of the Church, Parliament passed censure upon the writings of Hobbes. That august body has since relinquished the prerogative of philosophical criticism. Hobbes' theory of society is somber and cynical. It teaches that an absolute

monarchy alone can save the race from the misery of its natural state, which is that of war. According to Hobbes, man's natural state is mutual opposition, or competition. The existence of society depends upon the establishment of an authority of sufficient power to suppress this inherent competition. In the opinion of Hobbes, the social ideal is not, as we understand it, a development of human nature under the discipline of law, but the arbitrary suppression of our deepest instincts.

Although wholly distrusting the ability of human beings to govern themselves, Hobbes saw no danger in entrusting the fate of the state to a single member of the species. According to his theory, the choice of this individual should depend not upon character or ability, but upon the hazard of birth. Ignoring the equality of all individuals before the law, upon which principle human liberty depends, he recommended absolutism as the only practical form of government.

It is true that the science of sociology as outlined by Comte belongs to two centuries later, but the *Politics of Aristotle* was accessible to Hobbes and might have suggested better principles of government. It must be admitted, however, that Hobbes pointed out the basic principle of organic, and, therefore, of social life, when he reduced all civil phenomena to competition.

It is not to be wondered at, that so forbidding a philosophy was neglected. Only after the elder Mill called attention to the merit of Hobbes' analysis of mind was this sturdy thinker appreciated, even by his own countrymen.

LOCKE

While Spinoza was identifying God and nature, and Newton and Leibniz were unconsciously vying in the higher mathematics, the study of mind, as the function of an organism, was taken up where Hobbes had left it and further developed by John Locke (1632-1704). This writer had also pursued mathematics at Oxford, but finally chose the science of medicine. His life was cast in those troublous times in England, when James the First promulgated afresh the doctrine of the "Divine Right of Kings." The Covenanters, bent upon resisting the Ritual of the established Church, the discontented Roman Catholics, and the irreconcilable Puritans were blindly combining in the revolution which Cromwell was soon to lead. The ideas of Locke were promulgated, therefore, at a time of profound social unrest when religious tolerance was the principal need.

There are critics who have mistaken the uncertainty with which Locke deals with religious questions for intellectual mediocrity. Leibniz calls him poor in thought, "*Paupertina philosophia.*"

After meeting with these criticisms one is hardly prepared for the firmness and vigor characterizing the writings of Locke. His aim was to arouse a feeling against Scholasticism and its interminable disputes, and to establish in the place of these hopeless controversies the study of the functions and structures of the human mind.

In order to draw a necessary distinction, the theory which explains the development of ideas as an organic evolution is known as scientific, while the theory that consciousness is absolute or self-existent is known as *a priori* or idealistic.

The idealists fixed upon certain categories, calling them *a priori* ideas, which means that these categories were not evolved from experience. Naturally enough, those who believe that the essence of reality is mind are unable to explain consciousness as an evolution of nature. Instead of attempting to evolve ideas from the interaction of organism and environment, or from the experiences of progenitors, handed down through heredity, the idealists proceed to build up a system in which consciousness is made the central mystery, and to which all surrounding facts are related in an unknowable manner. As the successor of Bacon and Hobbes, Locke occupied a position hostile to idealism, a theory which later on developed into transcendentalism.

Although written nineteen years before, the principle work of Locke was not published until 1690. The author acknowledges in this work that the source of all authority is a personal deity, which can only mean that the deepest meaning of good is obedience to a divine will. He, nevertheless, identifies good with pleasure, and evil with pain. "The test of an action," said he, "is the degree in which it promotes pleasure, and averts pain," which means that the divine will or the trend of universal order is expressed through human sensations, or, in other terms, that righteousness is an evolution of nature. This is a necessity to which all writers upon ethics are eventually brought, for the highest authority is self-preservation, using self in its widest sense, which is species. Since nature ordains that, in order to exist, species must destroy one another, the meaning of good cannot extend beyond species. The criterion of right for each race must be life, for what good can there be

without existence? Hence in the last analysis good is life, and evil, death.

“The true ground of morality,” says Locke, “can only be the will and law of God, who sees in the dark, has in his hands rewards and punishments, and power enough to call to account the proudest of offenders; for God, having by an inseparable connection joined virtue and public happiness together, it is no wonder that every one should not only allow, but recommend and magnify, those rules to others, from whose observance he is seen to reap advantage himself. The conveniences of this life make men own an outward profession and approbation of them, whose actions sufficiently prove that they but little consider the Law Giver, that prescribed these rules or the Hell He has ordained for the punishment of those that transgress them.”*

From the above it is seen that, although the theory of innate or supernatural ideas was rejected by Locke, he still ostensibly held to the belief in a supernatural deity, a man-fashioned God, dealing out rewards and punishments, and employing even a physical Hell with which to enforce his will.

If these beliefs seem unworthy of Locke, we must remember the difficulties of the situation in England during the Seventeenth Century. At that epoch the Church anathematized all who openly advocated independence of thought. From the following citation, it will appear, however, that Locke had a deeper knowledge of the nature of deity than he was willing publicly to confess: “Yet, if we ask a Christian who has the views of happiness and misery in another life, why a man must

* Essay on the Human Understanding, Book I., Chap. III, 6.

keep his word, he will give this as a reason: Because God, who has the power of eternal life and death, requires it of us. But if a Hobbist be asked why, he will answer: Because the public requires it, and the Leviathan will punish you if you do not. And, if one of the old philosophers had been asked, he would have answered: Because it is dishonest, below the dignity of man, and opposite to virtue, the highest perfection of human nature, to do otherwise.”*

That Locke enjoyed comparative freedom of thought is demonstrated by the following passage, which was undoubtedly intended to discourage the belief in a supernatural revelation. “So God might by revelation reveal the truth of any proposition in Euclid, as well as men by the natural use of their faculties come to make the discovery themselves. In all things of this kind there is little need or use of revelation, God having furnished us with natural and *surer* means to arrive at the knowledge of them. For whatsoever truth we come to the clear discovery of, from the knowledge and contemplation of our own ideas, will always be *certainer* to us than those which are conveyed to us by traditional revelation. For the knowledge we have that this revelation came at first from God, can never be so sure as the knowledge we have from the clear and distinct perception of the agreement or disagreement of our own ideas. . . . The history of the deluge is conveyed to us by writings which had their original from revelation; and yet nobody, I think, will say he has as certain and clear a knowledge of the flood as Noah that saw it; or that he himself would have had, had he then been alive

* Essay on the Human Understanding, Book I., Chap. III, 5

and seen it. For he has no greater assurance than that of his senses that it is writ in the book supposed writ by Moses inspired; but he has not so great an assurance that Moses writ that book, as if he had seen Moses write it.”*

The timidity of this criticism of the authorship of the Pentateuch is in contrast with the confidence of more modern writers upon the same subject. Professor Max Muller, for instance, placed the latest revelation of God to man as far back as Abraham, rendering all the surroundings of Moses perfectly natural. The biblical critics of the future will, perhaps, regard even Abraham as a product of evolution.

In writing the *Essay on Human Understanding*, the task set himself by Locke, was, “to inquire into the origin, certainty and extent of human knowledge, together with the grounds and degrees of belief, opinion and assent,” or, as it is now expressed, to explain the principles of certitude. Employing the ancient simile, Locke described the mind as an unused tablet upon which experience records its impressions; an entirely inadequate representation of mental phenomena, because it takes no account of the constituent factors of the intellect. What resemblance is there, for instance, between a tablet, the passive recipient of impressions, and an organism of highly complex structure, and, therefore, correspondingly complex reactions, moving in a medium of language, also possessing complex structure and exercising definite reactions?

The study of the interdependence of thought and language by such writers as Comte, Max Muller, Spencer

* *Essay on the Human Understanding*, Book IV., C. XLIII. 4.

and Lewes, has produced valuable materials for psychology. At the time of Locke, the nature of language was little understood. The nearest approach made at that time to a true theory was a dim foreshadowing of the "association of ideas," afterwards developed by Hartley and James Mill. Locke was occupied in combating the doctrine of innate ideas or irreducible intuitions, a belief that at his epoch remained almost unchallenged. It was acknowledged that the mind has powers derived from heredity; that is to say, conceptions that cannot be accounted for by the conscious experience of an individual. These inherited faculties were called *a priori* ideas, and it was believed that they defied analysis. They were described as irreducible intuitions, or unknowable forms of thought, a theory strenuously opposed by Locke.

So deep-rooted, however, is the belief in the incomprehensibility of the categories of thought which is the theory of innate ideas, that it has influenced even such writers as J. S. Mill and Herbert Spencer, both of whom advocate the concomitant theory of an unknowable. Now the theory of an unknowable assumes that *a priori* ideas, or the constituent elements of thought are insoluble mysteries.

Locke taught that the source of all our ideas is the related activities known as sensation and reflection, which means that thought is a generalization of experience or an evolution of nature. This theory accords with modern discoveries in psychology, for it is now known that the sensorium, which is the organ of thought, is developed by experience, or, in other terms, by the interaction of organism and environment, conserved from countless generations through heredity. Without this

inherited sensorium of complex and definite structure and reactions, through which to co-ordinate impressions, experience could not develop into ideas.

It is important to observe how Locke explained universals. "Our idea of space," he said, "is derived from sight and touch. These experiences are co-ordinated and generalized until we form a symbol or general idea of all externals, co-existences, or space." This hypothesis of Locke, that the conception of space springs from the "sense of resistance," has been highly developed by Herbert Spencer, and constitutes one of many points of resemblance between the theories of the two authors.

Thus the writings of Locke present a picture of the first stages of the development of psychology in England. Their chief value lies in the distinctness with which they show the vast extent of organic development recorded in the modifications of the sensorium and of language, a growth resulting in the formation of general ideas.

HARTLEY

Improving upon the psychological theories of Locke, David Hartley (1705-1757), an eminent English physician, propounded the "vibration theory," as an explanation of the association of ideas.

In his work, *Observations on Man*, upon which he labored from 1730 to 1746 (first published in 1749), he confesses that his theory of a physical basis of mind (or that there is possible a physical explanation of sensation and thought, connecting the two as muscular action and sensation), was first suggested to him by the *Principia* of Newton. Hartley also acknowledged his debt to a dissertation by the Rev. Mr. Gray, prefixed to the translation of Archbishop King's *Origin of Evil*,

in which the principle of "the Association of Ideas" is applied to ethics. The theory of "the Association of Ideas," can be traced as far back as Aristotle. Hobbes noticed it under the name of "Mental Discourse," but it was Locke who gave it its present name. Hartley was the first to give to this theory a definite form, by pointing out that consciousness consists in certain changes which take place in the nerve centers, centering in the brain. According to this theory the sequence of ideas is determined by the structural order of the sensorium; that is to say, "our ideas spring up or exist in the order in which the sensations existed, of which they are copies."

To reduce consciousness to neural tremors or waves is to correlate mental and physical phenomena as different expressions of the order of nature.

The neural hypothesis was suggested by Newton, who pointed out the relation of sensation and motion. The vibration theory Hartley explained by that of "neural tremors." Certain features of his explanation, however, have been found to be incorrect. The difficulties of the subject are stated by Hartley as follows: "If that species of motion which we term vibrations can be shown by probable arguments to attend on all sensations, ideas, and motions, and to be proportioned to them, then we are at liberty either to make vibrations the exponent of sensations, ideas, and motions, or these the exponents of vibrations, as best suits the inquiry, however impossible it may be to discover in what way vibrations cause or are connected with sensations or ideas."

This theory of Hartley has been highly evolved by Herbert Spencer, who shows that the development of

the functions and structures of the nervous system from lower forms of life leads step by step to those higher reactions known as feeling and thought. Spencer also shows that the development called language supplies the structure for the functions of spiritual life, which means that the adjustments of individual and environment conserved through heredity account for those vibrations known as feeling and thought. In other terms, consciousness as well as justice are expressions of the actions and reactions of the individual and society through the medium of language.

LEIBNIZ

Gottfried Wilhelm von Leibniz (1646-1716), who was the son of a professor of Moral Philosophy at Leipzig, carried metaphysical speculation much further than his great English contemporary, Newton, whose theory of universal gravitation still holds the highest place among the generalizations of nature.

At the age of twenty Leibniz produced a treatise on the *Combinations of Numbers and Ideas*, his object being to harmonize the systems of Plato and Aristotle. At twenty-two he entered the service of the Elector of Mainz, to whom he had dedicated his recently published *New Method of Learning and Teaching Jurisprudence*. In 1671 he advanced new and bold theories of motion in a treatise on a *New Physical Hypothesis*, in which the concrete and the abstract aspects of force were discussed. When these far-reaching theories of Leibniz are compared with the discovery of gravitation by Newton, the reversion of science as well as of philosophy to one universal principle is seen to be inevitable.

About this time, Leibniz visited Paris, where he met

Cassini and Huygens. Soon after he made the acquaintance of Newton and Boyle in London. At the latter place he was elected to the Royal Society, and announced his new method of infinitesimal calculus, nearly identical with Newton's *Method of Fluxions*.

Not satisfied with the command of the physical sciences which had made him famous, Leibniz devoted himself, while yet in the prime of life, to harmonizing the Protestant and Catholic religions. Toward the close of his career (1710), he produced his great work, entitled *Essay on Theodicy, on the Goodness of God, the Liberty of Man, and the Origin of Evil*; in which the theory of optimism was advanced. The motto of this book was "Everything is for the best in the best of possible worlds." Were this motto to have read everything is for species in the best of possible species, it would have thrown more light upon the ultimate meaning of righteousness; for deity or the order of the universe cannot discriminate between species. Each type of life has for its criterion of right its own existence.

Leibniz confined his writings almost entirely to French and Latin. Not until the close of his career did his native land give premonitions of the great intellectual development since attained. The foundations of psychology in England were laid by Hobbes and Locke; while Leibniz gave the initiative to transcendentalism in Germany.

Of the philosophical writings of Leibniz the criticism of Locke is the most interesting. This controversy dealt with the nature of the soul. "The question between us," says Leibniz, "is whether the soul is in itself entirely empty like tablets, upon which nothing has been written (*tabula rasa*), according to

Aristotle, and the author of the *Essay*, and whether all that is there traced comes wholly from the senses and experience; or, whether the soul originally contains the principles of several notions and doctrines, which the external objects awaken only on occasions, as I believe with Plato."

Here Leibniz attempts to prove the existence of irreducible intuitions or innate ideas. This theory he advanced in place of the belief of Locke that knowledge springs wholly from the exercise of the senses and reflection. Now, the exercise of the senses and reflection depends upon inherited, as well as upon acquired, faculties, both of which are implied in what are called innate ideas. To the close observer there is, therefore, little difficulty in discerning a fundamental agreement between these opposing theories of Leibniz and Locke.

The greatest achievement of Leibniz was his conception of "active force" as the ultimate of mind and nature. Matter, said he, is essentially resistance, and resistance is activity. Spinoza conceived God as nature. Deity was defined by Leibniz as universal law. Leibniz rose, therefore, to the sublime height of perceiving the interdependence of the forces of nature, a position which reveals not only the mutability of species, but of all phenomena, which means that motion is the ultimate reality.

BERKELEY

The successors of Hobbes and Locke were Bishop Berkeley (1685-1753), and David Hume (1711-1776). Both were deeply read in ancient philosophy and revived certain errors of Greek thought, thereby retarding the development of psychology which had been inaugurated by their immediate predecessors.

Born and educated in Ireland, Berkeley was distinguished for the religious fervor characteristic of his race. The satirist Pope expressed the verdict of his time in ascribing to him "every virtue under Heaven." In 1709, Berkeley published *An Essay Toward a New Theory of Vision*, and in the year following *The Principles of Human Knowledge*. In the latter work he advanced the ancient theory of absolute idealism. "There is no proof," said he, "of the existence of matter anywhere but in our own perceptions,"—as though the terms "proof" and "perception," did not imply a thinking subject which can never be more than one term only of the relation expressed in thought, the other term being objective nature. Since mind implies object as well as subject, it implies extension or matter.

The theory of idealism underlying the hypothesis of Berkeley has been dealt with in the foregoing review of Plato, and will be considered anew in the next chapter where the *a priori* philosophy of Immanuel Kant is analyzed. Berkeley's hypothesis found a certain support in the systems of Schelling and Hegel—both generic developments of the Kantian dialectic. As already explained, all modern theories of idealism are more or less direct descendants of the Skepticism of the New Academy.

HUME

The skepticism of David Hume, so marked and so ably reasoned, awakened to a vigorous polemic against it a number of Scottish thinkers, headed by Thomas Reid. In Germany it incited Immanuel Kant to the construction of his critical philosophy.

At the age of twenty-six Hume published in London

(1738), the *Treatise on Human Nature*. This philosophical essay, by one who afterward became a classical historian of his country, is a work of singular acumen. As a theory of skepticism it constitutes the most formidable attack on the validity of knowledge which has appeared in modern times. But skepticism is an ancient doctrine. For clearness and precision the presentation of this doctrine by the absolute skeptics of the New Academy at Alexandria has never been surpassed. This argument has already been considered in Chapter IV.

Hume ascribed our conception of cause to the habit of observing the course of events. He maintained that since this habit is a personal experience, we can form no idea of impersonal cause or of the connection existing between impersonal events. As a consequence, we cannot reason from personal experience to the existence of God or to the immortality of the soul.

The question presented by Hume, reduced to its simplest terms, is as follows: Since our idea of cause results from experience, and as all experiences are personal, how are we to know things impersonal? The reply is, that we know impersonal or external things by comparing their effects upon us, and things affecting us cannot be absolutely impersonal.

Hume maintained that since the theory of a personal ruler of the universe and of the immortality of the soul are impossible to prove from any extension of experience, they cannot become a part of knowledge.

In their deepest sense, knowledge and the order of nature are one. The day is not far distant when the theory of a personal God and of immortality will be recognized as early stages of our attempt to harmonize

the individual and the general, or the human and the divine. The reason why these beliefs are so widespread is because they form the beginnings of intellectual development. The mind rises naturally from the personal to the impersonal. It is by worshipping individuals that humanity learns to appreciate principles.

Hume's skepticism sprang from an incomplete analysis of consciousness. If consciousness is a form of motion, faith in the validity of knowledge is another name for trust in the order of Nature.

CHAPTER VII

GERMAN PHILOSOPHY

Kant, Fichte, Schelling, Hegel, Herbart, Haeckel

The *a priori* philosophy of Immanuel Kant assumes that there is an existence which transcends the power of reason. This existence is described as absolutely unchanging* to distinguish it from that changing existence called phenomena or nature. The theory of this incomprehensible existence is also known as transcendentalism. It will be shown that the *a priori* philosophy or transcendentalism is a reproduction of the idealism of Plato, and of the Neo-Platonists of Alexandria, who believed that there is an unchanging existence more real than nature.

Great movements in philosophy have often assumed at first the form of subjectivism, which is a self-contemplation or introspection so intense as to produce an under-estimate of externals. A result of this extreme self-consciousness is the habit of viewing all things from the standpoint of the ego or self, neglecting the objective aspect of existence known as extension.

The philosophy of the absolute ego is an attempt to

* "Kant's entire contention was for the issue that knowledge of absolute unchanging existence is impossible."—Ladd.

account for mind by time without employing space, whereas all reality, whether physical or mental, implies both time and space.

That the dialectic of Kant and his followers should have made so deep an impression is due partly to the subjectivism, characterizing the great and sudden development of German thought, and partly to the intuitive genius of Kant himself, whose comprehension of the nature of mind was so profound as to amount almost to an ultimate analysis.

To understand the influence of German thought it is necessary to consider not only its form, but also the circumstances of its development. As Germany slowly arose from the almost indescribable desolation of the Thirty Years' War, she emerged upon a period during which her political, her intellectual, and her social life lay prostrate. When peace was concluded in 1648 her ethnic spirit had nearly expired. This war not only destroyed an old civilization fairly abreast with that of the rest of Europe, but so completely destroyed it that the nation was two hundred years in regaining her natural status in the world. Commercial statistics show that the general prosperity of the German people in 1850 had but just attained the level which it held at the beginning of the war of 1618.

In his lectures at Oxford, Hillebrand affirms that at the close of the Thirty Years' War the highly cultivated language of Luther, together with the whole literature of his time, was forgotten. A semi-barbarism had become the prevalent state of society. Public instruction and religious worship had suffered so much that many schools and churches stood abandoned.

Toward the close of the following century, when

Frederick II. in his memorable reign firmly established the Prussian State, the intellectual life of Germany was not only reawakened, but immediately sprang into luxuriant life. Old universities were regenerated and new ones founded. Scholars, poets and thinkers had appeared. Kant, Herder, Goethe, and Schiller, with their great contemporaries, were there to advance the new national life. The beauties of the ancient classics were rediscovered; history was read by fresh minds and its organic nature disclosed; sciences were created to deal with the problems of life, for a people had arisen to take a new interest in humanity. During this marvelous reawakening German transcendentalism was born, and at once assumed the form of a profound subjectivism.

Each nation formulates its philosophy with unfeigned satisfaction and pride. The old, old problems of life, that Greece derived from the East, and expressed so vividly, were at the time of the appearance of the *Critique of Pure Reason*, unknown in the vernacular of the Fatherland. The Teutonic form of these ancient problems proved to be more remarkable even than the Greek, for they were evolved in a greater environment. German philosophy is a refined leaven of Hellenic thought, so powerful that ever since its appearance it has stimulated the mind of Europe. It has produced idealists beside whose theories Plato's Idealism is moderate; materialists whom Democritus would not have recognized; skeptics at whom Carneades would have wondered. But of all these extremes idealism attained the greatest prominence. Its enigmas have proved so fascinating that what in the beginning was the harmless exaltation of a few great minds has

become, through the force of example, a national characteristic.

How different has it been with France and England? These nations have had their wars and revolutions, but their philosophy, having been a more gradual development, is more natural.

During the time that Germany was slowly regaining life, France was leading the civilization of Europe under Louis XIV. England was far advanced in political institutions and in religious liberty, and had already outranked Spain and Holland in commerce and conquest. But for those advantages, belonging to unity and strength of national life, and which result in the refinement of the individual, France of the Eighteenth Century was pre-eminent. "The French," says Taine, "became civilized by conversation. The sullen denizens of the Academy and the Sorbonne speak but in epigrams. What a flight was this of the Eighteenth Century! Society, ever more anxious for lofty truths, crowds to philosophy as to the opera; the origin of animated beings, the question of free judgment, the principles of political economy—all is to them a matter of paradoxes and discoveries."

At this time we find Leibniz complaining of the sensuality and ignorance of the German gentry as compared with the love of science in England, and the intelligence and culture of the French. Count Manteufel writes to Wolff as late as 1738,—“The German Princes, who might be compared to your lords, think it beneath their dignity to cultivate their minds.”

Thus we have England in the first half of the Eighteenth Century enriched by Shakespeare, Dryden and Pope, and still learning from Locke and Newton;

France in possession of Pascal, Descartes, Molière, Malebranche and Racine; England earnest and studious; France brilliant and refined; but the Germans as yet intellectually undeveloped.

Looking at Germany from the beginning of the Twentieth Century, with her army of trained scientists animated by the spirit of original investigation; with almost universal culture, and with intellectual, if not political liberty, it is difficult to perceive the effects of the ordeal through which she has passed. There are still traces, however, of the destruction which the nation suffered, and from which it has so triumphantly arisen, for if we look deeply into German philosophy we shall find it characterized by an astonishing imitation of one personal system. Although this imitation points to the fact that Immanuel Kant is the most potent philosophical genius that Germany has produced, yet this strange domination of one recent dialectic in a race so old and intellectually powerful as the German, points to a break in her intellectual development. In other countries the opinions of Kant came into competition with a wider philosophical knowledge. It is true that German transcendentalism has invaded foreign countries, but its extreme views have been far more successfully resisted abroad than in the land of their birth.

KANT

Since the *Critique of Pure Reason* is acknowledged to be the representative work of Kant and of German philosophy, let us compare its conclusions with the theory of evolution.

The first words of the preface are: "Our reason (*Vernunft*) has this peculiar fate, that, with reference to

one class of its knowledge, it is always troubled with questions which cannot be ignored, because they spring from the very nature of reason, and which cannot be answered because they transcend the powers of human reason."

This means that the nature of reason is incomprehensible, a rather discouraging admission to make at the outset of a work, the object of which is to discuss the operations of the mind. Kant, however, must have believed that the nature of reason is comprehensible in *some degree*, for otherwise he would not have attempted a criticism of "Pure Reason." Let it be our object, then, to discover what degree of comprehensibility Kant believed in, or hoped for, concerning reason.

The preface continues as follows: "Nor is human reason to be blamed for this" (being incomprehensible). "It begins with principles which, in the course of experience, it *must* follow and which seem sufficiently confirmed by experience. With these, again, according to the necessities of its nature, it rises higher and higher to more remote conditions. But when it perceives that in this way its work remains forever incomplete, because the questions never cease, it finds itself constrained to take refuge in principles which exceed every possible experimental application, and nevertheless seem so unobjectionable that even ordinary common sense agrees with them."

This states a well known fact, that the reason springs from particular experiences and rises to general truths. But among those general truths, Kant tells us the Reason finds no resting-place, and is "constrained to

take refuge in principles which (transcend experience) exceed every possible experimental application."

The point to be marked here is, that it is impossible for reason to act at all without utilizing or manifesting its deepest principles. In affirming that the principles of reason transcend experience, Kant evidently did not consider that experience can be traced back to the impersonal, that is to say, back through the actions and reactions of organism and environment to inorganic nature from which the individual has been evolved. In the Introduction Kant tells us, "If we remove from experience everything that belongs to the senses, there remain nevertheless certain original concepts, and certain judgments derived from them, which must have had their origin entirely *a priori*, and independent of all experience, because it is owing to them that we are able, or imagine we are able, to predicate more of the objects of our senses than can be learned from mere experience, and that our propositions contain real generality and strict necessity, such as mere empirical knowledge can never supply."

Here is an assertion which in our time sounds strange indeed,—that there is an absolute difference between sensuous apprehensions, and those co-ordinations which give us the highest achievements of reason. By the term "*a priori*," which means "logically prior to personal experience," Kant wished to designate certain conceptions not wholly accounted for by the conscious development of the sentient individual. Since experience is an evolution of nature, it is not limited to any individual. Both sensations and ideas are evolved from physico-chemical reactions, which in the higher organisms assume the form of feeling and thought.

On the same page we are told that there is a certain kind of "knowledge which transcends the world of the senses, and where experience can neither guide nor correct us; here reason prosecutes investigations which, by their importance, are far more elevated than anything the understanding can find in the sphere of phenomena."

Kant is to take us, therefore, into a region of knowledge where our investigations cannot be verified by any possible experience—a region far more "excellent" and "elevated than anything the understanding can find in the sphere of phenomena or nature." But any reluctance that we may feel in accompanying him thither is dispelled when he continues: "Nay, we risk rather anything, even at the peril of error, than that we should surrender such investigations either on the ground of uncertainty or from any feeling of indifference or contempt. Besides, once beyond the precincts of experience, we are certain that experience can never contradict us, while the charm of enlarging our knowledge is so great that nothing will stop our progress until we encounter a clear contradiction." From this, it is evident that in the region of knowledge to be traversed by the *Critique of Pure Reason* we are not to be left without protection against the delusions of the imagination. This protection is to be the sense of "clear contradiction"; that is to say, upon entering the region of transcendental knowledge, we are not expected to leave all sense behind. But *how*, in a sphere of "knowledge which transcends the world of sense," are we to retain sense enough to appreciate a clear contradiction?

The modern psychologist has no faith in the existence of "Pure Reason," as the word is employed by our

author. The very name implies a disregard of the structural conditions of mind. To show the discrepancy between Kant's ideas and the conception of mind as an organic evolution, we give his definition of Pure Reason: "Every kind of knowledge is called pure if not mixed with anything empirical. But more particularly is that knowledge called absolutely pure which is not mixed up with any experience or sensation, and is, therefore, possible entirely *a priori*. Reason is the faculty which supplies the principles of knowledge *a priori*. Pure Reason, therefore, is that faculty which supplies the principles of knowing anything entirely *a priori*. An Organon of pure reason ought to comprehend all the principles by which pure knowledge *a priori* can be acquired and fully established. A complete application of such an Organon would give us a System of Pure Reason. But as that would be a difficult task, and as at present it is still doubtful whether such an expansion of our knowledge is here possible, we may look on a mere criticism of pure reason, its sources and limits, as a kind of preparation for a complete system of pure reason. It should be called a critique, not a doctrine, of pure reason. Its usefulness would be negative only, serving for a purging rather than for an expansion of our reason." Any meaning which this definition has certainly hinges upon the term *a priori*, which signifies logically prior to individual experience. That is to say, *a priori* powers as conceived by Kant are congenital mental faculties not acquired by the conscious experience of the individual. They must, therefore, have been transmitted through heredity as a result of ancestral experience. In brief, *a priori* powers are tendencies acquired by one's pro-

genitors. By experience Kant, therefore, means the conscious activity of a given individual considered apart from unconscious cerebration and heredity. Now the psychologists tell us that only a small proportion of our mental activities are conscious. Unconscious cerebration constitutes by far the greater part of mental activity. Experience in its deepest sense, therefore, means life, and this wider view includes both conscious and unconscious cerebration, that is to say, all the experiences of the present and of previous generations reaching back through the evolution of species to the premordial types of life. Hence mental powers result from the development of the nervous system or of the sensorium, the highest function of which is reason.* It follows that there is no absolute separation of the objective and the subjective, or of the co-ordinations of sense ("external intuitions"), and those concepts to which Kant attributes pure reason. It also follows that there is no hard and fast line between *a priori* and *a posteriori* knowledge or between concepts supplied by congenital mental faculties or those ideas acquired by the conscious reasoning of an individual, for they are all included in that broad experience termed life.

Psychology teaches that consciousness which includes reason arises from the relationship of subject and object, or from the interaction of organism and environment, or in other terms, from experience. Experience it is at first and experience it remains to the last. The *a priori* or transcendental concepts are habits of perception acquired by an infinite experience.

Kant insists that there is a kind of knowledge which

* This will be fully demonstrated when we reach the evolutionary systems of Spencer and Lewes.

is independent of experience; not evolved by the individual's own experience but mysteriously put into the mind before individual ratiocination begins. He asserts that this pure reason is a law unto itself, an unconditioned faculty, an unrelated and, therefore, an unchanging existence more real than phenomena. This incomprehensible knowledge, he says, is acquired by the understanding which he defines as follows:—"We have before given various definitions of the understanding, by calling it the spontaneity of knowledge (as opposed to the receptivity of the senses), or the faculty of thinking or the faculty of concepts or of judgments; all of these explanations, if more closely examined, come to the same. We may now characterize it as the *faculty of rules*. This characteristic is more significant and approaches nearer to the essence of the understanding. The senses give us forms (of intuition), the understanding rules, being always busy to examine phenomena, in order to discover in them some kind of rule. Rules, so far as they are objective, are called laws. Although experience teaches us many laws, yet these are only particular determinations of higher laws, the highest of them, to which all others are subject, springing *a priori* from the understanding, not being derived from experience, but, on the contrary, imparting to the phenomena their regularity and thus making experience possible. The understanding, therefore, is not only a power of making rules by comparison of phenomena; it is the law-giver of Nature, that is a synthetical unity of the manifold of phenomena, according to rules which would nowhere be found because phenomena, as such, cannot exist without us, but exist in our sensibility only. * * * * However exaggerated and absurd

it may sound, that the understanding is itself the source of the laws of Nature and of its formal unity, such a statement is, nevertheless, correct and in accordance with experience."

The above definition of the understanding is a key to all the contradictions of the Kantian dialectic. It gives us the right to inquire, at what point in their development do ideas take command of the universe? Kant acknowledges that we derive our ideas of rules or laws from the study of Nature. At what point, then, in the development of mind do our ideas of universal order become so powerful as to give to Nature its regularity and "make experience itself possible?"*

Kant describes the scope of his great work in these words: "All that constitutes transcendental philosophy belongs to the *Critique of Pure Reason*. * * * Transcendental philosophy is the wisdom of pure speculative reason. Everything practical, so far as it contains motives has reference to *sentiments, and these belong to empirical sources of knowledge*." Pure reason or transcendental philosophy then, we must conclude, has little to do with knowledge of practical life, but confines itself to a criticism of those mental powers which are pure in the sense that they are not derived from personal experience.

The well disciplined thinker, being earthly, would keep his feet upon the firm ground of sense. He feels that no thoughts are "too high, too pure or too excellent" to emanate from a physical source because physical laws are universal and, therefore, divine. Correct reasoning is intellectual integrity, but why should we question the integrity of the *Critique of Pure Reason*

* Kritik der reinen Vernunft, p. 126-127.

on the ground that sense and reason should harmonize when its author tells us, in the last page of the introduction, that, "Although the highest principles of morality and their fundamental concepts are *a priori* knowledge, they do not belong to transcendental philosophy, because the concepts of pleasure and pain, desire and inclination, free will, etc., which are all of empirical origin, must here be pre-supposed?" This statement leaves us in doubt whether Kant means that transcendental philosophy has nothing to do with morality, or that "*a priori* knowledge" has nothing to do with transcendental philosophy. At all events, the assertion is definite that in transcendental philosophy the moral sentiments so far as they represent a motive have no place. Example, therefore, which is as natural and as universal as gravitation, has, according to Kant, no power of determining the mind, for transcendentalism teaches that the mind determines nature.

Kant describes the nature of perception with great fluency. The actions of the mind are presented with such simplicity that one is inclined to take the accuracy of the presentation for granted. At the outset Kant affirms that "sensibility alone supplies us with intuitions (*Anschauungen*). These intuitions become thought through the understanding (*Verstand*), and hence arise conceptions (*Begriffe*). All thought, therefore, must, directly or indirectly, go back to intuitions (*Anschauungen*), *i. e.* to our sensibility, because in no other way can objects be given to us."* Thus we have sensation and thought duly recognized as different aspects of mental action, their separation being purely artificial. Then follows the very fair assertion: "The

* *Kritik der reinen Vernunft*, p. 19.

effect produced by an object upon the faculty of representation (*Vorstellungsfähigkeit*), so far as we are affected by it, is called sensation (*Empfindung*). An intuition (*Anschauung*) of an object by means of sensation is called empirical. The undefined object of such empirical intuition is called phenomenon (*Erscheinung*).” But suddenly we have a leap into obscurity which is amazing, and which, of course, we cannot follow. Witness these words: “I call all representations in which there is nothing that belongs to sensation, *pure* (in a transcendental sense). The pure form, therefore, of all sensuous intuitions, that form in which the manifold elements of the phenomena are seen in a certain order, must be found in the mind *a priori*. And this pure form of sensibility may be called the pure intuition (*Anschauung*).”

But we have been told that “sensibility alone supplies us with intuitions;” and that “all thought must, directly or indirectly, go back to intuitions, *i. e.* to sensations;” that “sensation is the effect produced upon the faculty of representation by an object;” thus completing the chain of cause and effect between the various forms of mental activity which Kant denominates sensuous apprehensions, representations, intuitions and thought. In the face of this we are told that he “calls all representations in which there is nothing that belongs to sensation, *pure* (in a transcendental sense).” Truly this *transcendental sense* seems to be the source of Kant’s lasting error; for as will be fully demonstrated there is no function without structure, no mental procedure that is not evolved from experience, no thought that is pure in a transcendental sense, for all thought is evolved from feeling.

Speaking of space Kant says,—“No determinations of objects, whether belonging to them absolutely or in relation to others, can enter into our intuition before the actual existence of the objects themselves; that is to say, they can never be intuitions *a priori*. Space is nothing but the form of the phenomena of all external sense; it is a subjective condition of our sensibility, without which no external intuition is possible for us.” If these assertions came from a less illustrious pen than that of Kant, we should simply affirm their emptiness, for they involve fatal contradictions. Let us note, then, that the determinations of objects, or the properties by which they are perceived, imply a relation between the perceiving subject and the object. The determinations of objects, therefore, cannot belong to them absolutely. When Kant says that the “determinations of objects cannot enter into our intuition before the existence of the objects themselves,” it is to be remembered that, as the determinations are qualities or functions of the objects, they presuppose the existence of the object. As for the determinations never becoming “intuitions *a priori*,” we have been distinctly told that intuitions come alone through sensibility. We, therefore, deny that there is any meaning in the term “intuitions *a priori*.”* The difference between sensuous intuitions and intuitions *a priori* is based upon an arbitrary separation by Kant of the matter and form of phenome-

* With regard to this question Dr. A. Leroy Jones, of Columbia, to whom I am indebted for an able criticism, remarks, “This looks like a contradiction, but it may be possible to so interpret Kant as to escape the difficulty. The fact is that Kant’s use of terms is so varying and indistinct that it is not worth while to undertake a detailed description of his views.”

na,* a distinction which has no foundation in fact, for the form of objects is clearly the expression of their statical or space aspect; and the word matter is merely a generalization of the statical aspect of all phenomena. When Kant says, therefore, that space is a subjective condition of our sensibility without which no intuition of externals (objects) is possible, it is clear that he does violence to facts, first by insisting that space means form and does not mean matter, and then that form is absolutely distinct from matter or external phenomena. Briefly, Kant abstracts from that aspect of motion or general existence, known as space, an alleged transcendental principle which he calls form, and leaves behind a mutilated conception which he denominates matter. Form, he says, belongs to the mind and transcends all sensibility or experience; but matter does not belong to the mind and cannot take part in it, because it is not form. Surely, the difficulty begins and ends with what Kant *says*, for he offers no proof whatever that form is separable from the statical aspect of phenomena. And yet the vitality of the *Critique of Pure Reason* springs from the deep insight obtained by its author into the nature of space and time.

“Time,” says Kant, “is the formal condition, *a priori*, of all phenomena whatsoever. Space, as the pure form

* “The matter only of all phenomena is given us *a posteriori*; but their form must be ready for them in the mind (*Gemuth*) *a priori*, and must therefore be capable of being considered as separate from all sensations. * * * The pure form, therefore, of all sensuous intuitions,—that form in which the manifold elements of the phenomena are seen in a certain order,—must be found in the mind *a priori*. And this pure form of sensibility may be called the pure intuition (*Anschauung*).”—*Kritik der reinen Vernunft*, p. 20.

of all external intuition, is a condition, *a priori*, of external phenomena only. But all these representations, whether they have for their objects external things or not, belong by themselves, as determinations of the mind, to our inner state; and as this inner state falls under the formal conditions of internal intuition, and, therefore, of time, time is a condition, *a priori*, of all phenomena whatsoever, and is so directly as a condition of internal phenomena (of our mind), and thereby indirectly of external phenomena also.* We suppose that "the formal condition, *a priori*, of all phenomena whatsoever" means the *idea* of all phenomena; therefore, we have the assertion that time is the idea of all phenomena or, otherwise expressed, the subjective aspect of motion. But we are told that space is a condition, *a priori*, of external phenomena. Now, by external, Kant means external to the mind, or phenomenal, so that the phrase 'external phenomena,' means all phenomena. Therefore, according to Kant, the difference between time and space is that relative difference existing between subject and object. Hence time and space are, respectively, the subjective and the objective aspects, or ideas of all phenomena.

†"Time," continues Kant, "is simply a subjective condition of our (human) intuition (which is always sensuous, that is, so far as we are affected by objects), but by itself, apart from the subject, nothing. Nevertheless, with respect to all phenomena, that is all things which can come within our experience, time is necessarily objective. We cannot say that all things are in time, because, if we speak of things in general, nothing is said about the manner of intuition, which is the real

* Kritik der reinen Vernunft, pp. 33, 34. † p. 35.

condition under which time enters into our representation of things. If, therefore, this condition is added to the concept, and if we say that all things are phenomena, (as objects of sensuous intuition) are in time, then such a proposition has its full objective validity and *a priori* universality."

This definition mentions "external intuition" (or thought) and external phenomena or nature. Mind is a part of nature and the ultimate fact in both mind and nature is motion. What Kant meant to say was that the mind forms space and also time out of motion, and, hence, if there were no mind there would be neither space nor time, only motion.

From the above it is evident that Kant obtained a deep insight into the nature of time and space. Had he maintained that time is the subjective and space the objective aspect of motion, the question of their reality would not have been raised, for motion and reality mean the same thing.

There is no denying that the fundamental facts of consciousness may be gleaned, although with great difficulty, from Kant's psychology. It is the opinion of many competent authorities, however, that the Kantian philosophy declares against the possibilities of a unification of knowledge.

The most subtle, illusive and the simplest of all questions is the meaning of time and space. Sooner or later philosophy will be reduced to this problem for its solution supplies the connecting link between mind and matter. It is generally conceded that the most original part of the Kantian doctrine is the subjectivity of time and space. By postulating the subjectivity of these opposite aspects of existence Kant did not mean that all

reality is in the mind. Although he erroneously regarded mind as the cause of the order of nature* he nevertheless acknowledged the reality of objective change as well as of subjective inherence.

All our theories of the constitution of matter are governed by our conceptions of time and space, for these opposite aspects of existence are our only means of counting and of measuring phenomena.

The Paradoxes of Zeno and the Antinomies of Kant are similar in conception, for they show the futility of attempting to reduce nature to absolute number and quantity.

Both the Paradoxes and the Antinomies are attempts to reduce phenomena to an absolute unity in variety, or in other terms to an immutable one and an immutable many, whereas, phenomena or nature means mutability or change.

Motion is unity in variety or existence expressed in terms of time and space. The difficulty with the idealists and the atomists alike is that they endeavor to express the nature of God and of substance, in numerical instead of in geometrical terms, the former indicating discontinuous quantities, while the latter denote the continuity of nature.

The greatest achievement of Kant, therefore, was not the subjectivity of those conceptions known as time and space, for all conceptions are subjective. His greatest logical achievement was rather his reduction of all universals to the single category of relation, for the ulti-

* "The very thing that Kant thought he had proved beyond all power of contradiction was that the orderly arrangement of nature is the product of the human mind."—Ladd.

mate relation is what in mathematics is known as motion and in religion as God.

Having measured the understanding by the rule of the absolute, Kant regarded the mind as an island in a sea of mystery, which, although subject to *criticism*, cannot be comprehended or known. Instead of being a solution of the problem of consciousness, this is in effect the same doctrine as that of the ancient skeptic, who saw no real harmony between mind and enviring nature.

The assertion of Kant that we have ideas that are not derived from sensation conflicts with the facts of consciousness. Modern psychology has made clear the connection between sensation and thought, but Kant, unfurnished with these researches, concluded that the objective world, of which, let it be remembered, every mind except our own is a part, although existing, is quite unknowable.

Since the test of every philosophy is its theory of Knowledge, we are justified in accepting what, even in Germany, outside of the direct influence of transcendentalism is becoming a general opinion that Kant's *Critique of Pure Reason*, although a monument of dialectic sublety, is at the same time an incorrect and hopelessly confused explanation of mind.

And yet, the enthusiasm of some of those who have learned philosophy under the influence of the Kantian dialectic is unbounded. Prof. Noiré, in the introduction to Max Muller's translation of the *Critique*, after giving evidence of the broadest philosophic culture, closes his examination of the pre-Kantian systems with this daring eulogy: *"Kant alone succeeded in solving

* Kant's *Critique*, tr. by Max Muller. Vol. I., p. 359.

all the contradictions and paradoxes in which the reason was entangled, and in explaining them completely in accordance with their own nature, as he dropped the sounding-line into depths which as yet no mortal mind had dared to fathom, and brought up from thence to the light of day news of the primary conditions and eternal postulates of reason. It is, therefore, not too much to say that Kant is the greatest philosophical genius that has ever dwelt upon earth, and the *Critique of Pure Reason* the highest achievement of human reason." And Max Muller adds to this questionable example by declaring that the *Critique* anticipates and resolves all the ontological and dialectical difficulties of humanity.*

Kant himself was not without a lively sense of the inadequacy of transcendentalism. His *Critique of Practical Reason*, which appeared in 1790, is generally admitted to be a search for a sounder basis of ethics and religion than the *Critique of Pure Reason* could afford; but the Kantians of the present day deny to their master the privilege of enlarging his view, or of developing his opinions. They are unanimously persuaded that the first edition of the *Critique*, which was written in a few months, represents what ought to have been the final teachings of Kant. In brief they refuse to concede that his mental development was continuous and suffered no serious relapse during the period of his literary activity.

The *Critique of Practical Reason*, as the name implies, deals with ethics. The difficulties which an Ethical system presented to Kant were insuperable, because

* "The whole result of Kant's philosophy is absolute skepticism with regard to ontology."—G. T. Ladd.

transcendentalism leads inevitably to skepticism, whereas morality is a form of faith.

Since the true and the good are inseparable, it is impossible to evolve from an incorrect theory of mind a correct theory of duty. The leading thought of the Kantian Ethics is that the will, not reason, is the basis of our faculties. According to Kant the reason is lost in antinomies or contradictions, but the will reveals the path of duty. The "Categorical Imperative" which Kant derived from the will is simply the law of nature sanctioned by experience. The theories of The Practical Reason regarding the moral instincts are profound and beautiful, but the moment Kant attempts to reconcile these basic intuitions with his transcendental dialectic, contradictions arise on every hand.

The *Critique of Practical Reason* defines God as the supreme good, the idea of moral perfection framed by the reason *a priori*. It teaches that there is "a supreme and unconditional good" voiced in an absolute "good will," which justifies itself. According to Kant the will is not justified by its purpose, but by its form, or in other terms, because it is an idea. To use his own words, "To be moral an action must be from the maxim, not the intention or inclination."*

Especially did Kant proclaim that there is no moral quality in inclination or sympathy, for the *a priori* principle is formal whereas inclination and sympathy are only material.* Hence according to Kant "example" or "imitation finds no place in morality."† Now the underlying principle of ethics is the sublime and imperishable example set us by the order of nature, which is the source of volition as well as of thought.

* Grundlegung zur Metaphysik der Sitten, p. 17. † p. 19. ‡ p. 31.

“Everything in nature,” continues our author, “works according to law. Rational beings alone have the faculty of acting according to the conceptions of laws, that is according to principles, *i. e.*, having a will. Since the deduction of action from principle requires reason, the will is nothing but practical reason.”*

The difficulty with this theory of Kant is that it regards the will as a purely mental phenomenon, whereas it is largely instinctive, or unconscious.

According to the view of Kant, justice is an absolute entity, an innate *a priori* faculty of the human mind, present alike in all races and individuals. This theory, however, he afterwards modified, affirming that justice is a universal principle.

The conception of justice has grown up from the simplest experiences. It is aptly symbolized by the device of the balance, for it is a balance of social forces or of rights and duties. As society develops, rights and duties become more and more definite. Hence our idea of justice is evolved from experience, and is not absolute or *a priori*. Kant's original theory that justice is *a priori*, not an evolution of experience, undermines the whole structure of jurisprudence, because the only enduring foundation of civil law is the order of nature.

Morality is rightly reasoned conduct, or the culmination of experience. In order to understand the nature of mind and duty, it is necessary to harmonize the principles of intellectual and physical life, or of thought and nature. Transcendentalism takes the stand that thought is not relative, but absolute, that is to say, it is

* Grundlegung zur Metaphysik der Sitten, p. 36.

a supreme good in itself, instead of a natural development.

The transcendental theory that the true and the good are unconditioned or unevolved is the opposite of moral because it enthrones thought as an absolute and, therefore, an irresponsible power. It is impossible to sustain Kant's theory that the *a priori* idea is the Supreme Good in itself, independent of conditions, for, as previously explained, the deepest meaning of good is that type of existence which we call species and all species are mutable.

If, therefore, we would appreciate the genius of Kant and the inimitable spirit of his writings we must make allowance for many contradictions. As is the case with other geniuses, his works are full of contradictions as well as of invaluable suggestions. Notwithstanding all his defects, however, the chief value of Kant, and that which won for him the lasting affection of his countrymen, was the earnestness and greatness of his Ethical conceptions.

All recognized German philosophy subsequent to Kant has been a more or less consistent development of transcendentalism. The theories of Fichte, Schelling, and Hegel, as well as of all the principal post-Kantian writers, were influenced to an extraordinary degree by the *Critique*.

In the foregoing brief exposition of the Kantian philosophy, the main conclusions of that system are compared with the facts of consciousness as explained by psychology. The defenders of the system maintain that no argument which is based on psychology—that is to say, upon the facts of consciousness as now understood—can possibly reach the meaning of the Kantian

criticism. Professor Hugo Münsterberg, of Harvard, in a critical review of this chapter writes:

“As soon as you interpret Kant psychologically, the whole Kantian philosophy must appear as a great nonsense.”

In an accompanying letter, the Professor reiterates:

“I agree with you that from a scientific standpoint the *Critique of Pure Reason* is pure nonsense, but from a categorical standpoint it is consistent”

The aim of the present work is to gauge the chief systems of thought from a scientific standpoint in order to show how near each school has come to an ultimate analysis of existence. There is no reason why Kant's philosophy should be exempted from this test. If the great authorities admit that Kant's categorical system of thought cannot be reconciled with the facts of consciousness as now known, of what value is the system? The *Critique of Pure Reason* is a labyrinth of introspection through which, by dint of a prodigious amount of labor, one can find one's way, but when its devious paths are at last made out it is discovered that the effort required is out of all proportion to the benefit derived.

In describing Kant's categorical position, Prof. Ladd, who is an acknowledged authority, and to whom I am indebted for a criticism of these chapters, writes, “The very thing that Kant thought he had proved beyond any possible contradiction was that all phenomena must subject themselves to the constitutional forms of functioning of sense and intellect, or in other words, that the orderly and interconnected arrangements of nature must be the product of the human mind.” This categorical position of Kant simply means that mind,

instead of being a product of universal order, is the cause of nature, which, to say the least, is an erroneous basis for a system of philosophy.

My intention has been to show, what is admitted by many of the most devoted followers of Kant, that his philosophy cannot be reconciled with the facts of consciousness as shown in psychology.

FICHTE

In turning from Kant to his three great contemporaries and expounders, Fichte, Schelling and Hegel, it should be with a spirit of appreciation, lest in defining their errors we lose sight of the sublimity of their thought.

The German idealists refused to confine themselves to psychology. They strove to enlarge thought so that it might include all life and nature. Impatient of the incomplete science of mind they pressed forward to that of existence in general, aiming at nothing less than a true conception of God. Almost all modern philosophic schools have been halted by the conviction that it is necessary first of all to ascertain the nature of consciousness. Thus Locke maintained that "we must try the length of the line with which we are to sound the ocean of truth." It is necessary to formulate a true psychology before attempting to comprehend divinity, for how can we understand the principles of being before we are able to distinguish variety from unity or the human from the divine.

It was to Kant that Fichte owed his first enthusiasm for philosophy, and ever afterward the pupil remained faithful to the dialectic of the master, even more faithful than did the master himself.

Fichte was born in 1762 at the Saxon village of Lusatia. At the age of eighteen, he began a theological course at Jena. After leaving the university he served for a time as private tutor, and then engaged in miscellaneous literary work. It was only in subsequent years that, for the first time, he encountered the Kantian philosophy, which he said had the effect of completely changing his point of view, on account of the prominence given to the question of the moral nature of man.

Although a theologian, Fichte had become what is now known as a liberal. He had adopted a Spinozistic Determinism, which means that he had come to regard life, not as a miracle, but as a development of nature.

Kant had long aimed to prove that "there is an absolute moral law which is the essence of free intelligence," which really means that righteousness is obedience to the order of nature. The difficulty with this theory of Kant is that it regards righteousness as absolutely dependent upon conscious reason, whereas by no means is all reasoning conscious, much of it being instinctive and, therefore, indissolubly connected with unconscious impulse. To obtain strength, to do right, therefore, we need more than intellectual ideals or the stimulation of reason; we are in constant need of those physical ideals known as example, which insensibly elevate us. If we penetrate deeply into human life it will be seen that the conditions from which we have sprung are making for righteousness; or, in other terms, the order of the universe is constantly setting us the sublimest of examples.

These broad principles are in harmony with the determinism of Spinoza, adopted by Fichte, but that

thinker was also attracted by the theory of an absolute moral law, because it recalled the transcendental theory of the absolute will of God which had been the motive of the orthodox training of his youth.

The influence exerted by the Kantian philosophy is largely due to the appeal it makes to absolute authority or transcendental justice. This theory is inseparable from that of a personal deity. Society will continue for a long time to believe in God as an absolute ruler of faith as well as of works. How could it be otherwise, after all these years of residence under a theocracy? Think of the civil and intellectual development which will be necessary before we can transform our dependence upon that absolute ego known as Jehovah into a sublime trust in nature.

Kant sought to avoid the difficulties arising from the theory of an absolute moral law by making reason absolute, whereas it is by nature relative. In the endeavor to establish a criterion of right and of truth he maintained, and with justice, that duty and reason are one, but he made the fatal error of believing that both are absolute. It is easy to see that duty is relative because the first of all obligations is the preservation of species, and species are mutable. Only within the limits of race can might be modified by right, for within this sphere alone have the weak a claim upon the strong. Morality, therefore, is the adjustment of individual and general rights within each species.

Fichte realized the difficulty into which the Kantian dialectic had fallen, but instead of trying to remove it by evolving both consciousness and justice from nature, he took the opposite course, and sought to prove that both mind and duty are functions of an absolute ego.

The aspect of the Kantian philosophy which Fichte confronted is now turned away from us by the movement of time. We compare the theories of the *Critique* with an advanced psychology and ethics, but Fichte lived at a time when the ideas of Kant were an innovation, confronting the narrowest of orthodoxy.

Orthodoxy has always held that the highest intelligence and virtue are supernatural; or in other words that they are gifts of a personal deity, or of an absolute ego. Kant reasoned that the matter of thought and feeling are thrown into the form of cognition from without, or by empirical forces. His whole influence was exerted on the side of a natural, as distinguished from a supernatural, theory of knowledge, but with all Transcendentalists he endeavored to depose the conception of a personal deity from the position it had so long held in religion, only to re-enthroned it under the form of an absolute ego.

This theory of an absolute ego would be difficult to deal with had not sociology revealed the fact that mankind may be considered as a vast living being composed of a multitude of egos acting and reacting upon one another through the medium of language. Before the light of evolution the theory of an absolute personality disappears. Language is the medium through which the relations of individuals to one another are maintained. This medium may be viewed objectively as well as subjectively, for what to the individual possessing them are feelings and thoughts, are to others only actions; that is to say, internal excitations of an objective organism.

Transcendentalism is the transition which the theory of a personal ruler of the universe undergoes in be-

coming that of an absolute ego. In due time this idea will develop into faith in the order of nature.

Soon after his first visit to Königsberg, Fichte wrote a hurried treatise entitled, *Essay Toward a Critique of Every Possible Revelation*, and sent it to Kant, who, recognizing in it a high order of ability, interested himself in securing a publisher. Notwithstanding some opposition from the theological censor of Halle, who did not like to see miracles rejected, the book was published at Easter, 1792. By an accident the author's preface, in which he acknowledged himself a beginner in philosophy, was omitted from the first edition, nor did his name appear on the title page. Some of the German newspapers, jumping at the conclusion that it was a production of Kant, accorded it unbounded praise. When the mistake came to light Fichte's reputation was made, and an invitation was extended him to fill the chair of philosophy at Jena (1793). Here, according to the critical method of the times, he was assailed as an advocate of atheism, and declining to make any retraction, resigned the chair in 1799. Soon afterward he was made professor of philosophy at the new university at Berlin, where his career was short and dramatic. The enthusiasm with which the campaign of 1813 began carried him from the lecture room into the ranks of the assembling army, and within a year he was taken with fever and died.

The principal theme of the Fichtean philosophy was elaborated during the few stormy years which its author passed at the university of Jena. Here he endeavored to develop the practical or ethical side of the Kantian philosophy; for it was to expound this system that he had been invited to the chair. A revolution in

Kant's own views, however, had taken place. His *Critique of Pure Reason* had been partially modified by his *Critique of Practical Reason*, and as these works appeared only six years apart, the latter shortly before Fichte began lecturing at Jena, it will be readily seen that the first attempt to expound the *a priori* philosophy was not without its difficulties.

Fichte exaggerated the idealism of Kant by advocating what is now known as the theory of subjective idealism, which means that the objects of perception do not exist externally but only internally or subjectively, that is to say all reality inhabits the mind. The illusion by which this belief is brought about has been exposed in the foregoing review of Greek Thought. It is a form of trance brought about by an excessive contemplation of the ego. If we contemplate our own minds long enough, forgetting all other minds, we become self-hypnotized. We imagine that the ego is not only the center of the universe, but that it is the universe itself. If we could only realize that there are other minds as well as our own, we would reject Fichte's belief that the objects of perception, which include all conscious nature excepting ourselves, are functions of our own consciousness. The illusion would vanish when we realize that the consciousness of all other intelligent beings is objective or external to ourselves, for then it would be evident that individual minds are simply parts of nature.

SCHELLING AND HEGEL

Schelling and Hegel were fellow students at Tübingen, where they pursued the study of theology, receiving such enlightenment concerning the nature of

deity as was then possible. In the certificate granted by the university authorities to the young theologian Hegel he was described as of good ability, middling industry, but especially deficient in philosophy.

Schelling was five years younger than Hegel, having matriculated below the required age, and for a long time after leaving the university looked up to his fellow student as a guide in philosophic thought. The idea of God formed by these young theologians is of historic interest, for all their subsequent progress was a development of that fundamental conception.

In the *Critique of Pure Reason*, Kant taught that God is an idealization of our own personality, but in the *Critique of Practical Reason* deity was conceived as the essence of all being, or as the ultimate reality. In some of his writings, therefore, Kant defined God as a person and in others as a principle, but he generally conceived deity as the absolute ego or individual. Over the Kantian system as a whole presides the theory that the ultimate reality is an individual mind.

Ontology springs from the distinction between variety and unity or between individual and general existence. Neither Kant, nor Fichte, nor Schelling, nor even Hegel ever made clear this all important distinction.

Strictly speaking, all mind involves memory. In other terms, consciousness is a reproduction, because all perceptions and conceptions are copies of an original. Although the mind is a phenomenon, or a part of nature, and therefore real, its images are always unreal in the sense that they are not the original. Philosophy beginning with an imperfect conception of deity culminates in the identification of this conception with the order of nature, which is the ultimate reality. Schelling

and Hegel, as well as their immediate predecessors, conceived God as the essence of all being or as the ultimate reality. Throughout the writings of the Transcendentalists the acknowledgment is often found that mind and nature are forms of one universal principle.

The capital error of transcendentalism is not that it separates mind and matter respectively as the subjective and the objective aspects of existence, but that it attempts to make this separation absolute.

Of course, by neglecting all other existences except our own we can view the ego or mind as absolute or unconditioned, which view of the ego is equivalent to the conception of time. We can also view nature from co-existent points of resistance, which gives us the conception of space.

To put it briefly, the Transcendentalists confuse mind with the conception of time. They deny that consciousness occupies space, whereas mind is a form of motion, and therefore implies both space and time.

Fichte held that mind is pure action, that is to say motion. He maintained that all existence can be reduced to this single law or principle. But, following the Kantian dialectic, he further held that the law or principle of motion recognized as ultimate alike in mind and nature, must be wholly personal. Thus he degenerated from a general view of mind to one so subjective that matter, which is our symbol of the objective universe, seemed to him only a reflection of a conscious personality.

The religion of the subjective idealist, therefore, may be summed up in the sentence, I am the ego, and the ego is everything, including God. How much better would

this sound were it written, God is nature, including that ego known as humanity, of which I am an infinitesimal and a transient part.

The subjective idealist insists that because we know things only through consciousness, mind is everything. The fallacy of this theory arises from the failure to comprehend the fact that thinking is relationing and that all relations are of coexistence and sequence or of space and time, the aspects of motion.

Fichte felt the force of these objections and gradually modified his extreme subjectivism, but although acknowledging finally that mind is pure action, which means that it can be accounted for by motion, he could not conceive of motion as an existence independent of personality or the ego.

Schelling, on the other hand, resolved space and time, the Kantian categories of sensation, into the matter and form of thought, thus uniting mind and matter as different aspects of a single principle.

In his *Philosophy of Identity* Schelling asserts that the ultimate fact is the absolute and infinite existence (Sein), which forms of itself the whole real essence of the universe, and that this fact is appreciated by intellectual intuition.

The difference between Schelling and Hegel is distinct. Schelling evolved reality from nature, in which he included mind, recognizing as ultimate, in both spheres, the principle which he denominated law or power. But Hegel insisted that nature has no existence apart from thought. In other terms, all being is intellectual. According to Hegel, therefore, the most general fact is the movement of mind.

Briefly, therefore, Schelling evolved mind from na-

ture, while Hegel maintained that mind springs from nothing outside itself because there is nothing beyond it. This is the absolute idealism of Hegel.

In the *Critique of Pure Reason* Kant took the same position of extreme subjectivism, which, however, was modified in his subsequent writings.

Schelling made no synopsis of his philosophy. Its ruling principles have to be deduced from his writings taken as a whole. He was always alive to the importance of scientific discoveries, and constantly sought to discern their application to philosophy. He saw that social development springs from the mechanical and chemical energies of organic life. It can be said, therefore, that he at least dimly foresaw the synthetic philosophy of Herbert Spencer.

The Hegelean philosophy is so profound that its chief postulate, the insistence that nature is mind and nothing else, can be regarded as a misfortune that befell an otherwise great theory of the universe.

Hegel objected to Schelling's method of evolving consciousness from nature because he denied that there is any existence not sublimated into thought. Once having taken the stand of absolute idealism, Hegel was obliged to represent all phenomena as a logical process. He maintained that philosophy begins by gaining a clear conception of the laws of thought. It never occurred to him that a study of the functions and structures of the sensorium was necessary to a knowledge of the laws of thought. Pure sensation, he tells us, affords only feeling. The first step in the attainment of knowledge, he continues, must be a state where there is a complete blending of subject and object. At the next step sensation becomes perception and we

refer our feeling to some real outward existence as a cause. In the third step we perceive the object as a product or a process of our own mind. According to Hegel, therefore, feeling begins as a part of nature. Then perception or the idea springs from feeling, and afterwards all nature becomes the idea, for we are told that nature disappears (aufgehoben) in the "infinite self" and hence the understanding or the reason (Vernunft) triumphs.* Now it is well known that the "infinite self" is a contradiction in terms, for self implies individuality or the limited, and the infinite means space or the unlimited.

With the exception of this basic fault, which assumes that all reality is mind, Hegel is sublimely logical. He says that both subject and object owe their existences to each other, forming a relation which is universal; that God realizes himself in human consciousness by a process which is synonymous with himself. All nature, all mind, all history, and all religion are but pulsations of this movement, and God is the universal law or fact. In the absence of a more exact terminology these words of Hegel will answer the purpose of an ultimate generalization.

The fact is that Hegel's Logic teems with intuitive perceptions of an ultimate analysis of existence. He tells us that "Essence is being unfolded or expanded so that its aspects reflect each other." The Categories, therefore, follow in pairs, which it will be found are the equivalents of the subjective and the objective aspects of existence or of time and space. The man who wrote that

* As set forth in *Ideen zu einer Phil. der Natur* and in the *Neue Zeitschrift fuer Spec. Phil.*

“activity is synonymous with reality,” (Wirklichkeit); or that “Nothing is active except what is real, and nothing is real except what is active,” knew that motion is the ultimate reality.

With Hegel the ultimate reality was not substance as with Spinoza, or the subject as with Fichte, or the “thing in itself” as with Kant, but a process without beginning or end. This generalization would be faultless were it not for the unfortunate insistence that the universal process or relation is exclusively mental, for otherwise the universal *process* could be identified with motion.

In his better moments Hegel acknowledged that thought is a form of motion and therefore identical in nature with the underlying principle of all existence. The nothing from which he evolved all existence is that relation which is the end of analysis and the beginning of synthesis. In obedience to the demands of the Kantian dialectic, however, he tortured this sublime idea of universal unity into a futile subjectivism.

Of the Hegelean philosophy the most original feature is the treatise on æsthetics. The reason why the German transcendentalists have exerted so wide an influence is because they strove to define not only the true and the good, but also the beautiful. They felt with the ancient Greeks that an adequate revelation must harmonize these inseparable elements of knowledge. Thus the Germans advanced naturally from psychology to a philosophical criticism of art.

In the opinion of Bosanquet,* Kant's attention was turned to art as related to human genius and to

* History of Æsthetics, p. 255.

nature by the essay of Burke. Fichte further elaborated these theories, but it was Schelling who first gave them a definite form. Hegel began his contribution to the science of the beautiful by expounding Schelling's philosophy of art.

In his criticism of art Hegel laid aside, as far as was possible for him, that dialectical method which is the chief difficulty of all his other writings. He identified the evolution of beauty with that of nature as a necessary progressive movement, but instead of acknowledging form as ultimate, or as identical with motion, he insisted that beauty was the idea expressed in form.

The great question of art has always been to what extent can genius, which means the soul, take form?

Hegel contended that beauty was the idea which has attained expression in form. He had not discovered that beauty and form have the same ultimate meaning; namely, proportion or the universal method of nature.* He had, however, an intuition of this great truth, and the way he expressed it was by affirming that the idea of beauty does not necessarily imply consciousness, but that it is a universal principle.

In the absence of an ultimate analysis this intuition of Hegel was marvellous, for he conceived beauty as the *idea* expressed in form, with the proviso that the *idea* is not limited to individual consciousness, but that it is universal.† This is in effect an identification of beauty and motion.

Hegel insisted that, although beauty is inherent in

* The Greeks are the only race that have mastered the law of natural proportion, and they are first in art.

† *Æsthetic* 1, 141.

nature, it exists only for perception, or in other terms, it is purely subjective. Of course, the Hegelian way out of this difficulty was to explain that perception is not necessarily limited to individual consciousness but that it is universal. But why should he use terms indicating mental life, and afterward explain that they are used in a universal sense? Would it not be simpler to employ terms that express universal action?

From the foregoing it is evident that the great German dialecticians were men of extraordinary genius. They strove unceasingly to define the prime elements of knowledge, which are the true, the good and the beautiful. They attempted to develop an imperfect conception of deity until it included mind and nature. They perceived intuitively that the trend of social progress is toward an ultimate generalization which they endeavored to identify with the order of the universe.

HERBART

Of the German thinkers of the Nineteenth Century one of the clearest was Johann Friederich Herbart, who studied under Fichte at Jena and succeeded Kant in the chair of philosophy at Königsberg. Although Herbart realized that the problem of existence demands solution, he despaired of the solution. He maintained that the more definite our conceptions of ultimates become, the more distinct appear the contradictions between them.

According to Herbart, quantity cannot be the end of analysis, because the ultimate must be absolutely simple, whereas quantity implies parts. In order to escape this difficulty, he reasoned that there must be a plurality of ultimate realities. His theory of the universe, therefore, is called pluralistic realism. Now

what excuse can there be for seeking more than one ultimate reality when we consider that the opposite aspects of this universal relation are time and space or number and quantity? Herbart's plea that there can be no quantitative aspect of the universal relation because quantity implies parts, and is, therefore, incompatible with simplicity, reveals the crux of the metaphysical problem. The only ultimate which is separable from co-existence is the sequence called time. The separation, however, is not absolute, but relative, because it is the function of that system of relating called consciousness.

Many centuries ago Zeno proved that it is impossible to imagine a quantity so minute that it cannot be divided or so great that it cannot be increased. Hence the necessity of acknowledging as ultimate both co-existence and sequence or variety and unity. Herbart's endeavored to prove the incompatibility of variety and unity. He felt the necessity, however, of correlating objective change with subjective inherence, or, in other terms, of relating coexistence and sequence, but he failed to perceive that these terms represent simply the objective variety and the subjective unity of existence.

Herbart skilfully avoided the entanglements of the Kantian dialectic. He denied that motion, or reality, is merely a product of our psychological mechanism, a theory which the Kantians deduced from the fact that consciousness produces those aspects of motion known as time and space. Herbart never wavered in the belief that objective semblance is reality.

There is no field of inquiry where ambiguity has greater sway than in aesthetics, for the science of the beautiful is still in its infancy. Bosanquet remarks that

“the crux of true æsthetics is to show how the combination of decorative forms in characteristic presentations, by an intensification of the essential character imminent in them from the beginning subjects them to a central significance which stands to their complex combination as their abstract significance stood to them in isolation.”* This means that the significance of a combination of form is the result of the combination. For it goes without saying that the central significance of the whole bears the same relation to the meaning of the parts that the abstract significance of the former bears to that of the latter.

The central significance of all combinations of form is the sphere, which is the unit of motion. In the multiplication and division of the sphere we have the definition of form or beauty.

There is a legend that Alexander the Great, when invading Egypt, had Euclid in his train, and endeavored to persuade the priests to impart to the Greek mathematician the secrets of their geometry. Upon the refusal of the priests to violate the oath of their order by receiving one uninitiated, Alexander threatened them with death. Euclid was then admitted to the temple and instructed in geometry. The priests, however, withheld the secret of the sphere, which is the law of natural proportion or beauty. Twenty-three centuries afterward Bolyia and Lobacheoski rediscovered a geometry based upon the refutation of Euclid's chief postulate concerning parallels. What impressed them most was the “*marvelous beauty*” of the resulting system in which the sphere is the ultimate of form as well as of motion.

* History of Æsthetics, p. 372.

The architecture of Egypt proclaims a knowledge of the law of natural proportion. This method of "the divine architect," so sedulously guarded by the Egyptian priests, descended to the secret religious orders of the Greeks and thence to the mediæval Masonic Guilds who built the Gothic Cathedrals. Wherever it has been systematically employed, this law of natural proportion has evolved a school of architecture.

Herbart instinctively approached an ultimate analysis of form. He realized the importance of a numerical and a physical basis of harmony, for he said that "the combination of elements belongs to the doctrine of art."

Kant postulated a pure form, pure in the sense of being separated from all significance, just as his pure reason was separated from all sense. This arbitrary separation of form from meaning was rejected by Herbart, who strove to prove the objective validity of the æsthetic judgment. In other terms, he held that beauty consists in elementary relations of co-existence and sequence, or in relations of space and time—the aspects of motion. If motion is the ultimate reality, it must be the ultimate significance of form or beauty.

The fashionable mysticism of Europe, which took its rise in the writings of Schopenhauer, is a modern form of skepticism. It is a protest against the failure of philosophy to justify itself by defining the ultimate reality. Society is still demanding a criterion of the true, the good, and the beautiful.

Schopenhauer opposed the Hegelean postulate that the idea is the deepest reality, for he insisted that *will* is ultimate. He hastened to explain, however,

that *will* is not limited to consciousness or to organic life, but that it is universal. Hegel made the same explanation with regard to the idea which he held to be ultimate. Would it not be less confusing to define these universals as motion?

HAECKEL

At the present time in Germany the problem of mind is yielding to physical rather than to metaphysical analysis. Prof. Ernst Haeckel did not become a psychologist in the halls of the metaphysicians, but in the laboratory. In his recent work, *The Riddle of the Universe*, the principles of consciousness, as derived from biology, are so ably generalized that the conclusions reached are in the highest degree philosophical. In the chapter on the Law of Substance this author comes very near to an ultimate analysis, nearer in fact than any of the other great German thinkers, because he realizes that although there is no mind without nature there is nature without mind, or, in other terms, that consciousness is a form of motion.

Aware of much that has been accomplished in introspective analysis, Haeckel also possesses an intimate knowledge of the functions and structures of the sensorium. This knowledge has enabled him to trace the development of the intellect of the higher animals and of man to its source in the simplest forms of life, an analysis which brings into view that centralization of sentient energy called the soul. Every intelligent being possesses in some degree that sublime power of expression known as genius or soul. "It seems impossible," says the translator of the *Riddle of the Universe*, "to follow Haeckel's broad survey of the psychic world with-

out bearing away a conviction of the natural origin of every power and content of the human soul.”*

When compared with the intervening ethereal spaces, the celestial spheres shrink to mere points of resistance. The cosmic individual is the sphere and its environment is infinity. The physicist is unable to attribute any positive qualities to that extension called ether in which the cosmic masses revolve, except such far-reaching energy as light, radiant heat, electricity and magnetism. According to Haeckel, ether is neither gaseous, nor fluid, nor solid, and as far as known it is structureless. It can be inferred, therefore, that it is infinite and ever active. One of the aspects of motion is infinity and the other eternity, the very quantity and quality attributable to ether.

Haeckel tells us that the universe is divided into potential and actual energy, which terms are mutually convertible, just as all life springs from a reciprocity of force, a correlative change of material. Thus the drama of nature, including life and mind, displays an alternation of movement and repose, the sum total of force remaining constant for it is infinite and eternal.

All competent physicists now recognize the persistence of substance and of force as the fundamental law of nature, the ultimate principle known to mathematics as motion.

Had Haeckel extended his researches to religion he could have shown us the beauty of this phase of human development, just as he has displayed the entrancing forms and colors of microscopic life. If faith in im-

*Preface of the translator of the *Riddle of the Universe*.

mortality is a stage of intellectual development, Haeckel must have known that the worship of persons precedes that of principles, or, in other words, that mankind believes in absolute individuals before it is guided by ultimate truths, for the mind rises naturally from variety to unity or from the individual to the divine.

CHAPTER VIII

THE ECLECTICISM AND POSITIVE PHILOSOPHY OF FRANCE AND THE SCOTCH SCHOOL

*Gassendi—Malebranche—Condillac—Cabanis—Gall
Royer-Collard—Cousin—Comte—Reid
Hamilton*

After the religious fervor of Europe had exhausted itself in the Crusades, there remained the three great orders of chivalry known as the Teutonic Knights, the Knights of St. John and the Templars. About fifty years after the last crusade the Templars were disbanded. The Knights of St. John continued their organization by a long and valiant defense of Southern Europe against the Turks, while the Teutonic Knights undertook to christianize what was then known as pagan Prussia. This invasion almost exterminated a brave and hardy people who clung to their rude mythology, in opposition to the alien Christian worship, and the rule of the Empire.

In the meantime, Paris had become the foremost seat of learning in Christendom. Its university was a congeries of schools, gathered about famous teachers connected with monasteries and the cathedral, but lacking that corporate unity which later on made it the model of nearly all the great schools of Europe. As an example of its early importance Henry II. of England,

in the year 1164, offered to refer his dispute with Becket to the arbitration of the Peers of France, or to the Nations of the University of Paris. Early in the Fourteenth Century Pope Gregory IX. conferred upon the several faculties the privilege of regulating their own laws, which amounted to the right of self-government. In the middle of the Fifteenth Century the University was attended by over twenty-five thousand students from all parts of Europe, a number, at that time, equal to about half of the population of the French capital. It was at Paris that the chief battles of Scholasticism were waged. There William de Champeaux, Abelard, Thomas Aquinas, and Duns Scotus, lived and taught.

Luther's proclamation of the independence of thought had the effect of freeing the learned world from the domination of Rome, that is to say, from the authority of the sacred versions of Plato and Aristotle. At this juncture Loyola inaugurated the Society of Jesus, in the hope of producing, by the aid of ecclesiastical schools, a counter reformation. The purpose was to preserve the Catholic faith in its entirety, including the orthodox versions of the ancients; but with the irony of fate, the favorite pupil of the Jesuits, Descartes, dealt a blow to Scholasticism, which resulted in permanently freeing science from the tyranny of the Church.

Thus it was in the turmoil of theological war raging throughout England, France and Germany, and culminating in Protestantism, that modern philosophy was born. This new philosophy first appeared in the writings of Descartes and Spinoza, and was therefore an avowed attempt to define not motion but the nature of God.

Strange as it may seem, in severing connection with the Church, thought was exalted. Freed from obsolete dogma, man found himself again able to form a natural conception of the universe. As intellectual liberty was gradually restored, humanity resumed its task of harmonizing mind and nature by determining the most general of all principles, which is the ultimate reality.

While Europe was struggling for spiritual liberty, science through its own methods was unconsciously approaching an ultimate generalization, for knowledge was becoming rapidly centralized. In England, Bacon had chosen the scientific method. Although he had no hope of performing a complete analysis of being, he felt that the rule of induction, if adhered to, would finally succeed. In France, there was but feeble resistance to intellectual progress, for there the thoughtful world, wearied of the uncertainties of dialectics, had united in demanding demonstrations.

Such, however, is the craving of the mind for the repose of ultimate truth, that the brilliant achievements of Descartes in the sciences were neglected, public attention being riveted upon his attempt to reduce thought and extension, not to universal unity, but to a futile duality.

GASSENDI

The Cartesian philosophy was strenuously opposed by Gassendi, who inaugurated in its stead a comparison of the various schools of thought. This system, known as eclecticism, was afterwards adopted by Royer-Collard, Jouffroy and Cousin.

Pierre Gassendi, astronomer, mathematician, and theologian, was born at Provence, France, in 1592. At

the age of twenty-five he received the appointment of professor of theology at Aix, the scene of his academic studies. His first work (1624) was a polemic entitled *Paradoxical Essay Against Aristotle*. In this treatise he opposed the Aristotelian astronomy, but nevertheless proclaimed his fidelity to the Church. He also maintained, and with justice, that Christianity is in no wise dependent upon the orthodoxy of either science or philosophy.

In 1645, through the influence of the Archbishop of Lyons, brother of Cardinal Richelieu, Gassendi was appointed to the chair of mathematics in the College-Royal of France. His lectures, from that chair, attracted wide attention, and, according to the chronicle, were crowded by the elite of Paris.

A treatise upon Epicureanism and a philosophical system of his own were Gassendi's principal works. It was in the latter that he compared the various schools of antiquity.

Like Descartes, the chief power of Gassendi lay in scientific research, where he had such coadjutors as Kepler and Galileo. To the idea of atoms he added that of substance as taught by the Cartesians, but rejected the absolute separation of thought and extension. The weight of the atom he identified with its motion or energy, denying the ancient theory of imponderability, which, however, still has adherents even among physicists of the present day.

Gassendi maintained that the related activity of atoms is the underlying fact both of mind and matter. This principle he preferred to the ultimate *substance* of Descartes. "The atoms," says Gassendi, "which God has created and set in motion are the seeds of all things ;

from them, by generation and destruction, everything has been formed and fashioned and still continues so to be." He recognized the fall of bodies by the earth's attraction, but, like Newton, held action at a distance to be impossible.

Reference to the teachings of Democritus and Epicurus will disclose the origin of many of the tenets of Gassendi, for those ancients were convinced that all phenomena are reducible to the activities of atoms.

MALEBRANCHE

Nicholas Malebranche (1638-1715) was the last of those Oratorian priests who gave so great an impetus to the devotional thought of France. Being subservient to the Church, he inclined to the mystical side of Cartesianism. None of the French metaphysical authors has been more read and admired. His principal work, *Recherche de la Verité*, published in 1673, received immediate recognition, not only for literary, but for philosophical merit, and yet all the writings of Malebranche are so mystical as to be of little value to the modern thinker. So involved and obscure was his theory of mind that a later generation called him the Kant of his country.

Being an orthodox Christian, Malebranche maintained that all knowledge arises from communication with deity. In his unflinching faith in a personal ruler of the universe he followed St. Augustine and Thomas Aquinas, who believed that the soul and the body are absolutely independent one of the other. This theory implies that knowledge cannot emanate from the senses, for according to the orthodox theory truth is not an emanation of experience but of the personality

of God, an influence which the soul receives as a gift and preserves untainted by the sinful body. The difficulty with this theory is that it ignores the great truth that, like knowledge, personality is not absolute but relative.*

Although an orthodox believer and therefore lacking in independence of thought, Malebranche was far too fine a writer to be neglected in a sketch of modern philosophy. A philosophic temperament enabled him to approach the source of all revelation, which is the conception of the order of nature. This sublime sentiment found expression in his endeavor to harmonize the Cartesian dualism with the teachings of the Church.

CONDILLAC

The interest aroused in France by the philosophy of Locke was largely due to Etienne de Condillac, the successor of Gassendi. Locke endeavored to prove that mind is the product of sensation and reflection. Condillac proposed an advance upon this theory by maintaining that since sensation and reflection are interdependent all sensation must be in some degree a thought. There are psychologists who oppose this theory upon the ground that thought is exclusively an activity of the brain. The parallelists say that it *depends* upon the activity of the brain. Lewes proves that thought is an activity of the sensorium. His method is to show that the complex structure of the brain is necessary for the completion of thought which is the highest or the most elaborate form of sensation.

* It follows from the discovery that consciousness is an organic activity, that there is no absolute ego.

There is no denying that Condillac and his pupils gave to thought a wider meaning than strictly belongs to it, but it is only by showing the elasticity of the meaning of terms that their most subtle relationships are disclosed.

The saying "To think is to feel" (*penser c'est sentir*) is called an absurdity of the Sensational School. This aphorism, however, emphasizes the fact that it is impossible to determine where sensation ends and thought begins. Thought is a co-ordination. Its field is the nervous system centering in the brain. Psychologists are now convinced that the whole organism co-operates in mental activity; or, in other terms, that the operations of the mind are not confined to the brain. As muscle and nerve are nowhere absolutely separate one from the other, so feeling and thought are always interdependent. Condillac endeavored to show that sensation and reflection are different aspects of the same thing, which was an improvement upon the psychology of his time.

"Locke," says Condillac, "distinguishes two sources of ideas, sensation and reflection, but it would be more exact to recognize only one; first, because reflection is, in principle, nothing but sensation; secondly, because it is less a source of ideas than a canal through which they flow from sense."

"Locke recognized," says Condillac, "that the soul perceives, thinks, doubts, believes, reasons, wills, reflects; that we are convinced of the existence of these operations, because we find them in ourselves, and they contribute to the progress of our knowledge, but he did not determine their origin, that is to say, their generic principle. Evidently he did not suspect that they might be only acquired habits. Locke seems to have regarded

them as innate faculties, admitting, however, that they are perfected by exercise."

At first sight this criticism may appear severe, because Locke always contended that we have no innate ideas. The exception of Condillac, nevertheless, is well taken, for, although Locke frequently referred to mental faculties, which really mean the same thing as ideas, he offered no explanation of their origin.

The psychology of Condillac was singularly prophetic; that is to say it foreshadowed the progress of the science. His first work, written at the age of thirty-one (1746), was entitled *Essay on the Origin of Human Knowledge*. This was followed in 1754 by his *Treatise on Sensation*, which brought him prominently before the world.

The *Cours d'Etude* was written for his pupil, the Prince of Parma. Among the names of his literary associates were Rosseau, Grimm and Diderot. In 1768 he was elected to the French Academy, but never afterward appeared at its sittings.

The chief merit of Condillac was the discovery of the interdependence of thought and language. He contended that the development of the mental faculties is due to the use of verbal and written signs, or, in other words, he maintained that the development of thought is coincident with that of speech. It would be difficult to over-estimate the value of this psychological principle.

CABANIS

Comparative psychology, or the study of the intellectual functions and structures of organisms, received a powerful impetus from Cabanis, a French physician, born at Conac, in 1757.

Cabanis said that the mental life of all organisms was reducible to activities akin to sensation, but he asked, What after all is sensation? Is it feeling—the name we give to those sensations of which we are conscious; and, if so, what degree of consciousness does the word feeling imply? What, on the other hand, are we to call those numberless changes constantly going on within us of which we are unconscious? If we apply the name feeling only to those activities which are so obtrusive as to arouse attention, how are we to distinguish them from internal activities in general, whether conscious or unconscious, for are there not all degrees of attention? This question will be examined in the review of *Lewes' Psychology*, chaps XIII-XVI. By inaugurating these inquiries, Cabanis opened up the science of comparative psychology, which is co-extensive with that of organic life, for it is now evident that psychical are distinguishable from physical states only by their higher complexity.

In the ascending complexity of organisms we find greater and greater sensitiveness to remote influences, more and more perfect co-ordinations of impressions, more thought, because more feeling. Function and structure are the opposite aspects of every fact of development. They imply each other. In their deepest meaning feeling and thought are inseparable, for in every stage of their development they result from the interaction of organism and environment.

If taken in its strictest sense the activity called thought requires a highly complex nervous organism. The structure necessary to ideas, however, is not wholly that of the individual; it is also partly the environment. The name of this intellectual environment is language.

Thus Cabanis enlarged the scope of psychology by showing that both volition and intelligence are evolved from physical movements. Somewhat later Auguste Comte built upon this foundation the beginnings of sociology, that science which demonstrates the interdependence of thought and action or of mind and duty.

In 1796-1797 Cabanis published, in the Transactions of the Institute, his principal work, *Relations Between the Physical System and Mental Faculties of Man*. He warned his readers that he would attempt no discussion of ultimate principles, for he found ample occupation in the study of mind as the function of an organism.

Among the friends of Cabanis were Diderot, Condorcet and Franklin. During the great struggle he assisted with his pen, the revolutionary leader Mirabeau and attended at his death as physician.

It was the privilege of Cabanis, therefore, to aid in founding the science of comparative psychology, and also to encourage the political reforms of his age, a period fraught with such unrest that a calm philosophy was out of question.

GALL

A new departure in the study of mind was due to Francis Joseph Gall (1758-1828), a German physician, known for his original researches in cerebral phenomena. The innovation was called phrenology, a system based upon the assumption that the strength of the intellect can be estimated according to the mass of brain tissue, or, in other terms, that bulk is a measure of brain power. About 1805 Gall, with his coadjutor, Dr. Spurzheim, began the propagation of this theory through lectures in Germany and in Paris. In 1808, he submitted to the French Institute his *Researches*

into the Nervous System in General and in the Brain in Particular, which, however, was reported upon adversely. Soon afterward he began the publication of his principal work, *The Anatomy and Physiology of the Nervous System in General and the Brain in Particular*. Although it has never been demonstrated that the power of the intellect can be measured by the mass of brain tissue, the efforts of Gall in this direction had the effect at least of stimulating researches in neural phenomena.

Hamilton, who is an acknowledged authority, denies that the external shape of the skull indicates the power of the mental faculties. This assertion, if proved, would render all phrenology unreliable, even if Gall's fundamental postulate were established. This postulate is, that, other things being equal, size is a measure of brain power. "But the other things," says Lewes, "never are equal, and consequently their dictum, 'size is the measure of power,' is without application. There never is equality in the things compared, because two brains exactly similar in size and external configuration will, nevertheless, differ in elementary composition. Nerve tissue, for example, contains both phosphorous and water as constituent elements, but the quantities of these elements vary within certain limits; some nerve tissues have more phosphorous, some more water; and according to these variations in the composition will be the variation in the nervous force evolved. This is the reason why brains differ so enormously, even when their volumes are equal." "The brain," says the same author, "differs at different ages and in different individuals. Sometimes water constitutes three-fourths of the whole weight, sometimes four-fifths, and sometimes even seven-eighths. The phosphorous varies from 0.80

to 1.65 and 1.80; the cerebral fat varies from 3.45 to 5.30 and even 6.10. These facts will help to explain many of the striking exceptions to phrenological observations, such, for example, as the manifest superiority of some small over some large brains."

Phrenology has failed as a science chiefly on account of the anatomical conclusion that the seat of mental activity is the grey matter constituting the cortex of the brain, and that its extent and refinement varies with the convolutions of the brain, to which neither size, weight nor shape give any index.

It is to be remembered, however, that the efforts of Gall helped to place psychology on a physiological basis. Unfortunately his followers neglected the psychological aspects of the subject for what is called *cranioscopy*, an inquiry so unreliable in its conclusions as to be denied rank as a science.

THE REVOLUTION

The progress of philosophy in France was retarded by the Revolution. The Reign of Terror invaded even the citadel of thought. The brief rule of passion and ignorance was reactionary, for the people, dreading all further innovation, hastened to re-instate superstitions which had just begun to yield to the advance of knowledge. One of the most conspicuous effects of the political upheaval in France was the restoration of occultism. At that time any one venturing to rationalize concerning the principles of existence would have been classed with the demons of the Revolution. As a consequence literary and philosophic criticism alike suffered. Ignoring the approach to an ultimate analysis of existence achieved by the best intellects of the nation, society

relapsed into mysticism. In philosophy this retrogression took the form of a revival of the theory of an unknowable.

ROYER-COLLARD

When the Imperial Government made the University of France the centre of the educational system of the nation the legal advocate, Royer-Collard, was called to the chair of philosophy (1809), and adopted the Eclecticism which had been inaugurated by Gassendi. At first this system was merely a comparative study of philosophy, but under Victor Cousin it assumed the pretensions of a distinctive method.

In attempting to reconcile the extremes of sensationalism and idealism, Royer-Collard rejected Condillac's analysis of consciousness, which evolved thought from feeling. In place of this analysis he advocated an agnosticism similar to that of the Scotch school, which held that consciousness is a product, not of feeling, but of certain unknowable mental categories—this was the system so highly elaborated by Immanuel Kant.

The influence of Collard in favor of wide and temperate philosophical research, has been perpetuated by his pupils, chief among whom were Guizot, Ampere, Remusat and Cousin.

VICTOR-COUSIN

Among the philosophical writers of the Nineteenth Century no more striking figure appears than Victor Cousin. Instead of creating a system of his own, his originality took the form of a wide and searching criticism of existing thought.

Influenced by his master, Royer-Collard, Cousin investigated the then difficult Scotch school, but was soon

attracted by the Kantian dialectic. He then reviewed the doctrines of Proclus of Alexandria; advocating his theories and re-editing his works, but afterwards turned to the transcendentalism of Schelling and Hegel. In addition to these investigations he edited a complete edition of the writings of Descartes, composed essays on Abelard, Pascal and Locke, translated Plato in thirteen volumes and wrote his *History of Philosophy*.

The ambition of Cousin was to advance philosophy by assembling in a school the thought of the world. Originality, however, is a personal prerogative. Discoveries are made by individual effort, which is the soul of originality. In attempting to found a school of comparative thought, Cousin made himself eminent in the art of criticism. Born in sight of the ruins of the Bastille, with its tragic associations, and educated in an atmosphere of violent political reactions, he began the public teaching of philosophy under singular auspices. His career was identified with the great struggle of France for civil and intellectual liberty. Although in sympathy with this aim, the revolution really had retarded it, and as a consequence the deepest wish of Cousin was to demonstrate that enlightenment and social order are aspects of one development, or in other terms that the highest meaning of progress is justice for all.

When an illiberal government deposed Guizot from the chair of history, Cousin shared his fate, but the consequent exile only increased his powers, for he again sought out the teachers of Germany. At this time he met Schelling and Hegel, whose ideas he had already compared with those of Kant.

The salient feature of Cousin's thought was his

theory of reason, which he conceived not only as a conscious determination but also as an instinct. It was important to enumerate the principles of mind, but of still more importance to comprehend them. According to Cousin, reason is a "spontaneous apprehension," a consequence of the actions and reactions of individual and environment. The superiority of this definition over that offered by the transcendental school is manifest, for the idealist holds that reason is a prerogative of the absolute ego, an ego so absolute, indeed, as to monopolize all objects perceived, denying to unconscious nature the essence of existence.

In the opinion of Cousin, causality and substance are different expressions of one ultimate. When its most general terms are once understood, philosophy becomes sublimely simple. Cousin's reply to Kant was that reality is the cause of mind, not its effect, or, in other terms, that reason is a form of motion. Consciousness is not exclusively the function of an individual; it is the interaction of humanity and nature. From this position it was not far to an ultimate analysis.

The restoration of Cousin to the Sorbonne was an event in the intellectual life of France. The lectures that followed still linger in the memory of Parisian society, a community always distinguished for its sympathy with intellectual progress. No such interest had been aroused since the days of Abelard and William de Champeaux. It was indeed a privilege to listen to this scholar, equally at home in the schools of the past and the present, and possessing the rare gift of grouping facts so as to disclose principles. Of Cousin it can be said that he appreciated the scholastic requirements of

his time, and offered invaluable suggestions for the development of psychology and ethics.

COMTE

While Cousin and Jouffroy were lecturing at the Sorbonne, Auguste Comte was laying the foundations of sociology. One of those most interested in the ideas of Comte was John Stewart Mill, an interest which resulted in introducing Positivism in England. The fundamental doctrine of the Positive Philosophy, as given by Mill, admirably defines the theory of agnosticism or of the unknowable. "We have," says Mill, "no knowledge of anything but phenomena; and our knowledge of phenomena is relative, not absolute. We know not the essence nor the real mode of production of any fact, but only its relation to other facts in the way of succession or of similitude. These relations are constant, that is, always the same in the same circumstances. The constant resemblances which link phenomena together, and the constant sequences which unite them as antecedent and consequent, are termed their laws. The laws of phenomena are all we know respecting them. Their essential nature and their ultimate causes, either efficient or final, are unknown and inscrutable to us."

Comte's theory of knowledge, now widely known as agnosticism, takes for granted that there is an unknowable essence more real than phenomena. The theory of the unknowable will be dealt with in the review of Spencer's psychology, Chap. IX.

In England Comte's writings had an immediate influence. Naturally the English were interested in the offer of a positive basis of belief. Doctor Thomas

Brown, J. S. Mill, Spencer, Lewes, and Harriet Martineau, all expounded the *Cours de Philosophie Positive*.

In his own country, during his life time, Comte had but a limited following. The French were too well entertained by the brilliant Cousin to accord him their attention. The example of England, however, and the influence of Littré, at last brought the Positive Philosophy into notice in France, where it still survives as a system of humanitarianism.

As the basis of knowledge, Comte postulates an unknowable existence. Employing the language of Plato and the skeptics, he denominates this mysterious existence *noumena*. Comte's reason for insisting that knowledge springs from the unknowable is that phenomena are relative, while noumena are absolute. Since absolute means without conditions, is it conscientious in Comte to impose upon *noumena* the condition of existence? As for phenomena being relative, how could it be otherwise when we remember that all reality consists of relations of coexistence and of sequence?

The reason why our knowledge is only of phenomena is that there is nothing but phenomena. The meaning of phenomena has grown until from the changing or the ephemeral it has come to denote existence itself. All events, including changes of consciousness, are phenomena. Whether considered objectively or subjectively, existence is one. But if the above described infelicity of Comte is overlooked, the remainder of his psychology, that is to say, his theory of the relativity of knowledge is beyond praise. The relativity of knowledge has been admirably explained by Herbert Spencer, as well as by his eminent expounder, John Fiske. Both

of these writers, however, adopted Comte's belief in an unknowable.

The great merit of Comte's system is his theory that civilization is an evolution instead of, as Rousseau taught, an artifice, or a divergence from nature.

In constructing a theory of society, Comte found it necessary to organize the sciences. In other terms, he saw that in order to establish the principles of government, it was necessary to unify knowledge. There can be no reliable theory of government until we have defined those elements of knowledge known as the true, the good, and the beautiful. To use Comte's own words, "The aim of positivism is a social doctrine, a scientific doctrine its means." He wrote the "*Organon of the Sciences*," and the "*Religion of Humanity*," in the endeavor to create a philosophy of the sciences as a basis for a new social faith. The central feature of this scheme was "the predominance of the moral point of view," that is to say, "the rigorous subordination of the intellect to the heart." This leading principle of the Comtean system distinctly foreshadowed the philosophy of evolution.

Although his ideas were partly derived from such authors as Cabanis, Gall and Condillac, there is no doubt that Comte founded sociology. His theory of society has been greatly enlarged by Spencer, who created a coördinated system out of what were scarcely more than germs of thought in the Positive Philosophy. A comparison of the two theories, however, will satisfy every candid inquiry that Comte's scheme of the sciences, severely as Spencer criticised it, was the precursor of the Synthetic Philosophy.

In the opinion of Comte, all methods of investigation

are alike in principle; that is to say, philosophy is the organization of the various departments of knowledge in one harmonious whole. He taught that the progress of humanity has three stages: the theological, the metaphysical and the positive. Beginning with supernatural, and advancing to metaphysical, speculation finally reposes in scientific explanations. Comte did not, therefore, regard his metaphysical theories as by any means conclusive. This is not to be wondered at when we consider that he entertained the belief in an unknowable.

Comte freely acknowledged the debt of humanity to religion, which he defined as veneration for universal order. Of the three stages of progress above alluded to he maintained that the theological is reached "when one being is substituted for many as the cause of all phenomena." The metaphysical stage ensues "when all forces are brought under one general force called nature," and positive or scientific development is attained "when all phenomena are represented as particulars of one general view." Now to bring all forces under one general force (called nature), and to represent all phenomena as particulars of one general view are practically the same thing. Hence, there is no reason why metaphysics should not be scientific.

The greatest achievement of Comte was the conception of society as an organism or as a natural growth. He realized that the human race can be viewed as an aggregate or as a vast living being evolved from nature, its welfare depending upon the adjustment of individual and general rights. This leads to the still larger conception of the inter-relationship of society and the cosmos, which means that we are the children of nature, and derive all our benefits from obedience to its laws.

This idea awakened in Comte the longing for a ceremonial to express adoration of nature's God. All religious ceremonies spring from the worship of that greatest of ancestors, known as nature. These ceremonies celebrate the order of the universe conceived as the will of an individual. Only the highest religious consciousness perceives that individuality is relative, or that it is a function of the cosmos. In devising one for his own use Comte seemed to forget that religious ceremonies are not a conscious literary production, but a natural growth, beginning with the first attempts of man to appreciate governing principles. The culmination of religious sentiment is the conception of universal order. The reason why we are so deeply moved by devotional ceremonies is because they are survivals of a once living faith. Little resemblance as exists between a personal deity and the modern conception of the order of nature, all religion was originally and still is worship of nature's God. In other words, the idea of a personal deity is becoming less and less religious, because it is becoming more and more evident that it is unnatural. It will be a long time, however, before the sciences convince us that our feelings and thoughts, including devotional sentiments, are products of evolution.

Comte pointed out that the only hope of social progress is through moral improvement along lines of economic reform. Unaffected by the Utopians he saw that violent redistributions of wealth or of power are futile because unscientific. In the opinion of this great thinker the cardinal principle of reform is the improvement of civil and industrial organization through the education of its units. The social unit being the family,

it is the elevation of the home that conduces to higher forms of government culminating in the establishment of justice for all. The constitution of a state is only an expansion of home government, for the individual is the direct product of the family. To maintain our liberties, therefore, it is necessary to train youth to respect the fundamental social institutions of family and property, because only those who are taught to respect the rights of others can be depended upon to maintain their own. These are the cardinal principles of Comte's great theory of society.

The ancients conceived the universe as an organism palpitating with life; such was their rude simile of divine order. Comte viewed the human race as a natural growth or as an evolution. He perceived that the balance of the individual and the social will is the criterion of right or the deepest meaning of good.

THE SCOTCH SCHOOL

The Scotch school arose as a reaction from the skepticism of Hume, its period being from the middle of the Eighteenth to that of the Nineteenth Century.* The theories of Thomas Reid, the leader of the school, were expounded by Dugald Stewart. Dr. Thomas Brown elaborated the ideas of both Reid and Stewart, and Sir William Hamilton edited their works.

The first system of idealism which appeared in England was that of Bishop Berkeley. From Berkeley's theory Hume deduced skepticism. The idea of Hume was that since our knowledge of reality is limited to the

* Thomas Reid (1710-1796), Dugald Stewart (1753-1828), Thomas Brown (1778-1820), and Sir William Hamilton (1788-1856).

world of phenomena, which is revealed to us by experience, it is impossible for man to discover the ultimate qualities of his own nature. This implies that he believed in an unknowable, or in an existence beyond the power of human comprehension.

Apparently Thomas Reid rejected Hume's skepticism, but his admission of an unknowable amounted to an indorsement. When asked whether the difference between Reid and Hume was not chiefly one of words, Dr. Thomas Brown replied, "Yes, Reid says we believe in an outward world, although we can give no reason for the belief, while Hume affirms that we can give no reason for such a belief but cannot get rid of it." Thus one of the chief metaphysicians of the Scotch school held that Reid was an agnostic, which means a skeptic, although he professed to have refuted both skepticism and idealism.

Dugald Stewart came very near the truth when he said that "faith in an external world *or space*, is one of the fundamental laws of human belief;" or in other terms, that without consciousness of space, consciousness itself is impossible. Reid said that although we believe instinctively in an external world, it is impossible to account for instinct. Biology teaches that instinct and thought are interdependent activities of the sensorium.

"It is an evident mistake," says the *Quarterly* in its review of Stewart's Second Dissertation, "to talk of Dr. Reid as if his writings opposed a barrier to skeptical philosophy. Reid refuted the principles by which Berkeley and Hume endeavored to establish their conclusions; but the conclusions themselves he adopted as the very premises from which he reasons." The

question underlying all schools of philosophy is that of the validity of knowledge or the nature of belief. There would be no question as to the validity of knowledge were mind recognized as a part of nature, for then mind and matter would be recognized as opposite aspects of the ultimate reality.

Sir William Hamilton was one of the clearest of modern writers upon metaphysics. He kept constantly before him three questions; namely, the perception of the external world, the nature of necessary truths, and the law of causation. The discussion of these questions can lead to no definite result unless an agreement can be had concerning the meaning of universals. The infinite and the absolute are terms of the highest generality. They are called by Hamilton the "two inconceivables," but since he employs them so frequently they must have stood in his mind for important facts and were, therefore, not wholly inconceivable. These universals known as space and time, or the infinite and the absolute, he employed in conflicting senses. For instance, he affirmed that space and extension mean the same thing, but, if there is any difference at all between them, space is *a priori* and extension *a posteriori*: or, the idea of space is implied in the fact of mind and the idea of extension is the result of the experience of the individual. He also affirmed that although both mind and matter appear in time, matter alone appears in space, which is equivalent to saying that mind does not occupy space. If space is *a priori* it must appear in mind, and yet it is affirmed that mind does not occupy space. If space appears in mind, and if mind does not appear in space, what becomes of the room occupied by space when it appears in mind? To put this

question in more definite form, it is well known that Hamilton frequently employed the word matter in the Kantian sense of force as a necessary element of consciousness. If matter is a necessary element of consciousness and if mind does not occupy space, what becomes of the space occupied by matter when it appears as an element of mind? Biology, which is the science from which psychology is evolved, settles this question once for all when it assures us that there is no function without structure.

How can we hope to determine the question of the "Perception of externals," or the perception of matter and of space, and the question of "Necessary truths," which signifies the nature of certitude, or again the question of "causation," by which is meant the ultimate reality, if there is no general agreement as to the meaning of ultimate terms?

To return to the development of English thought, Bacon exemplified the Anglican love of the real as distinguished from the mystical. Newton's great work was a natural result of the Baconian empiricism which has gradually expanded into the modern scientific method. Proceeding upon the principle of investigation and verification, science in England has culminated in the study of mind as the function of an organism. Inaugurated by Hobbes and Locke, and further developed by David Hartley, the elder Darwin and James Mill, the scientific movement has steadily advanced, producing finally the evolutionary systems of Herbert Spencer and George Henry Lewes. As these works are among the most notable achievements of modern thought, they will receive attention in the following chapters.

THE NATURE OF LANGUAGE

Since the interdependence of thought and language is the crux of psychology, let us consider the dimensions of this problem before proceeding to the evolutionary systems of thought.

It will be found that language, which is a system of symbols, is inseparable from thought. The simplest symbols belong to mathematics because that science discloses the most general aspects of existence. These symbols are the numeral, the letter, the point, the straight line and the curve, all of which represent actions, to wit: the *operation* of counting, the *grouping* of the results of counting, the *separation* of wholes into parts, the shortest *movement* between two points, or the *movement* of a point in relation to a centre.

The primitive form of communication or the genetic beginning of language is action or gesture. Animals comprehend gestures more readily than sounds which are themselves movements. Deaf-mutes and savages rely for language upon gestures. The interdependence of thought and language is illustrated by Kruse (himself a deaf-mute and a well-known teacher of deaf-mutes) in his description of the formation of gesture language. The deaf and dumb must have a language, without which no thought can be brought to pass. Here nature soon comes to his help. The most striking characteristics of objects become at once signs by which he knows these objects. While he describes their forms for himself in the air, or *imitates* them with hand, fingers and gestures, he develops for himself suitable signs to represent ideas and recall them to his memory. And thus he makes himself a system of symbols or a language, the so-called gesture-language. With these few scanty and imperfect

signs a way for thought is broken, and, with his thought as it now opens out, the language cultivates and forms itself further and further."

The deaf-mute borrows, as we do, symbols of space, to express time * * * "The present tense of the verb can be expressed by an action indicating 'here' with the two hands held out palms downward; the past tense by the hand thrown back over the shoulder, 'behind;' the future by putting the hand out 'forward.'*

Quoting from Quintilian, Tyler says: "As for the hands indeed, without which action would be maimed and feeble, one can hardly say how many movements they have, when they almost follow the whole stock of words; for the other members help the speaker, but, I may almost say, the hands themselves speak." For telling a simple story, and making simple comments on it, spoken language stands far behind acting. The deaf-and-dumb pantomime calls to mind the 'action, action, action' of Demosthenes."

From the above it is evident that thought and its expression are different views of one activity. "Thinking is talking to one's self; talking is thinking aloud." "Language shapes itself in mind and mind in language." To reduce language to an ultimate analysis the sentence is the molecule of thought centering in the verb, which is the symbol of action or being, terms of the same final significance. All other parts of speech, either directly or indirectly, denote time and place (space), the opposite aspects of existence. Thus language is an activity or a form of motion extending the range of sentiency, relating the individual and the general, or the human and the divine.

* E. B. Tyler: Early History of Mankind.

PART II
THE EVOLUTIONARY PHILOSOPHY

CHAPTER IX

HERBERT SPENCER

Knowledge a Form of Motion

Before the appearance of Herbert Spencer's *Synthetic Philosophy*, the term evolution was applied almost exclusively to the development of organisms as shown in biology. About a century after the word came into use Darwin established the theory of the mutability of species, which, in its broadest sense, means that the animate world is one vast family with numberless branches originating in cosmical conditions. In other terms, we have sprung from inorganic phenomena. We are the children of nature, related to the sunlight and to the storms as well as to the trees and flowers. Life and force are akin.

Darwin was a naturalist rather than a philosopher. Although he broadened the meaning of life he did not attempt to reduce it to a universal principle. The progress of science has enabled us to evolve mind from nature. Lavoisier discovered the indestructibility of matter; Meyer and Helmholtz, the conservation and equivalence of the physical forces, making it possible for psychologists, such as Spencer and Lewes, to extend

Darwin's theory of the mutability of species to a philosophy of evolution.

There is no hard-and-fast line between the science of the past and present. The profoundest thought of the ancients suggests the unity of all things, and that is all that evolution means, but, in order to bring this great unifying principle into view, it is necessary to show the connection between ancient and modern theories of knowledge. In other words, with the aid of an ultimate analysis, we can follow, step by step, the development of scientific principles from the time of their inception, until they reveal the interdependencies of the universe.

The main purpose of Herbert Spencer is to demonstrate by means of an ultimate analysis the interdependence of inorganic and organic phenomena. No system of thought has done more to widen and deepen our conception of life; and yet, to master the Synthetic Philosophy is to discern certain errors which interfere with its aim.

It is worthy of note that an intimate friend of Spencer and a worker in the same field, George Henry Lewes, in his *Problems of Life and Mind*, has provided an instrument by which the errors of the Synthetic Philosophy can be laid bare. A comparison of the theories of these two great thinkers will illuminate, to an extent hitherto unknown, the field of introspection.

Spencer's philosophy attempts to prove that all phenomena, physical, psychical and social, are manifestations of one ultimate denominated "the persistence of force." The method adopted is to reduce life to its simplest conditions in order to show that the organic, the mental, and the civil worlds, are concomitant developments.

The aim of Lewes' philosophy is to prove that thought is a development of feeling. By this method he demonstrates the identity of mind and matter, proving that the functions and structures of the nervous system centering in the brain, constitute consciousness.

Notwithstanding the vast extent to which the literature of metaphysics has grown, no department of research will eventually require less space for the record of its truths, for ontology is doomed to absorption by the sciences. All that will remain of this great struggle to comprehend the nature of being, will be a definition of the ultimate reality.

In the near future, to determine the meaning of life, biology will be consulted. The nature of the soul will be revealed by psychology, for this science will eventually explain the functions and structures of the individual and the social organism, in relation to feeling and thought. The origin of authority will be disclosed by the philosophy of law, or by the science of ethics. All that will remain of metaphysics proper will be the reduction of the categories of thought, or the most general terms of existence to a single principle.

The innumerable works upon ontology have not, however, appeared in vain. Every imaginable construction of the questions involved had to arise before the mind could arrive at stable conclusions. Individual beliefs have coalesced into orders or schools. From the conflicts of these philosophical parties definite conceptions have arisen. This is the history, not alone of metaphysics, but of all the sciences; it is the only way that opinion has grown into settled belief.

The *Synthetic Philosophy* of Herbert Spencer begins with the work entitled, *First Principles*, which is in

effect an epitome of the whole. Then come two volumes devoted to *Biology*, and two to *Psychology*, followed by a system of *Sociology*, which includes *The Data of Ethics*.

The purpose of *First Principles* is to define evolution. As the argument progresses, the application of this term is enlarged, or the restrictions to its meaning are one after another removed, until its universality becomes apparent.

The position here taken with regard to universals is now familiar to the reader. There can be but one ultimate, give it what name or names we please, for *ultimate* means final. A final relation is distinguished from all others by its simplicity. If it were complex, it would be divisible into more general relations, but if it is simple, resisting further analysis, it is a common property of every phenomenon. That Spencer employed the term evolution as a universal, will be evident to those who examine *First Principles*. At the close of the second chapter on the law of evolution, our author says:

“As we now understand it, Evolution is definable as a *change* from an incoherent homogeneity to a coherent heterogeneity, accompanying the dissipation of motion and integration of matter.”* In the chapter entitled “The Interpretation of Evolution,” and referring to the above described *law*, we find the following: “Is this *law ultimate or derivative*? Must we rest satisfied with the conclusion that throughout all classes of concrete phenomena such is the course of transformation? Or is it possible for us to ascertain *why* such is the course

* *First Principles*, p. 360.

of transformation? May we seek for some all-pervading principle that underlies this all-pervading process? * * * It has to be shown that *the redistribution of matter and motion* must everywhere take place in those ways, and produce those traits, which celestial bodies, organisms, societies, alike display. And it has to be shown that this *universality of process results from the same necessity which determines each simplest movement around us*, down to the accelerated fall of a stone, or the recurrent beat of a harp-string. In other words, the phenomena of Evolution have to be deduced from the Persistence of Force. As above said, 'to this an ultimate analysis brings us down, and on this a rational synthesis must build up.' This being the ultimate truth, on which the widest generalizations stand, these widest generalizations are to be unified by referring them to this common basis."*

A law is a method of action. If, as Spencer says, "The Persistence of Force" is a universal law, and if evolution is a universal method of action, surely evolution, and, "The Persistence of Force," are the same law. I maintain, therefore, that evolution and motion are synonymous terms, for, as will be shown, the persistence of force can be reduced to motion. Nothing could simplify philosophy more than this recognition of evolution as a universal law or principle.

One of the objections raised to the theory that evolution is universal is that it is a process, not a principle. A process, however, is in the deepest sense a form of action which is precisely the definition of a law or a principle. It will be found that the fact of evolution

**First Principles*, pp. 397, 398.

is the most general in nature, which includes life. Now, where under the new light of organic chemistry are we to find the limits of life?

Again it will be objected that evolution is only one aspect of the ultimate relation, because the opposite is involution. This is an objection worthy of careful scrutiny.

The sense in which the term evolution is employed in mathematics is distinct from its broad philosophical sense where it denotes the serial *development* of all things, "the evolution of ages." To say that evolution is not used by Spencer as a universal because its reverse process is involution, is equivalent to saying that because *dissolution* is, in a restricted sense, the opposite of evolution, the term cannot denote the ultimate relation.

It is impossible to conceive of evolution without including the idea of dissolution, in the same manner that it is impossible to conceive of life without including that of death. It will be found, however, that dissolution or death is a change and therefore an aspect of life or evolution.

Although Spencer did not consciously employ evolution as a universal, he endeavored to account for all phenomena by this process. Hence the inference is irresistible that he employed the term in the sense of a universal form of motion. If, as Spencer says, "evolution is the redistribution of matter and motion," what event in time and space is independent of this cause? The manner in which our author employs the term will satisfy all candid inquiry that it stood in his mind for the highest generalization of existence.

According to Spencer, "*life is the definite combina-*

tion of heterogeneous changes, both simultaneous and successive, in correspondence with external co-existences and sequences."* Upon examination it will be found that this definition can be simplified, for it denotes the principle of universal activity and connotes the characteristics of an organism. The connotation asserts that life consists of motions or activities within an organism, adjusted to, or co-ordinated with, outward motions. The only inference to be found in the definition, therefore, is that of an organism; for, according to the biologists, organism means that separation of internal from external motions consequent upon a limiting membrane. Without this inference, the sense of the definition is lost among the echoes and re-echoes of universal change.

Spencer affirms that the indestructibility of matter, and the continuity of motion, are necessary inferences from the "Persistence of Force," which he describes as "the sole truth which transcends experience by underlying it. * * * The cause which transcends knowledge, * * * that unknowable which is the necessary correlative of the knowable."† Now to "transcend truth by underlying it" is to surround it. A cause which is so general as to surround all truth, must be an inseparable part of knowledge, and cannot, therefore, be entirely unknowable.

The indestructibility of matter is now generally admitted to be an axiom or a self-evident fact. Of this truth Mr. Spencer says: "Our inability to conceive matter becoming non-existent is immediately consequent on the nature of thought. Thought consists in the establishment of relations. There can be no rela-

* Biology, Vol. I, p. 90.

† *First Principles*, p. 19, id.

tion established, and, therefore, no thought framed, when one of the related terms is absent from consciousness. * * * It most concerns us to observe the nature of the perceptions by which the permanence of matter is perpetually illustrated to us. These perceptions, under all their forms, amount simply to this—that the *force* which a given quantity of matter exercises remains always the same. This is the proof upon which common sense, and exact science alike rely. * * * Thus we see that *force* is our ultimate measure of matter; * * * by the indestructibility of matter, we really mean the indestructibility of the *force* with which matter affects us. * * * This truth is made manifest not only by analysis of the *a posteriori* cognition, but equally so by analysis of the *a priori* one.”* Since Spencer admits that “we cannot conceive of matter as being non-existent,” it is to be inferred that we must conceive it as being existent. In other words, as “force is our ultimate measure of matter,” both terms of the relation known as force are constantly present in consciousness. Now the terms of force are space and time.

Force and the persistence of force mean the same thing, for all force is continuous, or persistent. The ultimate reality, therefore, is not unknowable, for knowledge is a form of force or motion.

Respecting force, we are told in the chapter following, entitled the “Continuity of Motion,” that “This existence may cease to display itself as translation; but it can do so only by displaying itself as strain. And the principle of activity, now shown by translation, now by strain, and often by the two together, is alone

* *First Principles*, p. 179.

that which in motion we can call continuous. * * * By pushing and pulling we get feelings which, generalized and abstracted, yield our ideas of resistance and tension. Now displayed by changing position, and now by unchanging strain, this principle of activity is ultimately conceived by us under the single form of its equivalent muscular effort. So that the continuity of motion, as well as the indestructibility of matter, is really known to us in terms of force.”*

And yet this *force* from which all our physical and psychological experiences emanate, which, to use Spencer's language, is “*displayed*” and “*shown*” to us, which is “*inferential*,” “*appreciable*” and “*conceivable*,” is still said to be *unknowable*. Or, perhaps this is saying too much. Perhaps a principle may be termed *unknowable*, and still be known in some degree. The term *unknowable* may not be used in an exact sense. It may be simply a figure of speech employed by philosophers in order to conform to the ancient canons of skepticism, or to modern rules of agnosticism, which theories would be contradicted were there no unknowable.

As we proceed, it will become apparent that the idea of an *unknowable* cannot be reconciled with a true theory of knowledge.

In analyzing any phenomenon or change, such, for instance, as a weight falling to the ground, we have as a result the elements of existence known as space, time, matter, force and motion. Thus far philosophy has gone and no farther, for heretofore no successful attempt has been made to unify these categories. Spencer's analyses of these universals are among the most original and

* *First Principles*, pp. 187, 188.

valuable contributions to modern thought. It will be shown, however, that the result of the analysis cannot be reconciled with his theory of an unknowable.

“Our conception of matter,” says Spencer, “reduced to its simplest shape, is that of co-existent positions that offer resistance as contrasted with our conception of space in which the co-existent positions offer no resistance. * * * Hence the necessity we are under of representing to ourselves the ultimate elements of matter as being at once extended and resistant. * * * Experiences of resistance being those from which the conception of space is generated, the resistance-attribute of matter must be regarded as primordial and the space-attribute as derivative. Whence it becomes manifest that our experience of *force* is that out of which the idea of matter is built.”*

Space is defined as an inference from matter, matter in turn as an inference from force, and force as that relation, both terms of which are constantly present in consciousness. Now, how is it possible for a conception to be unknowable when it is evolved from a relation, both terms of which are present in consciousness?

Spencer’s definitions of space and time† make it

* *First Principles*, pp. 166, 167.

† “That *relation* is the universal form of thought, is a truth which all kinds of demonstration unite in proving. * * * Now, relations are of two orders—relations of sequence and relations of co-existence, of which the one is original and the other derivative. The relation of sequence is given in every change of consciousness. The relation of co-existence, which cannot be originally given in a consciousness of which the states are serial, becomes distinguished only when it is found that certain relations of sequence have their terms presented in consciousness in either order with equal facility; while the others

difficult to believe that their author was not aware of an ultimate reality, *all the aspects of which are comprehensible or knowable*. It is difficult to understand how so penetrating a mind could declare that force is an experience from which all thought is evolved, "that relation is the universal form of thought," "that relations are of two orders, namely, of sequence and of co-existence," or of time and space, without seeing that the ultimate relation, both subjective and objective, is that union of time and space called motion.

And yet, in the opening volume of his *Synthetic Philosophy*, Spencer declares that those conceptions known as universals are utterly inconceivable, although further on in the same volume he demonstrates that these very conceptions are evolved from a relation, both terms of which are constantly present in consciousness.*

are presented only in one order. Relations of which the terms are not reversible become recognized as sequences proper, while relations of which the terms occur indifferently in both directions become recognized as co-existences. Endless experiences, which from moment to moment present both orders of these relations, render the distinction between them perfectly definite, and at the same time generate an abstract conception of each. The abstract of all sequences is Time; the abstract of all co-existence is Space."*

* "It results, therefore, that Space and Time are wholly incomprehensible. The immediate knowledge which we seem to have of them proves, when examined, to be total ignorance. While our belief in their objective reality is insurmountable we are unable to give any rational account of it. And to posit the alternative belief (possible to state but impossible to realize) is merely to multiply irrationalities." "Matter, then, in its ultimate nature, is as absolutely incomprehensible as space and time. Frame what suppositions we may, we find, on trac-

* *First Principles*, pp. 163-5.

In its widest sense, knowledge is life, and life is a form of motion. All activities are expressions of this principle, whether they display the structures and functions of consciousness or the statical and dynamical aspects of inorganic nature. Structure and function are the opposite aspects of every activity; they correspond to the more general terms, matter and force or space and time, using the term force, as the physicists do, to denote motion *considered apart from its space-aspect*.

To perceive that knowledge is a form of life and life a form of universal activity or motion, one has only to analyze perception. If a weight falls to the ground a fact is expressed. Wherever there is expression there is perception, because the response of a phenomenon to its conditions, or of an organism to its environment, is simply the adjustment of one set of changes with another. Consciousness has no deeper meaning than highly organized changes.

ing out their implications, that they leave us nothing but a choice between opposite absurdities."

"Thus neither when considered in connection with Space, nor when considered in connection with Matter, nor when considered in connection with Rest, do we find that Motion is truly cognizable. All efforts to understand its essential nature do but bring us to alternative impossibilities of thought."

"While, then, it is impossible to form any idea of Force in itself, it is equally impossible to comprehend its mode of exercise."

And lastly: "Hence, while we are unable either to believe or to conceive that the duration of consciousness is infinite, we are equally unable either to know it as finite, or to conceive it as finite." *

**First Principles*, ch. III.

To those who have not familiarized themselves with psychological analyses the proposition that the deepest meaning of perception is change will hardly prove intelligible, because perception is generally regarded as exclusively mental, and yet this principle is plainly to be seen in every phenomenon. Every activity is a response to other activities. There is no final difference between the response of the simplest object to its conditions, and of a mind to its surroundings.

If thought is an activity, to comprehend it we have only to state its conditions. The theory that thought is absolute or unconditioned means that mind is absolutely independent of matter, or that it acts independently of space, which is an absurdity. *Absolute* is a much-used term in metaphysics. Its deepest meaning, as before stated, is time, which apparently *moves* independently of all conditions. Whenever the word absolute occurs its equivalent, time, should be understood. To regard thought as an absolute entity, or an unconditioned fact, is to select, as the Kantians do, the subjective aspect of consciousness and to reject the objective, in the endeavor to account for mind with time and without space.

If thought is an activity it has structure as well as function; it has a space as well as a time-aspect; it is a form of the universal relation. Thus the aspects of existence known as the conscious and the unconscious, or as subject and object, are, in the last analysis, identical.

The theory of evolution is that every phenomenon is the *function* of its conditions,—every change the expression of its terms. The relation called knowledge has for its terms subject and object, or individual and en-

vironment. Its conditions are those of individual life, which are only relatively separable from the conditions of universal activity. If from an infinity of relations we would single out an *ultimate relation*, or from all conditions, *ultimate conditions*, we have as a result the ultimate relation, motion; the ultimate conditions, time and space.

CHAPTER X

HERBERT SPENCER (*Continued*)

The Interdependence of Thought, Feeling and Action

Psychology will not become a science until consciousness is recognized as an evolution of nature. Both Spencer and Lewes regarded thought as a development of feeling, and, therefore, approached consciousness through the functions and structures of the sensorium. As shown in the previous chapter, a broad view of their theories leads to the conclusion that consciousness consists of relations of co-existence and sequence, or, in other terms, that knowledge is a form of motion.

As employed by the Greeks the term philosophy denoted all mental culture. *Σοφία*, the word from which it is derived, was applied to skill in every art and every kind of knowledge. The Sophists were the first to restrict the meaning of the term, but after the time of Plato it was further narrowed until at last philosophy came to mean a different kind of knowledge from that to which the sciences belong. This belief that the mind is an absolute entity, independent of the body, continued to gain ground until the intellectual faculties, such as memory, will, perception and reason, were conceived as occult powers, the interdependencies of which are inscrutable. The confusion arising from this arbitrary separation of mind and matter is beginning to yield

to the advance of psychology or the study of consciousness as a part of organic nature.

“Psychology,” says Lewes, “investigates not only an individual’s thoughts and feelings, but the mind of humanity, which it considers as the product of the individual organism, for man is distinctively a social being; his impulses are profoundly modified by social influences, and his higher faculties evolved through social needs. By this recognition of the social factor as the complement to the biological factor, this recognition of the mind as an expression of both organic and social conditions, the first step is taken toward the constitution of our science.” The conclusion reached by Lewes was that language and civilization develop together, forming a structure of which intelligence is the function. Occupying the medium called language individual minds develop, just as physical organisms derive their sustenance and growth from a physical medium.

“An organism when in action,” says Lewes, “is only to be understood by considering both it and the medium *from* which it draws its materials, and *on* which it reacts. Its conditions of existence are, first, the structural mechanism, and secondly, the medium in which it is placed. When we know the part played by the mechanism and the part played by the medium we have gone as far as analysis can help us; we have scientifically explained the actions of the organism. This, which is so obvious in reference to vital action that it is a physiological commonplace, is so little understood in reference to the mental class of vital actions that it may appear to be a psychological paradox which no explanation can make acceptable, so long as the mind is regarded

as an entity inhabiting the organism, using it as an instrument; and so long as society is viewed as an artificial product of man's mind, in which case society cannot be one of the conditions of mental evolution."*

According to Lewes, therefore, the prime factors of mind are the individual and society. From the first vague communications of living beings the representative faculty has been slowly evolved. Methods of living and thinking have unfolded together, forming more and more general principles, until a climax in the development of the race has been reached by the evolution of a single term to express the interdependencies of the universe.

The simplest definition of life, is the interaction of organism and environment, and of mind, the interaction of subject and object. The individual considered as an aggregate is the subjective factor; while society considered as an aggregate is the objective factor of mind. The difficulty is to understand the influence exerted by these factors as *aggregates*. In every perception and conception, however simple, the perceiving individual, *as a whole*, is a determining influence. Thus it will be seen that the simplest of all conceptions, namely, that of time, is determined by the individual organism taken *as a whole*.

"The consciousness of Time," says Spencer, "must vary with size, with structure, and with functional activity; since the scale of time proper to each creature is composed primarily of the marks made in its consciousness by the rhythms of its vital functions, and secondarily of the marks made in its consciousness by the rhythms of

* Problems of Life and Mind, Vol. I., pp. 105-111.

its locomotive functions, both which sets of rhythms are immensely different in different species. Consequently, the constitution derived from ancestry settles the general character of the consciousness within approximate limits. In our own case, for example, it is clear that there are certain extremes within which our units of measure for time must fall. The heart-beats and respiratory actions, serving as primitive measures, can have their rates varied within moderate ranges only. The alternating movements of the legs have a certain degree of slowness below which we cannot be conscious of them, and a certain degree of rapidity beyond which we cannot push them. The rule applies also to measures of time, furnished by sensible motions outside of us. There are motions too rapid for our perceptions, as well as motions too slow for our perceptions; and such consciousness of time as we get from watching objective motions must fall between these extremes.”*

It is clear that the same argument applies to the genesis of our idea of space, namely, that consciousness of space springs from the experiences of the perceiving organism, and is determined by its size. Our ideas of the large and of the small, the near and the distant, are determined by our dimensions. We may conclude, therefore, that the size and duration of each individual organism governs its perceptions of time and space.

The most direct route to a comprehension of the relation of mind and matter, is through the relation of thought and feeling. The restricted sense in which the term *feeling* is generally used obscures our view of the material aspect of mind. In order to disclose

**Psychology*, Vol. II., pp. 213, 214.

the connection between the conscious and the unconscious, it is necessary to show that the meaning of feeling can be expanded until it includes *thought*, or, in other terms, we must realize that there is no absolute dividing line between conscious and unconscious activities.

Feelings and thoughts are what we know of our own lives; actions are what we know of the lives of others. As a matter of convenience, let the word *feeling* represent all the changes that take place within the organism. These changes include the vast complex of internal activities, making up the sum of individual existence, and of which we are, for the most part, unconscious. Feeling is usually understood to mean sensation, but by far the greater part of those internal activities from which sensations are evolved are unconscious. Sensibility emerges from insensibility, just as thought emerges from unconscious cerebration.

For the present we will use the term feeling to represent *all* internal activity, both physical and psychical. From the beginning to the end of life, the human organism teems with unconscious activities. Only a small proportion of the changes taking place within the organism, ever arrest the attention. Whenever we move a muscle, or exercise a thought, a disturbance disperses throughout the entire system. These changes which are expressed in heat and other forms of motion* constitute attention only when they are to a certain degree centralized. Attention consists of the centralization of these internal changes; consciousness itself being a co-ordi-

*This incessant internal activity is said to produce a tone.

nation, or, otherwise expressed, a moving equilibrium with well-defined physical conditions.

Thus we perceive that feeling has a much wider meaning than is generally understood. Only by recent discoveries in neural phenomena, has it become known that there is no absolute dividing line between the aggregate called thought and feeling and that vast plexus known as internal change.

Now that we have agreed upon a term to denote temporarily that class of movements distinguished as internal or subjective, what shall we call external or objective changes? It is understood that from the point of view of each individual the word feeling shall represent all internal change; but what are we to call the same phenomena as viewed by others? Using the word feeling in its broadest sense to signify all changes taking place within the organism, it is clear that what are feelings to one's self, are activities to others, or what are feelings subjectively are from the opposite point of view the activities of an objective organism. If from the point of view of others all feelings and thoughts are activities of an objective organism, it follows that feeling can be separated from action only ideally, because the terms are applied respectively to the internal and to the external aspects of the same thing. In other words, we are compelled to regard the feelings, thoughts and actions of society as forming in the aggregate a medium which constitutes the environment of each individual. Thus the actions and reactions of the individual and its environment constitute life, including mind.

When light strikes the eye and produces sight, the sensorium or the most active part of the organism, is said to *react*, in response to the stimulus. The term re-

action is used to describe all responses to stimulation; such as hearing to sound, sensitiveness to temperature, and resistance to strain. Again, when a bar of iron is struck with force sufficient to produce perceptible heat, the heat is said to be a reaction of the iron to the blow. When we place certain chemical substances in juxtaposition, the changes observed are called reactions. In a wider, but no less exact sense, *all* the changes observed around us, from the subtle relations known as electric and magnetic, to the evolutions of the celestial spheres; from vegetal and animal life to the panorama of human history; from the convulsions registered in the structure of the planets, and repeated on a larger scale in distant systems, to the comparatively gentle changes of the seasons and momentary variations in temperature;—all are instances of action and reaction. This law has many names. It is known to philosophy as evolution; physicists term it the conservation and equivalence of forces; mathematicians describe it as motion; but of one thing we may be certain, namely, that the word *action* brings its nature truly before us. This law means that the universe is a system of interdependent changes, each the result of other changes; the procession of events in which our lives appear and disappear being a form of one universal relation.

Since thought or psychological life is a relation having for its terms the aggregates known as the individual and its environment, the question arises, What is it that demarcates mind from matter or from objective nature? What gives to intelligence a sphere of its own, distinguishing the conscious from the unconscious? Humanity has slowly evolved methods of communication. Beginning with the vaguest notions, each race and indi-

vidual has, through the medium of language, developed definite ideas. During a measureless past society has been profoundly modified until it has become an intellectual medium, making possible all the complicated adjustments of civilization. In a structural sense, this medium is language; in a functional sense, it is thought. Mind is distinguished from matter, therefore, by means of language, but the distinction is only relative.

Viewing thought from within, we classify it as internal change or as feeling taken in its widest sense; from an outward point of view, it is action, and thus its identity with universal change becomes apparent.

The unity of mind and matter, therefore, is the interaction of organism and environment, or the related vibrations of subject and object.

The generalization called time is sequence considered apart from co-existence. Space is the generalization of co-existent points of resistance. Considered objectively, time and space are inseparable, because they are united in motion. From this simplest of all relations language derives its terms. To comprehend consciousness, therefore, its terms must be distinguished and generalized, and the psychoplasm, or the medium through which these terms act and react, must be identified with the cosmos. As above stated, in a structural sense this psychoplasm is language, and in a functional sense it is thought.

It may be affirmed that although the last difference existing between subject and object is vibration, this movement is also the chief mystery of life. If by mystery is meant the ultimate relation, I cordially assent that life is a mystery. I deny, however, that mind can be one mystery, and matter, another, or that human life can be a separate and distinct mystery

from universal existence, or that organic changes are either more or less mysterious than cosmical changes.

Philosophy will have achieved its object, when it has indicated a universal principle, the opposite aspects of which are the infinite and the absolute, or space and time. Whether this principle be regarded as mysterious, or as the simplest of all experiences, is largely a matter of temperament, for there are many persons so constituted that they would be unhappy if not permitted to live in an atmosphere of mystery. All that philosophy requires of these uncentered souls is that they shall reduce their mysteries to unity.

To recapitulate, we have the following important results. The primordial relation* or difference of which

*In case any objection should be raised to the use of the words *relation* and *difference* as synonyms, we quote the following as one of the many authorities for the statement that these words are practically identical in meaning: "Suppose an incipient intelligence to receive two equal impressions of the color red. No other experience having been received, the *relation* between these two impressions cannot be thought of in any way; because there exists no other relation with which it can be classed, or from which it can be distinguished. Suppose two other equal impressions of red are received. There can still exist no idea of the relation between them. For though there is a repetition of the previously-experienced relation, yet since no thing can be cognized save as of some kind; and since, by its very nature, kind implies the establishment of difference; there cannot, while only one order of relation has been experienced, be any knowledge of it—any thought about it. Now suppose that two unequal impressions of red are received. There is experienced a second species of relation. And if there are afterwards presented many such pairs of impressions, the members of which are severally equal and unequal, it becomes possible for the constituents of each

intelligence consists is that subsisting between subject and object, or self and non-self. In other words, consciousness is a form of the interaction of organism and environment. Thinking is relationing; it is grouping and separating relations. Every thought expresses a relation in terms of *time and space*. When we compare two or more existences, or become conscious of co-existence or space,—we contrast the objective terms of two or more relations by dropping, or not attending to, the subjective terms. When we become conscious of abstract sequence or time, we contrast the subjective terms of two or more relations by dropping, or not attending to the objective terms. Hence we have space or co-existence considered as *objective* relatively distinguished from time or abstract sequence considered as subjective. Through the medium of language the primordial adjustments of organism and environment have developed into the highly complex relations of civilization, and as a result we have the inestimable truth that justice is made possible by intelligence or developed feeling.

new pair to be vaguely thought of as like or unlike, and as standing in relations like or unlike, previous ones." Spencer's *Psychology*, Vol. II., p. 212.

CHAPTER XI

HERBERT SPENCER

(Continued)

The Analysis of Reason

In the second volume of *Principles of Psychology*, Spencer endeavors to prove that reason is an irreducible mental act. It will be shown that reason is comparison, and that all its processes can be reduced to simple and comprehensible steps. Spencer's attempt to prove that the act of reason originates in a fundamental mystery exemplifies in a striking manner how much unnecessary trouble the theory of an unknowable is capable of giving.

According to Spencer, reason springs from an axiom which is neither decomposable into steps, nor capable of proof. This axiom, in his opinion, is the beginning of intelligence; that is to say, it is an "irreducible intuition," or an "organized consolidated conception," which defies analysis. The theory that reason springs from a fundamental mystery otherwise expressed is that knowledge springs from the unknowable. I hope to show that there are no "irreducible intuitions," no "axioms incapable of proof," no conceptions that can not be analyzed or traced to their source in reflex action.

Of Spencer's *Principles of Psychology*, the first words of the second chapter are these: "Of intellectual acts, the highest are those which constitute Conscious Reasoning—or, called conscious to distinguish it from unconscious or automatic reasoning that forms so large an element in ordinary perception. Of conscious reasoning, the kind containing the greatest number of components definitely combined is Quantitative Reasoning. And of this, again, there is a division, more highly involved than the rest, which we may class apart as Compound Quantitative Reasoning. * * * Even in Compound Quantitative Reasoning itself, there are degrees of composition, and to initiate our analysis rightly, we must take first the most composite type. Let us contemplate an example."

The example given is the method of reasoning, pursued by an engineer in estimating the comparative strength of bridges. The question of the comparative strength of materials is simplified by selecting an iron bridge, and the problems of strain are limited by confining the example to the tubular class of bridges. By this means, the joint application of certain problems in mechanics to the building of bridges is made to represent "the most composite type of reasoning." The first of these problems can be stated as follows: The bulks of masses are to each other as the cubes of their linear dimensions, and consequently, when the masses are of the same material, their weights also are to each other as the cubes of their linear dimensions. This problem can be stated more simply, as follows: To compare the size and weight of masses, agree upon a unit of measurement, the most convenient form of which has been found

to be the cube, or a solid of equal linear dimensions. The problem states that the number of linear units in each dimension multiplied, will equal the number of cubic units in the respective masses, or that the masses are to each other, as the cubes of their linear dimensions. Hence the steps in the former of the two problems, the joint use of which is said to furnish an example of "the most composite type of Reasoning," are progressions from one equality to another, beginning always with those equalities which are so simple as to be evident to the senses.

Savages who are unable to count, may, nevertheless, form very good notions of the comparative bulks of masses; but until they learn to count and measure, they cannot understand how numbers represent bulk. It requires no special mathematical training, however, to see that they do; for the foregoing problem means simply that by multiplying the length, breadth and thickness, of a mass, we get a number which expresses the volume of the mass in any desired units. This is the extent of the question; for it goes without saying, that if a number expresses the volume of a mass, variations in volume imply variations in number.

The second problem is not so readily reduced through steps of equivalence, to its conclusion. It is stated as follows: In similar masses of matter which are subject to compression or tension, the power of resistance varies as the squares of the like linear dimensions.

Here we have two things compared, which are widely different, namely, the power of resistance of a mass, and its superficial measurement. In order to institute a comparison between objects, it is necessary that they should have some property in common. In this case,

the squares of the like linear dimensions of the compared masses, are said to vary with the power of resistance of the masses. Therefore, the squares of the linear dimensions must in some way be made to represent the power of resistance of the respective masses. How is this done? There is, in mechanics, a law of least resistance, which locates the point of the greatest strain in any given structure. In the case of a tube of iron, or any homogeneous substance subjected to a transverse strain this law locates in a plane, the place at which the tube would break, if the strain exceeded its strength. This plane of fracture would be a transverse section of the tube. Now this transverse section is measured by multiplying the transverse linear dimensions of the tube. Here, then, a relation is established between the strain which a tube can bear, and its transverse linear dimensions. In the first problem, a number was made to represent the bulk as well as the weight of compared masses. In the second, a surface or plane is made to represent the power of resistance to compression or strain of the compared masses.

In these two problems, therefore, the final comparison is between the process of estimating the number of cubic units in a solid, and of estimating the number of superficial units in a surface. In one case the process consists of multiplying the linear units contained in three straight lines, and in the other, of multiplying the linear units contained in two straight lines. The net result of the problem can be summed up in the statement that the cube of a given quantity will be more than the square of the same quantity. To this simple comparison can be reduced the complex proposition that the weight and the masses of like substances

are to each other as the cubes of their like linear dimensions; and that the power of similar substances to resist a transverse strain varies as the squares of their like linear dimensions. The difference between the two problems grows out of the fact that the operation by which the mass and weight are estimated is performed twice, while in estimating the power of resistance the same operation is performed but once. The result is a comparison so simple that it can be regarded as a sensation.

Speaking of the above problems, Spencer says:

“But now, leaving out of sight the various acts by which the premises are reached, and the final inference is drawn, let us consider the nature of the cognition that the ratio between the sustaining forces in the two tubes must differ from the ratio between the destroying forces; for this cognition it is which here concerns us, as exemplifying the most complex ratiocination. There is, be it observed, no direct comparison between these two ratios. How, then, are they known to be unlike? Their unlikeness is known through the intermediation of two other ratios to which they are severally equal.

“The ratio between the sustaining forces (or the power of resistance) *equals* the ratio $1^2:2^2$. The ratio between the destroying forces (or the weight) *equals* the ratio $1^3:2^3$. And, as it is seen that the ratio $1^2:2^2$ is unequal to the ratio $1^3:2^3$, it is by implication seen that the ratio between the sustaining forces is unequal to the ratio between the destroying forces. What is the nature of this implication? or, rather, what is the mental act by which this implication is perceived? It is manifestly not decomposable into steps. Though involving many elements, it is a single intuition, and, if

expressed in an abstract form amounts to the axiom: "Ratios which are severally equal to certain other ratios that are unequal to each other, are themselves unequal."*

The foregoing analysis of the problems of the comparative strength of bridges explains how the axiom or intuition which Spencer believed to be undecomposable, can be evolved from direct comparisons between simple quantities to which the compared ratios are reducible. It will be found that all forms of reason are similarly evolved from comparisons so simple that they can be regarded as sensations.

In the chapter entitled "The Final Question," second division of the same volume, the admission is made that, in the present state of human culture, a complete theory of knowledge is impossible. By a "complete theory of knowledge" Spencer means a comprehension of the principles of mind. "A true theory of knowledge," says Spencer, "is impossible without a true theory of the thing knowing, and a theory of the thing known, which is true as far as it goes." "Such a theory can be reached only after the theories of that which knows, and of that which is known have reached their *ultimate forms*; and the assumption that this ultimate form has been reached is declared to be an absurdity." This, of course, is equivalent to saying that a true theory of *Knowledge* is at present impossible.

We are told that "Developed intelligence is framed upon certain organized and consolidated conceptions of which it cannot divest itself; and which it can no more stir without using, than the body can stir without help of its limbs."* These organized and consolidated conceptions, which, according to Spencer, are essential to

**Principles of Psychology*, Vol. II., p. 309.

the activity known as intelligence, are space, time, matter, force and motion. Now if the mind is incapable of acting without them, whence the power that organized and consolidated these conceptions? How did they become ideas? It will be remembered that in the chapter on "Ultimate Scientific Ideas" these five conceptions are declared to be utterly inconceivable. Spencer assures us that any attempt to understand them leads to absurdities. These five principles are united in a sixth denominated consciousness. As consciousness springs from these unknowable elements of knowledge it is declared to be a mystery, which, it must be admitted, is a fair conclusion. It is not surprising that a theory of knowledge which evolves consciousness from inconceivable conceptions should be in some degree incomplete.

The assertion that "organized and consolidated conceptions," are a primary condition of thought is true only in a limited sense. In a broad sense it is equivalent to saying that the activities which have evolved fundamental ideas are of a totally different order from those which constitute the functions of the mind. The vital defect of Spencer's psychology is his dictum that "Reason is absolutely incapable of justifying its assumption; an assumption it is at the outset; an assumption it must remain to the last."*

From other parts of Spencer's system it can be inferred that reasoning is an organic activity extending from those automatic procedures known as reflex action to the highest achievements of the mind. His theory that reason absolutely depends upon organized, consolidated, and irreducible conceptions, is, therefore, in conflict

**Principles of Psychology*, Vol. II., p. 317.

with his best definition of mind. In another part of the same work, Spencer says that "reasoning is the act of co-ordinating states of consciousness already co-ordinated in certain simpler ways." "Now in all past times," says the same author, "men of science subordinate the deliverances of consciousness reached through mediate processes to the deliverances of consciousness reached through immediate processes; or, to speak strictly, they subordinate those deliverances reached through prolonged and conscious reasoning to those deliverances reached through reasoning that has become so nearly automatic as no longer to be called reasoning."* In short, the highest achievements of the mind are finally submitted to the arbitration of the senses, or to those automatic co-ordinations which, because they are too simple to be classed as mental, are known as activities of the physical organism.

If reasoning can be traced back to the simplest organic co-ordinations, and if the re-coördinations (or higher reasonings) cannot give to the results reached a validity independent of that possessed by previously co-ordinated states, there is a manifest continuity between sensation and reason.

Lest the reader should surmise that Spencer makes a difference between the operations of the mind in general and those operations called reasoning, we have but to revert to the chapter on "Reasoning in General," where we find it admitted that knowledge gained through the senses, or, as Spencer terms it, *by perception*, differs from that gained by the reasoning faculties, not in its nature, but only in the directness of the apprehension.

**Principles of Psychology*, Vol. II., p. 316.

“Let us consider,” says Spencer, “what is the more specific definition of Reasoning. Not only does the kind of proposition called an inference assert a relation, but every proposition, whether expressing mediate or immediate knowledge, asserts a relation. How, then, does knowing a relation by Reason differ from knowing it by Perception? It differs by its *indirectness*. A cognition is distinguishable as of one or the other kind, according as the relation it embodies is disclosed to the mind *directly* or *indirectly*. Reasoning, then, is *the indirect establishment of a definite relation between two things*. But now the question arises, By what process can the indirect establishment of a definite relation be effected? There is one process, and only one. If a relation between two things is not directly knowable, it can be disclosed only through the intermediation of relations that are directly knowable, or are already known.”*

Reasoning, then, which is admitted to signify, in its widest sense, all intellectual activity is declared to be the indirect establishment of a definite relation between two things. “If this relation between two things is not directly knowable, it can be disclosed only through the intermediation of relations that are directly knowable, or are already known.”

If all reasoning is relationing and if the only difference between the simplest and the most complex forms of reason is the degree of directness, it is manifest that the development of sensation into reasoning proceeds from definite relations to definite relations, and that there is no room in this sequence for the unknowable, for, if knowledge is relationing the unknowable is the

**Principles of Psychology*, Vol. II., p. 115.

unrelatable. Thus, after all, Spencer leads us so near to the ultimate relation that his theory of knowledge is very nearly complete.

Notwithstanding the inevitable contradictions of his theory of the unknowable the psychology of Herbert Spencer is in the main a demonstration of the unity of knowledge. It reduces all mental phenomena to one ultimate; namely, "the persistence of force," and it analyzes the conceptions of space and time, showing that they are the opposite aspects of this ultimate relation.

Involved as are the operations of the mind, in analyzing them we encounter no "insoluble mystery," no "irreducible intuition," no fact that cannot be traced to the simplest sensations. The distinction between sensation and thought, or between facts of consciousness having objective factors and those remaining wholly subjective, is only relative. Once a train of thought is set going, the mind works out its comparisons with relative independence of surroundings. A course of reasoning may occupy years, continuing through both waking and sleeping, during all manner of diverting occupations, and in some cases culminating with scarcely any effort on the part of the thinker.

Sensation differs from thought in that the former connects us with externals, while the latter proceeds within. But this distinction, as above indicated, is only relative. The sensorium responds to impressions from without, each of which produces its modification, that is to say, its memory. As impressions are repeated they become deeper; *i. e.*, the modifications become more and more marked. Each modification of structure implies a modification of function. Thoughts are molecular adjustments, which are invisible; but they result in more

definite perceptions, or in more accurate adjustments of the organism and its environment.

Sensation is more nearly connected, and thought further removed from external excitation. Between these extremes there are all degrees of directness, varying from the simplest reflexes to the most involved co-ordinations, but a definite relationship is maintained throughout.

Thus, when viewed superficially, reason and sensation appear entirely distinct; but analysis reveals their community of nature. Since reason is a form of organic action, there are no circumscriptions to consciousness except the moving limits of individuality. The mind has no absolute demarcations; the universe holds nothing back from thought. Throughout the receding simplification of analysis, and the advancing complexity of synthesis, no fact or principle, however general, is encountered, to which the individual does not definitely respond.

CHAPTER XII

HERBERT SPENCER

(*Concluded*)

The Principles of Sociology

The most original part of the *Synthetic Philosophy* is its theory of society, which completes the system. As before mentioned, the opening volume, entitled *First Principles*, is an epitome of the whole. The succeeding four volumes, two of *Biology*, and two of *Psychology*, set forth the progressive stages of organic development and culminate in an explanation of the physical basis of mind. Change from the simple to the complex is shown to be the trend of organic growth. The application of the theory of evolution to physical and mental phenomena is crowned by a definition of life, which being reduced to its simplest terms signifies that vitality, including mind, is the interaction of organism and environment.

Spencer's hypothesis that "Function makes Structure," has been objected to in a previous chapter on the ground that function and structure are opposite views of every phenomenon, neither having precedence as a cause.

The Synthetic Philosophy is built upon the postulate that the "deepest knowable truth" is the Persistence of Force. It is true that at times this "deepest knowable

truth" is declared to be unknowable, but for the most part, with remarkable consistency, our author avoids placing this universal among the inconceivables.

The theme of the first five books above mentioned is that of individual life. Then comes the theory of super-organic phenomena, or the science of society, for which Spencer is so justly renowned. Society is pictured as a vast living organism, the aim being to show that social, like individual, development is to be accounted for by the interaction of organism and environment, or of society and the cosmos.

In order to show the evolution of humanity or of justice, the development of human instinct is traced from the primitive family or tribe to the race formed into a confederation of nations.

With the exception of Darwin's *Origin of Species*, Spencer's *Sociology* is the most notable philosophic production of the past century. It is a romance, for it recounts the story of humanity. Primitive man is rehabilitated. His surroundings are depicted as the external factors of his development, while the emotional and the intellectual phases of his nature constitute the internal factors. Through the interaction of these conditions society is evolved.

Spencer has presented a striking picture of man's prehistoric life. An idea is given of the vast duration and extent of the struggle for existence, from which society has been evolved. The inestimable benefits springing from human co-operation on the one hand, and of individualism on the other, are made evident. Social progress and the perfection of conduct along lines of economic reform are shown to be different views of the same fact of development.

In this book our author is at his best. The following excerpt from the chapter on "The Factors of Social Phenomena" will give some idea of the power of the work:

"There remains in the group of derived factors one more, the potency of which can scarcely be over-estimated. I mean that accumulation of superorganic products which we commonly distinguish as artificial, but which, philosophically considered, are no less natural than all others resulting from evolution. There are several orders of these.

"First come the material appliances, which, beginning with roughly-chipped flints, end in the complex automatic tools of an engine-factory driven by steam; which from boomerangs rise to thirty-five-ton guns; which from huts of branches and grass grow to cities with their palaces and cathedrals. Then we have language, able at first only to eke out gestures in communicating simple ideas, but eventually becoming capable of expressing highly-complex conceptions with precision. While from that stage in which it conveys thoughts only by sounds to one or a few other persons, we pass through picture-writing up to steam-printing,—multiplying indefinitely the numbers communicated with, and making accessible in voluminous literatures the ideas and feelings of innumerable men in various places and times. Concomitantly there goes on the development of knowledge, ending in science. Counting on the fingers grows into far-reaching mathematics; observation of the moon's changes leads at length to a theory of the solar system; and at successive stages there arise sciences of which not even the germs can at first be detected. Meanwhile the once few and simple customs, becoming more numerous, definite, and fixed, end in systems of laws. From a few rude superstitions there grow up elaborate mythologies, theologies, cosmogonies. Opinion getting embodied in creeds, gets embodied, too, in accepted codes of propriety, good conduct, ceremony, and in established social sentiments. And then there are gradually evolved also the products we call æsthetic; which of themselves form a highly-complex group. From necklaces of fish-bones we advance to dresses, elaborate, gorgeous, and infinitely varied: out of dis-

cordant war-chants come symphonies and operas; cairns develop into magnificent temples; in place of caves with rude markings there arise, at length, galleries of paintings; and the recital of a chief's deeds with mimetic accompaniment gives origin to epics, dramas, lyrics, and the vast mass of poetry, fiction, biography and history.

"All these various orders of super-organic products, each evolving within itself new genera and species while daily growing into a larger whole, and each acting upon the other orders while being reacted upon them, form together an immensely voluminous, immensely complicated, and immensely powerful set of influence. * * * The influences which the society exerts on the natures of its units, and those which the units exert on the nature of the society, incessantly co-operate in creating new elements."*

In the second volume of "*Biology*," under the title of "Morphology," the forms of plants and animals are shown to be the inevitable result of physical conditions. In this manner the characteristics of the different races of mankind are accounted for. The ebony skin of the Central African tribes, and the blanched cheek of the Caucasian point to widely differing habitats. The Yakut child who devours at one meal "three candles, several pounds of sour, frozen butter, and a large piece of yellow soap," and the adult of the same race who consumes "forty pounds of meat in a single day," are contrasted with the brainworker of our zone and civilization, who subsists upon a modicum of highly concentrated nourishment.

It is demonstrated that all social progress is an advance in the number and complexity of the adjustments of organism and environment, advancing through the physical to the intellectual.

**Sociology*, Vol. I., p. 14.

The lack of mental power, characterizing the primitive man, and the rigidity of his beliefs are shown to be related conditions.

“We see less of that representativeness which simultaneously grasps and averages much evidence; and we see a smaller divergence from those lowest mental actions in which impressions cause, irresistibly, the appropriate motions. While the experiences are few and but slightly varied, the concreteness of the corresponding ideas is but little qualified by the growth of *abstract ideas*. An abstract idea, being one drawn from many concrete ideas, becomes detachable from these concrete ideas only as fast as their multiplicity and variety lead to mutual cancellings of their differences, and leave outstanding that which they have in common. Obviously an abstract idea so generated implies an increase of the correspondence in range and heterogeneity; it implies increased representativeness in the consciousness of the many concretes whence the idea is abstracted; and it implies greater remoteness from reflex action. It must be added that such abstract ideas as those of *property* and *cause* presuppose a still higher stage in this knowledge of objects and actions. For only after many special properties and many special causes have been thus abstracted can there arise the re-abstracted ideas of property in general and cause in general. The conception of *uniformity* in the order of phenomena develops along with this progress in generalization and abstraction. Not uniformity but *multiformity*, is the dominant trait in the course of things as the primitive man witnesses it. No two places are alike, no two men, no two trees, rivers, stones, days, storms, quarrels. Only along with the use of *measures*, when social advance initiates it, does there grow up the means of ascertaining uniformity: and only after great accumulation of measured results does the idea of *law* or human co-operation become possible.”

To examine this part of Spencer's system is to become convinced that independent thought is a prime

**Principles of Sociology*, Vol. I., pp. 84, 85.

necessity of social progress. Facts of development impossible to understand as part of an individual's life become clear when viewed through the medium of aggregated social life.

The belief that the order of nature is due to the will of an individual requiring propitiation, filled the mind of the primitive man. This belief in a personal ruler of the universe is an early stage of religious development and presides at the birth of every theory of existence. The study of sociology compares this primitive idea with higher types of intelligence. Ideas of the Animate and Inanimate—of Death and Resurrection—of Souls, Ghosts, Spirits and Demons—of Another Life, of Another World—of Supernatural Agents—Sacred Places, Temples—Altars—Praise—Prayer—Ancestor-worship—Idol and Fetich-worship—Animal, Plant and Nature-worship—Deities—these are the titles of the principal chapters of the "Data of Sociology." They constitute an intensely interesting account of the development of our conception of personal and of universal authority.

In the absence of a definite language, and, therefore, without recorded observations, the primitive man groped in utter darkness. Concerning the natural order of things, he was without a guide. Having no implements to work with, thought produced only vagaries and phantasms. Ideas of supernatural beings sprang into existence, and as a consequence ancestor-worship appeared as the earliest stage of religious development.

Faith in a surviving duplicate, or in a soul separate from the body, is almost universal among savages, and was the beginning of our theory of the immortality of the soul. Those interested in the genesis of this belief

can trace it step by step through the course of the chapters above referred to. To the savage, who found his most powerful foe in his own species, the ghost-chief became the ideal of supreme power and consequently an object of worship. Civilized as well as savage men bow down to impersonations of power. The point to which I would call attention is that sentiency is the instrument by which all power is appreciated, and the development of this appreciation is identical with that of thought and language, or the art of generalization.

In lower organisms, appreciation of power consists of the ebb and flow of physical existence. Before experiences are co-ordinated, by a complex nervous system, ideas are not formed. The apprehension of food, and the escape from danger are certainly appreciations of power; but there is a vast difference between these simple reflexes and the conception of an ultimate principle as the cause of all things. Likewise the perception of universal order,—the greatest authority or power,—is an effort of sentiency immeasurably higher than the worship of a militant ancestor, a fetich, or a personal deity.

Spencer reminds us that the African negroes, when ill, go to the woods and cry for help to the spirits of their dead relatives, just as the Iranians, as told in the *Khorda-Avesta*, call upon the souls of their forefathers in prayer. The Indian or Veddah asks the ghosts of his relatives for aid when he goes hunting just as the Romans prayed to their Lares for a happy termination to a projected voyage. It can be imagined with what force comparisons showing how our religious beliefs are evolved from prehistoric customs militate against modern superstitions.

The growth of language registers the progressive stages of social development. The philosophical student of the future will look upon our age as enigmatical. He will read with wonder of men who used the term God for an ideal of human form and feeling, and also for a universal principle. We regard a society having no developed mathematics as unable to form correct views of obscure phenomena. The student of the future will measure the intelligence of our age,—that is to say, our ability to discern principles, or to appreciate power,—by the standard of our language. He will find in the prevailing confusion in the use of general terms a fruitful source of injustice or misgovernment, because this confusion implies ignorance of ultimate relations.

From the beginning of Spencer's writings the promise is held out of a scientific basis of ethics. As a step toward this great end our author builds up the science of sociology or his theory of society, showing that there can be no reliable definition of the true or of the good until mind and matter are unified. Those who believe that mind is one thing and matter another obstruct the path of spiritual progress, for they are unable to perceive the divine unity of existence. Strange as it may seem, these uncentered souls preside over our education.

The great gap in our civilization, therefore, is not so much between science and religion as between science and dialectical philosophy, which trains our religious as well as our scientific teachers to believe, not in ultimate unity, but in a futile duality. This arbitrary separation of the physical and the spiritual impedes social progress by retarding the unification of knowledge.

Sociology teaches that there is an aggregate human

life springing from the alternating competition and co-operation of individuals; and that the atmosphere of this life is language. The development of ideas, or, in other terms, the organization of words, is the most accurate measure of human progress, for it most profoundly affects each individual. Society has an interest in the meaning of words proportionate to the range of their significance. Our knowledge of authority or of government, therefore, depends ultimately upon our definitions of universals, for they are the most general principles of existence.

CHAPTER XIII

GEORGE HENRY LEWES

The Principles of Psychology

George Henry Lewes directed the best efforts of his life to researches in mental phenomena. He felt that there was no hope of understanding consciousness until the metaphysical problem was solved. To solve this most difficult of all problems is to show that mind and matter are forms of one ultimate principle.

The philosophic system of Lewes bears the general name of Problems of Life and Mind. Two volumes are entitled *Foundations of a Creed*, and explain the nature of belief. The third volume deals with *Mind as the Function of the Organism*, and shows the identity of physical and mental energy. This volume constitutes an introduction to the posthumous works, entitled *The Physical Basis of Mind*, and *The Study of Psychology*.

In the preface to the opening volume Lewes says:

“In 1862 I began the investigation of the physiological mechanism of Feeling and Thought, and from that time forward have sought assistance in a wide range of research. Anatomy, Physiology, Pathology, Insanity and the Science of Language have supplied facts and suggestions. * * * The first result was such a mutual illumination from the various principles arrived

at separately, that I began to feel confident of having something like a clear vision of the fundamental inductions necessary to the constitution of Psychology. The second result, which was independent of the first, arose thus: Finding the exposition obstructed by the existence of unsolved metaphysical problems, * * * and knowing that * * * the conceptions of Force, Cause, Matter and Mind, were vacillating and contradictory, I imagined that it would be practicable * * * at least to give such precise indications of the principles adopted throughout my exposition as would enable the reader to follow it untroubled by metaphysical difficulties.”*

Here then, at the very outset, the metaphysical difficulty is encountered, but, as will later appear, instead of a positive a negative solution will be offered.

In the opening of Lewes' argument the following significant quotation from Mill occurs: "England's thinkers are again beginning to see, what they had only temporarily forgotten, that the difficulties of Metaphysics lie at the root of all Science; that those difficulties can be quieted only by being resolved, and that until they are resolved, positively whenever possible, but at any rate negatively, we are never assured that any knowledge, even physical, stands on solid foundations." Lewes was unable to offer a positive solution of the metaphysical problem because of his tentative acceptance of the theory of an unknowable, which implies a fundamental mystery. He was convinced, however, that both religion and science demand a positive solution of the problem of existence. In other terms, he held that so long as all avenues of research lead to mystery, it is impossible to

**Problems of Life and Mind*, Vol. I., Preface.

unify knowledge. As will be shown, Lewes goes farther than any other writer, except, perhaps, Spencer, toward demonstrating the unity of knowledge.

The deep conviction that both religion and science require a positive solution of the metaphysical problem Lewes expressed in the following impressive words: "Assuredly some mighty new birth is at hand. Not only do we see Physics on the eve of a reconstruction through Molecular Dynamics, we also see Metaphysics strangely agitated, and showing symptoms of a reawakened life. After a long period of neglect and contempt, its problems are once more reasserting their claims. And whatever we may think of those claims, we have only to reflect on the important part played by Metaphysics in sustaining and developing religious conceptions, no less than in thwarting and misdirecting scientific conceptions, to feel assured that before Religion and Science can be reconciled by the reduction of their principles to a common method, it will be necessary to transfer Metaphysics or to stamp it out of existence. There is but this alternative. At present Metaphysics is an obstacle in our path: it must be crushed into dust and our chariot-wheels must pass over it, or its forces of resistance must be converted into motive powers, and what is an obstacle become an impulse."*

As previously demonstrated, the metaphysical problem or the question of existence resolves itself into that of motion. Lewes vainly endeavored to divide this problem into the soluble and the insoluble. The insoluble part of the metaphysical problem he denominated *Metem-pirics*, or beyond experience. Now this term means pre-

**Problems of Life and Mind*, Vol. I., p. 4.

cisely the same thing as metaphysics, for the physical is the world of sensible experience, and beyond sensible experience is mental experience, which is the field of metaphysics. As explained in Chapter IX, there are many unsolved but no insoluble problems. All problems can be reduced to one final relation, in the objective and subjective terms of which will be found its solution.

Those who examine the writings of Lewes will become convinced that consciousness is no longer a mystery. They will cease to regard the mind as an absolute entity, defying analysis, for Lewes demonstrates that consciousness is a phenomenon, or, in other terms, an individual expression of universal force.

Lewes removes the term Cause from the list of ultimates by showing that it denotes one aspect of every phenomenon, the other being Effect. He thus bequeaths to our age five universals, namely, Space, Time, Matter, Force and Motion. Matter he proves to be indistinguishable from space, because force in its deepest sense means motion; and in its restricted sense means motion considered apart from its material or space aspect; or simply Time. These conclusions are not given in direct terms, but that they are fair inferences from the course of reasoning pursued by Lewes the reader will have an opportunity of judging.

Although unable to refute it, Lewes instinctively opposed the theory of an unknowable. "A traditional perversion," says he, "makes the essence of a thing to consist in the relations of that thing to something * * unknowable, rather than in its relations to a known or knowable—*i. e.*, assumes that the thing cannot *be* what it is to us and other known things, but must be something 'in itself,' unrelated, or having quite other rela-

tions to other unknowable things. In this contempt of the *actual* in favor of the vaguely imagined *possible*, this neglect of reality in favor of a supposed deeper reality, this disregard of light in the search for a light behind the light, metaphysicians have been led to seek the 'thing-in-itself' beyond the region of Experience."* Thus Lewes identifies the belief in an unknowable which is the root of all skepticism with the *à priori* philosophy, or the theory that all questions of phenomena are fundamentally insoluble, there being no real knowledge of external nature.

"The initial condition of metaphysical inquiry," says Lewes, "is that of separating the insoluble from the soluble aspects of each problem—but the question everywhere arises: What is insoluble? There are problems which are recognized as insoluble because of their conditions. For example, it is impossible to extract the square root of a number which is not made by the multiplication of any whole number or fraction by itself. To all eternity this must be impossible."

Now there is no doubt of the impossibility of extracting the square root of a number not made by multiplying any whole number or fraction by itself, because the impossibility has been purposely imposed. If an object weighs one hundred pounds, the impossibility of its weighing two hundred pounds is a matter of construction, it is the function of its weight, or, in other terms, of its conditions. This is all the impossibility and all the insolubility that exists in any question. No question rationally stated is impossible of solution, because every question is a form of the ultimate relation

**Problems of Life and Mind*, Vol. I., pp. 58, 59.

and can be reduced to its simplest terms. Hence, there are no insoluble, there are only unsolved questions.

Following this attempt at a metaphysical analysis are the chapters on the Principles of Psychology. In the opening chapter, Lewes says, that it would be premature to attempt a systematic treatise on Psychology, as there are still unsolved biological and metaphysical questions which it is necessary first to settle. In short, Lewes, who, on account of his great generalizing power and his familiarity with the structural and functional aspects of thought, was perhaps the best equipped man of his time to deal with the problems of Psychology, frankly admitted that the most important materials for the undertaking were lacking. He begins a "sketch of the programme of Psychology," with the reminder that Man is not simply an Animal Organism, but is also a unit in the Social Organism. He reminds us that Psychology occupies itself with the study of Consciousness: beyond this fact it is not obliged to look. This means that the psychologist feels no obligation to account for consciousness, although it is from this fact that he evolves his science. The mathematician regards mind; the mathematician regards motion; the physicist, force, and the biologist, life, as the ultimate fact in their respective fields of inquiry; but, according to Lewes, these scientists feel no necessity of affiliating this ultimate with universal change.

It is scarcely necessary to say that, although the mathematician may profess indifference as to the meaning of motion, and although the physicists may make no attempt to define force, or the biologists life, all this indifference is assumed. The last fact in each field of inquiry should be understood, that is to say, should

be correlated with the ultimate reality. Nothing can exceed in importance this unification of knowledge, for it has the power of illuminating all research.

Psychology has no firm ground to stand on until mind and matter are reduced to a single principle. It is now well known that there can be no function without structure, which means that mind is a part of nature. The relation called gravitation, suggesting activities which are infinite, those relatively constant types of energy known as the chemical elements, the adjustments of organism and environment, including the development of feeling and thought from lower forms of life,—this vast plexus of conditions must be correlated before we can perceive the meaning of consciousness. Thus intelligence is taxed to its uttermost to comprehend its own nature, but it is finally persuaded that its functions and structures are an inseparable part of the universal economy.

It will be found that "The Programme of Psychology" as presented by Lewes is of commanding interest. Although the mind is an evolution of nature, it cannot be fully accounted for by a biological analysis, because both thought and feeling are more than the activity of a personal organism. The ordinary meaning of "person" must be greatly extended before it can be made to include all the phenomena of the intellect as well as of the emotions. The psychologist is aware that feeling is the source of thought, and that it is also the activity of a personal organism, but he is at a loss to explain the development of the one into the other without first comprehending the nature of language, that medium through which individuals of various times and places are brought into permanent relationship. Now the

study of the relationship of individuals is known as sociology, an inquiry made possible by the evolution of language. Thus language accounts for the development of the life of the family into that of society. Words and sentences constitute the psychoplasm from which the individual draws its sustenance, bringing it into relation with its surroundings. To understand the structures and functions of mind, therefore, it is necessary to resolve consciousness into its biological and its sociological factors, and from the isolated views thus obtained to reconstruct a symmetrical whole. If the biological factors of consciousness offer only a partial explanation of mind, they at least supply us with the fundamental conditions of its theory. Of these substructures of the intellect Lewes says:

“Theoretically taking the organism to pieces to understand its separate parts, we fall into the error of supposing that the organism is a mere assemblage of organs, like a machine which is put together by juxtaposition of different parts. But this is radically to misunderstand its essential nature and the universal solidarity of its parts. The organism is not made, not put together, but evolved; its parts are not juxtaposed, but differentiated; its organs are groups of minor organisms, all sharing in a common life, *i. e.*, all sharing in a common substance constructed through a common process of simultaneous and continuous molecular composition and decomposition; precisely as the great Social Organism is a group of societies, each of which is a group of families, all sharing in a common life—every family having at once its individual independence and its social dependence through connection with every other. In a machine, the parts are all different, and have mechanical significance only in relation to the whole. In an organism, *the parts are all identical in fundamental characters and diverse only in their superadded differentiations*: each has its independence, although all co-operate. The synthetical point of view, which should never drop out of sight, however the

necessities of investigation may throw us upon analysis, is well expressed by Aristotle somewhere to the effect that all collective life depends on the separation of offices and the concurrence of efforts. In a vital organism, every force is the resultant of *all* the forces; it is a disturbance of equilibrium, and equilibrium is the equivalence of convergent forces. When we speak of Intelligence as a force which determines actions, we ought always to bear in mind that the efficacy of Intelligence depends on the organs which co-operate and are determined: it is not pure Thought which moves a muscle, neither is it the abstraction Contractility, but the muscle which moves a limb."*

The crisis of the argument then comes in these words: "That Life is Change, and that Consciousness is Change, has always been affirmed. It remains only to add that the changes are serial, and convergent through a *consensus determined by essential community of structure.*"† Thus Lewes reveals the identity of physical and mental function by pointing out the community of physical and mental structure.

The aim of Psychology is to show that mental life is a part of nature. Tennyson's idea that "The thoughts of men are widened by the process of the suns" means that body and mind are inseparable parts of the cosmos. To express this truth in the simplest terms, organic movements, which include all mental phenomena, are distinguished from inorganic movements only by their higher complexity.

Biology follows the development of organisms from the monad to the man, and also from the germ to the adult in each type. This science, however, confines itself to the individual and its physical medium. The psychical medium of each organism is language, the

* *Problems of Life and Mind*, Vol. I., pp. 103-105.

† *Problems of Life and Mind*, Vol. I., p. 113.

most potent of all structural developments, because it brings individual minds into communication. Biology investigates the relation of the organism and its physical medium; psychology the relation of the organism and its mental medium. The primary law of biology is that "Every vital phenomenon is the product of the two factors, the Organism and its Medium." The primary law of psychology is that "Every mental phenomenon is the product of the two factors, subject and object." Now it is to be observed that these two sets of terms are in the deepest sense identical. They are distinguishable only relatively, as are mind and matter.

Thus biology and psychology are reciprocal. They investigate respectively the physical and the mental aspects of life showing that the relation of the individual and its environment is only another name for that of subject and object. "Modern psychology," says Lewes, "replaces the old dualism in which subject and object were two independent and unallied existences, by a Monism, in which only one existence, under different forms, is conceived. The old conception was of life in conflict with the external; the new conception recognizes their identity, and founds this recognition on the demonstrable fact that external forces instead of tending to destroy Life (according to Bichat's view), are the very materials out of which Life emerges, and by which it is sustained and developed."*

Lewes reminds us, however, that a complete psychology is impossible "until there is something like a general agreement concerning many questions of fundamental importance, these being partly biological and partly metaphysical."

**Problems of Life and Mind*, Vol. I., p. 113.

It is to be observed that all biological and metaphysical questions can be solved by the unification of mind and matter or of subject and object. This unification depends upon our ability to prove that both subject and object occupy space as well as time, a proof that can be reached only by an analysis of our ideas of space and time. In order to see the connection between time and the subjective, and between space and the objective aspect of existence, it is necessary to observe that the subject occupies space, and, therefore, has space relations; and that the object occupies time, and, therefore, has time relations. The idea of space is generated by attending to co-existence or existences considered simultaneously (or apart from time). The idea of time is generated by considering sequence, or a serial existence as distinguished from all other existences (or apart from space). It is clear that the only existence we can realize apart from all other existences, is our own; but we must remember that to each individual the power that others have of being conscious is a part of objective nature, only relatively separable from the cosmos.

Thus we get an idea of how the primordial notions of time and space, the most abstract forms of subject and object, are formed. In forming this dual idea, however, we have been employing symbols, or language, that medium which brings individuals into communication.

Language springs from the attempt to compare and to communicate images. Upon this subject Lewes says: "It was perfectly clear that in imagination must be sought the first impulse toward explanation; and, therefore, all primitive explanations are so markedly imaginative. Images being the subjective or ideal form of Sensation, the Logic (or sequence) of

Images is the first stage of intellectual activity; and is, therefore, predominant in the early history of individuals and of nations. The first attempt to explain a phenomenon must be to combine the images of past sensations with the sensations now felt, so as to form a series. In the next stage, words, representatives of abstractions (of experience), take the places of both images and objects. Thus the Logic of Signs (or language) replaces the Logic of Images, as the Logic of Images replaces the Logic of Sensation.”* By means of images or symbols, therefore, that higher medium called language is formed. In every sentence subject and object unite in the verb, which is the symbol of action or being, and separate as its aspects, time and space. Thus mind and matter are the unity and the variety of nature, the subjective and objective terms of the universal relation.

**Problems of Life and Mind*, Vol. I., p. 155.

CHAPTER XIV

GEORGE HENRY LEWES

(Continued)

Experience and Belief

Such is the continuity of mind that those apparently widely separate phases of consciousness known as experience and belief can be shown to have the same ultimate meaning; that is to say, they are both forms of feeling and therefore of universal change.

“The absolute,” says Lewes, “is known to us in feeling which in its most abstract expression is change.” Not only are experience and belief interdependent forms of this ultimate relation, but the problem of proof or of reality which is at the very basis of psychology can be reduced to that of motion.

No philosophical question is more often agitated, than the nature of belief. It is generally supposed that credence is voluntary, or, in other words, that conviction is given or withheld at will, but there is no greater delusion, for as will later appear, belief is determined by influences far beyond our control. We imagine that faith is free because it is an evolution of feeling, and that the will is free because it springs from the same source. We have only to realize that by far the greater part of our intellectual activities are unconscious to

become convinced that opinions are formed of their own accord.

Belief is never at rest. Though the movements are at times imperceptible, conviction rises and falls with the tide of investigation and verification. The only belief that is unchangeable is that of change itself.

Belief is the voice of experience; or a result of the actions and reactions of individual and environment. To comprehend how it is formed, we must learn to affiliate our experiences with universal energy; that is to say, we must reduce to their prime factors those organic actions and reactions from which both feeling and thought are evolved.

Every influence affecting the organism, whether exerted during life, or throughout that vast series of lives leading up to each individual, is in the deepest sense a factor of mind, and, therefore, of belief. If experiences were always conscious, we could easily discern their origin, but only an infinitesimal part of them are sufficiently centralized to constitute attention. Consciousness is an equilibrium moving over the sentient deep. The waves of sentiency are forms of universal force.

For the same reason that there is no ultimate difference between matter and force, there is none between body and mind,—terms which represent respectively the structural and functional aspects of the sensorium. There is no more direct way of gaining a comprehension of the nature of experience and belief than by following the investigations of Lewes in neural phenomena, because they identify the activities of body and mind.

As explained in the previous chapter, the fundamental question of psychology is that of subject and

object. To correlate these opposite aspects of existence is to unify knowledge.

“We cannot” says Lewis, stir a step in the exposition of subject and object without presupposing to be already settled fundamental questions which are still under discussion. No explanation can be given of matter which does not involve a conception of force.”

What Lewes means by the above is that we cannot explain consciousness until we perceive that the matter and force of mind are identical with matter and force in general.

“The main question,” continues Lewes, “must remain nebulous so long as we are without a precise definition of Experience. The term is very variously and very laxly used. I have defined it as ‘the Registration of Feeling.’ And what is Feeling? It is the reaction of the sentient Organism under stimulus. Observe, it is not the reaction of an organ, but of the Organism—a most important distinction, and rarely recognized.

“The response of a sensory organ * * * is not an *experience*, unless it be *registered* in a modification of structure, and thus be *revivable*, because a statical condition is requisite for a dynamical manifestation. Rigorously speaking, of course, there is no body that can be acted on without being modified; every sunbeam that beats against the wall alters the structure of that wall; every breath of air that cools the brow alters the state of the organism. But such minute alterations are inappreciable for the most part by any means in our possession, and are not here taken into account, because, being annulled by subsequent alterations, they do not become *registered* in the structure. We see many sights, read many books, hear many wise remarks; but, although each of these has insensibly affected us, changed our mental structures, so that ‘we are a part of all that we have met,’ yet the registered result, the *residuum*, has perhaps been very small. While, therefore, no excitation of Feeling is really without some corresponding modification of Structure, it is only the

excitations which produce lasting modifications that can be included under Experience. A feeling passed away and incapable of revival, would never be called an experience by any strict writer. But the feelings registered are psycho-statical elements, so that henceforward when the organism is stimulated it must react along these lines, and the product will be a feeling more or less resembling the feeling formerly excited."*

Hence the organism as a whole responds to each stimulus and if the response can be revived, however, faintly, it can be regarded as an experience, because it has educated or modified, or as the psychologists would say, it can be remembered. Observe, however, that in the deepest sense, all the modifications of an organism, and hence all the activities of that organism, whether conscious or unconscious, belong directly or indirectly to the sum of its experiences and its beliefs.

"Mind," says Lewes, "is commonly spoken of in oblivion of the fact that it is an abstract term expressing the sum of mental phenomena. As an abstraction, it comes to be regarded in the light of an entity, or separate *source* of the phenomena which *constitute* it. In like manner a thought, which as a product is simply an *embodied process*, comes to be regarded in the light of something distinct from the process; and thus two aspects of one and the same phenomenon are held to be two distinct phenomena. Because we abstract the material of an object from its form, considering each apart, we get into the habit of treating form as if it were in reality separable from material. By a similar illusion we come to regard the process (of thinking) apart from the product (thought), and, generalizing the process, we call it Mind, or Intellect, which then means no longer the mental phenomena condensed into a term, but the *source* of these phenomena. * * *

"It is experiment and verification which convince us that the air is a material object capable of being weighed and measured.

**Problems of Life and Mind*, Vol. I., p. 188.

It is experiment and verification which convince us that thought is an embodied process, which has its conditions in the history of the race no less than in that of the individual.”*

The prevailing method of teaching psychology is dwelt upon with no little scorn by Lewes. Everything, says this author, is prepared in advance for the student. The physical activities are carefully demarcated from the mental. These demarcations are more than analytical; they are made to appear fixed, if not absolute, and they are never removed in order to afford a synthetic view of the operations of the sensorium as a whole.

In the analysis of feeling, thought and action given in a previous chapter, the artificiality of the distinctions made between the different phases of nervous action was pointed out. The idea that mind means something wholly different from body has become so prevalent that, until the futility of the distinction is exposed, too much emphasis cannot be laid upon the error. For instance, some psychologists believe that the cerebral hemispheres are the seat of combination for all the senses. That is to say, all the co-ordinations of sense resulting in consciousness are believed to take place in the brain. It is said that only in these brain structures are sensations transformed into thoughts.

“The cerebral hemispheres,” says Lewes, “considered as organs, are similar in structure and properties to the other nerve-centres; the laws of sensibility are common to both; (and) the processes are alike in both; in a word, the Brain is only one organ (a supremely important one!) in a complex of organs, whose *united* activities are necessary for the phenomena called mental. * * * The assignment of even

**Problems of Life and Mind*, Vol. I., pp. 193, 195.

Thinking (exclusively) to the cerebral hemispheres is purely hypothetical. Whatever may be the evidence on which it rests, it must still be acknowledged to be an hypothesis awaiting verification. This may seem incredible to some readers, accustomed to expositions which do not suggest a doubt—expositions where the course of an inexpression is described as progressing, from the sensitive surface along the sensory nerve to its ganglion, from thence to a particular spot in the Optic Thalamus (where the impression is said to become a sensation), from that spot to cells in the upper layer of the cerebral convolutions (where the sensation becomes an idea), from thence downward to a lower layer of cells (where the idea is changed into a volitional impulse), and from thence to the motor-ganglia in the spinal cord, where it is reflected on the motor-nerves and muscles.

“Nothing is wanting to the *precision* of this description. Everything is wanting to its *proof*. The reader might suppose that the course had been followed step by step, at least, as the trajectory of a cannon-ball, or the path of a planet is followed: and that where actual observation is at fault, calculation is ready to fill up the gap. Yet what is the fact? It is that not a single step of this involved process has ever been observed; the description is imaginary from beginning to end.”*

Lewes does not question the fact that the grey matter of the brain performs by far the greater part of the work known as thought. Since the composition of the grey matter indicates that it contains the highest molecular multiples, competent authorities now agree that the mind is that part of the sensorium capable of the greatest molecular activity. What Lewes would emphasize is the solidarity or interdependence of the whole nervous system. Evidence is yet to be adduced that any part of the sensorium is exempt from participation in the operation known as thought. In “The Physical

**Problems of Life and Mind*, 3rd Series, p. 65.

Basis of Mind" Lewes shows that after the brain of a certain animal has been removed, sensations, emotions, instincts, and even volitions are manifested. Hence it is impossible to sustain the theory that the brain is the exclusive seat of either feeling or thought. Since all the operations of the mind are from moment to moment dependent upon physical conditions, every activity of the organism is a more or less direct factor of consciousness. Not only are mental aberrations traceable to functional disorders, but all moral derelictions can be shown to be the consequence of abnormal conditions. No tissue or organ of the body is without influence in its intellectual and, therefore, in its moral determinations.

Although not the sole organ of mind, the brain is by far the most important one. "We must," says Lewes, "no longer isolate the cerebrum from the rest of the nervous system, assigning it as the exclusive seat of sensation, nor suppose that it has laws of grouping which are not at work in the other centres. * * * The soul is a history, and its activities the product of that history. Each mental state is a state of the whole sensorium; one stroke sets the whole vibrating."*

In the widest sense, therefore, the sensorium is the whole living organism. So delicately are its many parts adjusted that all vibrate to every stimulus. Although various combinations of nerve fibrils, fibres, and cells form nerve and ganglia, and as such are easily distinguishable, still, considered as a whole, the nervous system has no absolute demarcations from the organism. As it is impossible to determine where nerve ends and

**Problems of Life and Mind*, 3rd Series, pp. 69, 71, 102.

muscle begins, so it is impossible to isolate nervous from physical excitement. In this connection Spencer says, "that throughout the entire fabric of Mind, the method of composition remains the same from the formation of its simplest feeling up to the formation of those immense and complex aggregates of feelings characterizing its highest developments."*

From a functional point of view, therefore, the sensorium is that part of the organism capable of the greatest molecular activity, which definition, as above indicated, is also applicable to mind. Hence when we trace the development of the nervous system from rudimentary forms of life to the highest types it becomes manifest that the progress of thought is identical with that of physical organization.

In explaining reflex action, the attempt is often made to isolate the nervous arc from the rest of the system; or, in other terms, to demarcate reflex action from its surrounding states. The discovery that in certain animals, after the removal of the brain, co-ordinated movements take place in the extremities, indicates that co-ordinations do not originate in the brain. In fact, "when isolated from the organism, no single organ has a function at all." This principle, differently expressed, is that no activity, whether physical or mental, can be separated (otherwise than ideally) from the complex of activities known as individual life.

"The brain," says Lewes, "is simply one element in a complex mechanism, each part of which is a component of the Sensorium or Sentient Ego. We may consider the several elements as forming a plexus of

*Herbert Spencer, *Principles of Psychology*, Vol. I., p. 184.

sensibilities, the solidarity of which is such that while each in a particular way may be stimulated separately, no one of them can be active without involving the activity of all the others. . . . Hence, when we reduce the abstract term Mind to its concretes, namely, states of the sentient mechanism, the 'power of the Mind' simply means the stimulative and regulative processes which ensue on sentient excitation. We may now formulate a conclusion: Sensibility is the special property of the nervous tissue. Every bit of that tissue is sensitive in so far that it is capable of entering as a *sensible component* into a group the resultant of which is a *feeling*—*i. e.*, a change in the state of the sentient organism. *The Sensorium is the whole which reacts on the stimulation of any particular portion of the whole.*"* Now this generalization of Lewes brings into view the vast mechanism of thought and feeling acting and reacting with the unity and the variety characteristic of nature.

The aversion to the theory that all intellectual and moral activities are governed by mechanical laws is the result of a cramped and inadequate idea of the character and extent of mechanics. For instance, the most devout person would not object to the assertion that all the activities of nature, from the evolutions of the heavenly spheres to the life of plants and animals, are guided by the hand of God, and that this same guidance is manifested in every feeling and thought. And yet these words may be interpreted as meaning that Motion is the ultimate fact in all phenomena, whether subjective or objective, uniting mind and matter, or consciousness and nature.

**Problems of Life and Mind*, 3rd Series, pp. 77, 82.

Lewes fixed upon feeling as the ultimate of experience, and upon experience as the ultimate of belief. Thus he expanded the meaning of feeling so as to include on the one hand sensation, and upon the other thought. In their most abstract form experience and belief are changes in the sentient mechanism. This idea Lewes expressed as clearly as was possible without employing the instrument of an ultimate analysis. It can be seen from his argument on the "Principles of Certitude" that he practically rejected the unknowable in favor of the unknown. By rejecting the theory of an unknowable, he has shown that experience is infinite, or that the conscious and the unconscious are only opposite views of universal energy.

The Greeks evolved the science of logic from analogy, the moderns from identity. In the deepest sense these methods are one, for of all analogies the simplest is the identity of subject and object, or of space and time, the opposite aspects of the ultimate relation. Thus the terms of all equations can be reduced to the subjective and the objective aspects of motion.

According to Lewes, "Truth is the equivalence of the terms of a proposition; and the equivalence is tested by the reduction of the terms to an identical proposition."* Is it not clear that this "identical proposition" is the ultimate generalization? Spencer said that the final test of truth is indirect or negative; by which he meant that the ultimate of proof is that equilibrium expressed in our inability to doubt. Instead of being a conscious determination, therefore, belief is for the most part involuntary. Our opinions are formed of

**Problems of Life and Mind*, 1st Series, p. 78.

their own accord. Belief, or the satisfaction of doubt, is simply the balance of internal and external forces through the medium of language, a balance formed for the most part without our consent.

“All knowledge,” says Lewes, “begins with the discernment of resemblances and differences; it is necessarily polar, resemblance being impossible except on a background of difference, and difference being impossible except on a background of resemblance. While knowledge begins here, it ends with the equation. The resemblances abstracted from all accompanying differences, and reduced to the identity of equivalence.”*

From the foregoing it can be seen that consciousness is the evolution of identity from difference; of unity from variety, or of subject from object.

The wonder concerning Lewes' philosophy is, that he could have been so explicit in identifying the matter and force of mind with matter and force in general, declaring them to be aspects of motion, and yet that he should never have hit upon the idea of identifying space with matter and time with force, thus bringing the most general terms of existence into interdependence. This wonder increases as we read such luminous definitions of Motion as the following: “Here arises a complication which will beset the whole discussion unless we form distinct ideas of the separation of matter and force as a purely analytical artifice. The two abstractions are but two aspects of the same thing; a separation rendered inevitable by the polarity of Experience, which everywhere presents Existence under passive and active aspects. Force is not something superadded to Matter,

**Problems of Life and Mind*, Vol. II., pp. 79, 81, 83.

it is Reals viewed in their dynamic aspect; Matter is not something different from Force, but Reals viewed in their statical or passive aspect; *either is unthinkable without the other*. Force is immanent in Matter, and Matter is immanent in Force. The schoolmen called Matter *potentia passiva*, and Force *virtus activa*." Only logically can they be considered apart.*

Here Lewes clearly recognized that Motion is the union of the dynamical and the statical aspects of nature, or the one relation of which time and space are respectively the subjective and the objective terms. Although the most advanced physicists recognize this principle of the universality of Motion, they are far from rendering it in simple and concise language. Thus we read in the well-known work of Thomson and Tait: "We cannot, of course, give a definition of matter which will satisfy the metaphysician, but the naturalist may be content to know matter as *that which can be perceived by the senses*, or as *that which can be acted upon by or can exert force*. The latter, and indeed the former also, of these definitions involves the idea of Force."†

In the treatise of Lewes on the Nature of Matter, in Problem IV., we have an example of the lengths to which these discussions are carried. Here the extension, impenetrability, infinite divisibility, indestructibility, gravity, and inertia of matter are considered, the one definite conclusion arrived at being that matter is the symbol of all objectivity, which is equivalent to

**Problems of Life and Mind*, Vol. II., p. 206.

†Thomson and Tait: *Natural Philosophy*, Vol. I., p. 161.

its identification, first, with extension, or space, and, finally, with motion.

Problem V. is entitled "Force and Cause," and VI. "The Absolute in the Correlations of Feeling and Motion." The former shows conclusively that Cause and Effect are the opposite views of every phenomenon, and therefore imply each other.

In closing Problem VI., we find Lewes again triumphant over all difficulties. After many failures he at last reaches the universal principle, enabling us to overlook the futile attempts of previous chapters to coordinate universals. Although failing to perform this last analysis by showing the relationship of ultimate terms, by another route, he arrives at the same result. Witness the closing words of Problem VI., which is without doubt the best attempt thus far made to describe thought without the aid of that most fundamental of all experiences and beliefs, our consciousness of existence as the ultimate generalization.

"Existence"—the Absolute—is known to us in feeling, which in its most abstract expression is Change, external and internal. The external changes are symbolized as motion, because that is the mode of Feeling into which all others are translated when objectively considered; objective consideration being the attitude of *looking at* the phenomena, whereas subjective consideration is the attitude of any other sensible response, so that the phenomena are different to the different senses. There is no real break in the continuity of Existence; all its modes are but differentiations. We cannot suppose the physical organism and its functions to be other than integrant parts of the Cosmos from which it is formally differentiated; nor can we suppose the psychical organism and its functions to be other than integrant parts of this physical organism from which it is ideally separated. Out of the infinite modes of Existence a group is segregated, and a planet assumes individ-

ual form; out of the infinite modes of this planetary existence smaller groups are segregated in crystals, organisms, societies, nations. Each group is a special system, having forces peculiar to it, although in unbroken continuity with the forces of all other systems. Out of the forces of the animal organism a special group is segregated in the nervous mechanism, which has its own laws. If ideally we contrast any two of these groups—a planet with an organism, or an organism with a nervous mechanism—their great unlikeness seems to forbid identification. They are indeed different, but only because they have been differentiated. Yet they are identical, under a more general aspect. In like manner, if we contrast the world of Sensation and Appetites with the world of Conscience and its Moral Ideals, the unlikeness is striking. Yet we have every ground for believing that Conscience is evolved from Sensation, and that Moral Ideals are evolved from Appetites; and thus we connect the highest mental phenomena with vital Sensibility, Sensibility with molecular changes in the organism, and these with changes in the Cosmos.

“This unification of all the modes of Existence by no means obliterates the distinction of modes, nor the necessity of understanding the special characters of each. Mind remains Mind, and is essentially opposed to Matter, in spite of their identity in the Absolute; just as Pain is not Pleasure, nor Color either Heat or Taste, in spite of their identity in Feeling. The logical distinctions represent real differentiations, but not distinct existents. If we recognize the One in the many, we do not thereby refuse to admit the Many in the One.”*

Here the term absolute (or time) is used in the place of motion or the ultimate reality, but the unity of the argument rises above this verbal defect. The idea which Lewes seeks to convey is that the most general terms of life and mind are modes of a single principle, to which they bear a definite and comprehensible relation.

**Problems of Life and Mind*, Vol. II., pp. 449, 451.

CHAPTER XV

GEORGE HENRY LEWES

(*Concluded*)

The Unity of Mind and Matter

The remaining three volumes of Lewes' system were written not in the attempt to find an ultimate analysis, but as a treatise upon physiological Psychology. They contain little, therefore, that is strictly metaphysical. The first is entitled the "Physical Basis of Mind," and presents the following problems: "The Nature of Life;" "The Nervous Mechanism;" "Animal Automatism," and "The Reflex Theory." The second deals with the problems: "Mind as a Function of the Organism;" "The Sphere of Sense and the Logic of Feeling;" "The Sphere of Intellect and the Logic of Signs," and the last is the brief work entitled "The Study of Psychology."

Those who look deeply into organic life find it difficult to avoid the theory of a design in nature. The form of imagery, known as design, is so closely associated with all human effort that we are apt to attribute it to the efforts of nature.

As a rule, the theory of design has been adopted by zoölogists. Thus Von Baer, in his great work, has a section entitled "The Nature of the Animal Deter-

mines its Development." This author affirms that every stage in development is made possible by its pre-existing condition, but nevertheless the entire development is determined by the *nature* of the animal which is about to be. As will appear by reference to his work when he uses the term *nature* Von Baer means an absolute or immutable type. "The form which this superstition generally takes," says Lewes, "is the belief that an organism is determined by its type, or, as the Germans say, its idea. All its parts take shape according to this ruling plan; consequently, when any part is removed, it is reproduced according to the idea of the whole of which it forms a part.

"At first the Type or Idea was regarded as an objective reality, external to the organism that it was supposed to rule. Later on this notion was replaced by an approach to the more rational interpretation, that is to say, the Idea was made an internal, not an external, force, and was incorporated with the material elements of the organism, which were said to 'endeavor' to arrange themselves according to the Type. Thus Treveranus declares that the seed "dreams of the future flower."

Lewes characterizes this theory as "eminently metaphysical" (superstitious), because, as he says, it refuses to acknowledge the operation of immanent properties, —refuses to admit that the harmony of a complex structure results from the mutual and natural relations of its parts, and seeks *outside* the organism for some mysterious force, some plan, not otherwise specified, which regulates and shapes the parts. The meta-physiologists admit "that *every separate stage* in development is the necessary sequence of its predecessor, but declare never-

theless that the *whole of the stages* are independent of such relations and inherent properties."

By attacking the "superstition of the nerve-cell," that theory of peculiar vital forces "wholly unallied with the primary energy of motion," Lewes illuminates the whole subject of organic development. He points out the relation existing between the high molecular complexity of protoplasm, and the less complex structure of inorganic substances. He maintains that the difference in the activities of the two classes of substances represents their degrees of structural complexity. So far-reaching are its consequences that this generalization is not readily appreciated.

Natural selection operates through assimilation and reproduction, and is, therefore, necessarily associated with the emotions, but this force reaches far beyond the emotions, to chemical and to cosmical attractions. In fact, all organic development is a selection operating along lines of least resistance. The struggle for existence or the competition and antagonism of organisms extends to the "competition and antagonism" of *tissues and organs* for existence. The potentialities of tissues and organs is, therefore, inherent in their chemical and cosmic conditions. That is to say, cosmic or universal force is expressed in chemical energy, which in turn expresses itself in organic as well as in super-organic life.

"When a crystalline solution takes shape," says Lewes, "it always takes a definite shape, which represents what may be called the *direction* of its forces, the polarity of its constituent molecules. In like manner when an organic plasmode takes shape—crystallizes, so to speak—it always assumes a specific shape dependent on the polarity of its molecules. Crystallog-

raphers have determined the several forms possible to crystals; histologists have recorded the several forms of Organites, Tissues, and Organs. Owing to the greater variety in elementary composition, there is in organic substance a more various polar distribution than in crystals; nevertheless there are sharply defined limits never over-stepped, and these constitute what may be called the specific forms of Organites, Tissues, Organs, Organisms."*

As held by the extreme school, the theory of the origin of living things is that all animal life has descended from a single organic point, and that the subsequent differences are the result of modifications in the environment, resulting in differences in the descendants of this first organism. The less extreme school holds that (to use Darwin's words) "animals have descended from at most only *four or five progenitors*, and plants from an equal or less number."

In examining both of these positions, Lewes asks for a more thorough analysis of the facts than is given by either school. He held Darwin in affectionate reverence, and regarded his great work as indispensable, inasmuch as it gave the first adequate presentation of that aspect of organic development now known as Natural Selection. Lewes shows, however, that the Darwinian theory accounts for only a part of the facts. Striking as are the points of resemblance between plants and animals, the *differences* are irreconcilable with a theory of common descent from a single cell at a single point upon the earth's surface. Throughout all stages of its past metamorphosis, the proportion of the prin-

* *Physical Basis of Mind*, pp. 101 to 125.

cipal organic elements on the earth's surface has been relatively constant. There is no reason to doubt, therefore, that the beginnings of terrestrial life were both wide-spread and multifarious. The kinship of the inorganic and the organic is a fact quite as remarkable as that of the plant and the animal kingdoms. Surely the evolution of solar and of stellar systems can account for the changes which have taken place upon a single planet, including all the phases of its inorganic, its organic and its social phenomena. If we view the facts from a sufficiently remote point in the cosmos, therefore, there will be no need of introducing any mysterious beginning to terrestrial life, for it is manifestly a consequence of universal conditions.

“Upon what principle,” inquires Lewes, “are we to pause at the cell or protoplasm? If by a successive elimination of differences we reduce all organisms to the cell, we must go on and reduce the cell itself to the chemical elements out of which it was constructed; and inasmuch as these elements are all common to the inorganic world, the only difference being one of synthesis, we reach a result which is the stultification of all classification, namely, the assertion of a kinship which is universal.”

Passing from general to intellectual phenomena, Lewes exposes the assumption so often made by writers on mental physiology. Although his explanation of this assumption is somewhat elaborate for so brief a review, it is nevertheless of sufficient importance to warrant the following reproduction:

“The most abridged expression of the action observed in the sensorium is, by common consent, called the nervous arc. Anatomists note that the motor nerves

issue from the anterior side of the spinal cord (that which in animals is the under side), and that the sensory nerves issue from the posterior side, (that which in animals is the upper side). Like the cerebrum, the spinal cord is a double organ, but in the former the gray structure is mainly external, while in the spinal cord it is internal. In the development of the nervous system from the embryo, "the outermost layer of the germinal membrane of the embryo develops a groove, which deepens as its sides grow upward and finally close over and form a canal. Its foremost extremity soon bulges into three well-marked enlargements which are then called the *primitive* cerebral vesicles. The cavities of these vesicles, known as the Fore-brain, Middle-brain and Hind-brain are continuous, and the continuity of the walls and cavities of these vesicles is never obliterated throughout the subsequent changes. This continuity is also traceable throughout the medulla spinalis."

"Microscopic investigation reveals that underneath all the morphological changes the walls of the whole cerebrospinal axis are composed of similar elements on a similar plan. The conclusions which directly follow from the above are, first, that *since the structure of the great axis is everywhere similar, the properties must be similar*; secondly, that *since there is structural continuity, no one part can be called into activity without at the same time more or less exciting that of all the rest.*"

When we consider the continuity of structure and function throughout the sensorium and the inevitable dependence of all its constituent elements upon chemical and cosmical conditions, we begin to realize that

our feelings and thoughts form an inseparable part of the rhythms of nature. There are those, however, who feel degraded by the thought that they are an integral part of the economy of the universe. They believe that their individuality is of a higher order than that of nature.

Lewes complains of the tendency to draw absolute dividing lines between the various functions of the sensorium. When a stimulus is applied to the skin it is followed by a muscular movement or a glandular secretion accompanied by various degrees of consciousness. These familiar experiences are interpreted by neurologists as neural processes. All the other processes are left out of account. Even in the neural process the organs are neglected for the sake of the nervous *tissue*, and the nervous tissue for the sake of the *nerve-cell*.

Whether it be a muscular movement, a glandular secretion, an emotion, or a thought, the neurologist represents the activity of the sensorium about as follows: "The nerve-cell is the supreme element, the origin of the nerve-fibre, and the fountain of nerve-force. The cells are connected one with another by means of fibres, and with muscles, glands, and centres, also by means of fibres, *which are merely channels for the nerve-force*. A stimulus at the surface is carried by a sensory fibre to a cell in the centre; from that point it is carried by another fibre to another cell; and from that by a third fibre to a muscle; a reflex action results;—this is the elementary nervous arc." The passage of an excitation, therefore, into the labyrinths of the sensorium and out again (until it emerges in action) is said to describe the nervous arc.

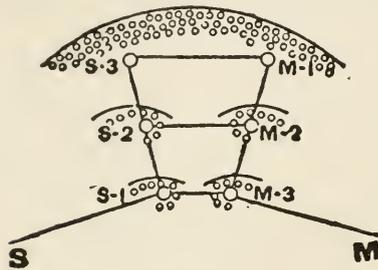
Briefly stated the theory of the nervous arc is, "that

one fibre passes into the spinal cord, and, that another passes out of it, and that a movement is produced usually preceded by a sensation and sometimes by a thought." But investigation proves that the continuity of the nerve-fibre, from cell to cell, through the spinal cord, which is supposed to separate the simpler reflexes from consciousness, is purely imaginary. In other terms, the path of energy in the sensorium is governed by the same laws of polarity or attraction as those that prevail in the inorganic world. Hence whether the action is that of the formation of a crystal in the mother liquid, or that of a frog after the brain has been removed, repelling the point of the scapel from one leg by pushing it away with the other, or that of a statesman endeavoring to solve some problem of government, the same order of structure acts and reacts with the same order of environment, the same potentialities are called into play. The efforts of the inorganic, of the organic and of the social worlds are, therefore, distinguished ultimately only by the degrees of their complexity, degrees which can be expressed in terms of time and space. In short, physiologists, as well as neurologists, are beginning to perceive that it is impossible to isolate reflex action upon the one hand from sensibility and thought, and upon the other from inorganic nature.

Assuming that consciousness has its seat in the brain, sensation in the base of the brain (the medulla oblongata), and the simplest reflexes in the spinal cord, the manner in which sensations mingle with consciousness is explained as follows: The most widely accepted theory is, that the wave of excitation must pass onward to the central convolutions of the brain, and

that there, in the excitation of the *cells*, it first becomes sensation—consciousness is first aroused. This theory regards consciousness and sensation as nearly identical, and locates them both in the brain. In all these theories, however, sensation is made the middle term between the most unconscious actions and thought. The theories differ only in the distance supposed to intervene between the central convolutions of the brain and the seat of *sensation*.

The following diagram will illustrate that theory which locates both sensation and consciousness in pre-



sumably the same neutral tract in the brain. “The stimulus wave from the sensitive surface S is carried to the spinal centre S 1, which may either transmit it directly to M 3,

and thus reach the muscle M, or transmit indirectly through S 2, M 2, in the subcerebral centre; or, finally, it may pass upward through S 1, S 2, S 3, and downward through M 1, M 2, M 3. The reflex of S 1, M 3, is purely *physical*; that of S 1, S 2, M 2, M 3, is psychophysical, there being a sentient state accompanying the mechanical process; while that of S 1, S 2, S 3, M 1, M 2, M 3, is a reflex accompanied by consciousness. The initial stage is a peripheral stimulation. That is to say, the impulse may originate in S 3, and pass through M 1, M 2, M 3, or pass through S 2, M 2, M 3. This is when an idea is said to originate a movement. Again: the stimulus may be some state of the subcerebral centres and pass from S 2, M 2, M 3.”*

**Problems of Life and Mind*, 3rd Series, Vol. II, pp. 431, 432.

All the actions of the sensorium, therefore, are *Reflex* actions; and the degree of *centralization*, or dependence upon the brain, determines the degree of consciousness accompanying them. If physiologists could only agree concerning the facts upon which they base their theory of the nervous arc, the path of the student would be greatly facilitated.

According to Van Deen, reflection takes place without *Volition*, but not without *Sensation*. Budge thinks that it takes place without Perception (*Vorstellung*). Marshall Hall and Muller divide actions into four distinct classes, the voluntary, the involuntary, the respiratory, and the purely reflex. The purely reflex actions he compares to an ordinary mechanism because they depend wholly upon excito-motor nerves.

“It is needless nowadays,” says Lewes, “to point out that the existence of a distinct system of excito-motor nerves belongs to imaginary anatomy; but it is not needless to point out that the Imaginary Physiology founded on it still survives. * * * We have already seen that what anatomy positively teaches is totally unlike the Reflex mechanism popularly imagined. The sensory nerve is not seen to enter the spinal cord at one point and pass over to a corresponding point of exit; it is seen to enter the gray substance, which is continuous throughout the spinal cord; it is there lost to view, its course being untraceable.”*

It is safe to say, therefore, that, notwithstanding its incompleteness, Lewes has given the clearest view of mental phenomena thus far offered to the world. The conclusion to be drawn from his work is, that mind has

**Physical Basis of Mind*, pp. 480, 481.

a basis far wider and deeper than organic life, or, in other terms, that consciousness is the function of universal conditions.

The aim of Lewes was to identify mind and matter by reducing thought and feeling to one principle. This aim was interfered with by his theory of an unknowable which postulates an ultimate mystery. He then turned to the study of the functions and structures of the sensorium in the hope of explaining the physical basis of mind. In this undertaking he was successful. The identity of mind and matter is clearly indicated by his great dictum, "Motor perceptions are condensed in intuitions and generalized in conceptions."

CHAPTER XVI

CONCLUSION

Science culminates in religion because divinity is always our most advanced theory of knowledge. Those who reject religion for science lack a commanding view of nature, or of that divine harmony which explains all phenomena. Since this harmony is perceived through the emotions as well as by the reason, devotion and intelligence must develop together.

If science is less potent than religion as a moral teacher, it is because scientific principles are not as yet centralized. Religion teaches ultimate principles not through demonstration, but through the tentative process of metaphor. Until we are able to evolve the true and the good from nature the only form these principles can assume is that of the will of an individual. While, therefore, science is slowly approaching an ultimate generalization, religious imagery is an invaluable guide.

The greatest achievement of knowledge is ethics. Moral science will unite religion and government by coordinating natural and civil law. The underlying principle of ethics is Justice, an ultimate which can be defined only by correlating sociology and ontology, or by demonstrating that society is an evolution of nature.

Justice is self-preservation, using the word self in its widest sense, which is species. Hence good and evil

are only other names for life and death. From the point of view of mankind all virtues are degrees of human life, all crimes are degrees of human death.

Religion is the aspiration for a higher life directed to a supreme power, or otherwise expressed, it is the intuition of the order of nature. At the dawn of intelligence all the forces of nature are personified and worshipped. To the undisciplined mind, the sphere of conscious dominion is the universe, but as knowledge advances personal authority becomes more and more restricted to the power exercised by the individual over himself.

Fate is an empty word, because its meaning is unlimited. The sense of freedom of the will arises from our inability to realize all the causes of our actions. Volition springs from the interaction of individual and environment, and is therefore for the most part unconscious. If all things are determined, volition or human effort is a part of the determination. Our hopes and fears move with the universal economy. In the words of Marcus Aurelius, "If all things are purposeless, be not thou without a purpose." The forces of evolution are making for righteousness, because destiny and duty are one.

Organized religion has always been the surest guide for the masses. In its present stage of development, the church teaches principles through the worship of persons, or the idealization of character. Its power springs from its sublime purpose, which is to harmonize sympathy and intelligence,—the elements of righteousness.

The chief enemies of the church are not alone the atheists but the zealots. The former would transform our devotions into pure thought by eliminating feeling; the latter would convert religion into pure emotion by suppressing thought. Both of these extremes are to be avoided, for religious sentiment is the coincidence of instinct and reason.

Devotional inspiration is the appreciation of the true, the good, and the beautiful,—that balance of thought and feeling which engenders faith in God or a sublime trust in nature. The subjective and the objective aspects of devotion are prayer and emulation. To the religionist, prayer is an appeal to deity; to the philosopher, it is communion with nature. To the religionist, emulation is obedience to a divine will; to the philosopher, it is the harmony of the universe.

The light of the world is that refinement of sentiment called imagination. In his struggle for existence man needs the help of imagery. Without the encouragement of hope and the stimulus of fear he is impotent.

The measure of fiction necessary for education is indicated by the needs of the imagination. The proper use of fiction, therefore, is the central problem of education. This great question can be solved by ascertaining whether the children of our age are able to form an idea of the order of nature. If children can formulate even tentatively this highest of conceptions, they can emulate the sublimest of examples without the aid of superstition. That is to say, there is no need for deceit. The imagery necessary for their development may be employed consciously.

Care should be taken by religious teachers to avoid

stimulating the imagination at the expense of truth, for in the end divergence of fact and fancy engenders insincerity. Every ordained teacher can find in his faith enough that is true to secure and augment his influence, as well as to strengthen his ability.

If formal creeds no longer inspire us, it is because they have ceased to represent nature. Theology has always been the best explanation of the universe that the church could offer. What we need is a readjustment of spiritual teaching to the advance of knowledge. This most important of reforms will be achieved when our poets and artists, as well as our men of science, contribute, as of old, to the ceremonies of religion, for genius alone can guide us to the true and to the good through the beautiful.

At the dawn of science, religion, which is only another name for the chief coincidence of feeling and thought, was an inseparable part of the study of nature, because it was impossible to discern universal order without emotion. Specialization has separated the forces of instinct and reason; but they will unite again in the evolution of knowledge.

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