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Philosophy and Science.

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The word philosophy has two uses. In its most general sense, philosophy deals with the universe of existence as a whole. It is a product of an effort of the human mind to reach a consistent and a true interpretation of the universe by learning its nature.

General philosophy includes the whole field of thought and knowledge. The advance of thought in its search for truth proceeds along two main lines which supplement each other and form the principal sub-divisions of general philosophy. These two main avenues of thought are science and metaphysics. Science is commonly well defined as systematized knowledge of facts. Metaphysics is that field of thought which deals with the origin and validity of the facts which constitute the data of science. The word metaphysics is used interchangeably with philosophy, that is philosophy in its narrower sense. The distinction between this and general philosophy being that the former is a subdivision of the latter.

But the relation between philosophy and science is not expressed by a mere classification. They bear a genetic relation. Science is dependent on philosophy for its existence. Before there can be any science, there must be belief in a system of facts. Hence, science is based upon a philosophical theory which postulates the existence of matter, force and natural laws.

The aim of science is to learn what are the facts of nature; then, by formulating laws which will cover and relate all the facts, to build them into a perfect system in which each fact has its proper place and relation.

The work of science is as yet only begun. At its present stage, it has reached the conclusion that all the phenomena of inanimate nature are the result of the action and counteraction of forces, acting in a determinate way. A particle of matter swept from the college floor is whirled away by the wind and lodged in a bank of snow. The snow melts. A blade of grass springs up which contains that very particle in its composition. The grass lives, withers and dies. A fire sweeps the field. The particle of matter rises in smoke and is carried by the wind to lodge in a neighboring wood. Then it is taken up by the sap of a tree and built into the structure of a leaf. The leaf withers and falls, and the particle, now lying in a mouldering leaf, now waving from the top a tree, carried by the wind or swept by the flood, continues its wanderings as it is borne hither and thither by the action of the weather until after millions of years, it finds its way to the brain of a fish in the tropical seas. According to modern science, every change of place, every transformation which that particle undergoes is as certain and necessary, as the result of the operation of forces according to laws, as that the sun shall rise tomorrow.

If the whole system of laws were known, would it not be possible by mathematical deductions to predict the course which a particle of matter will take in the perpetual metamorphosis of nature as the ages roll? Many things are predicted in this way, such as the movements of the heavenly bodies; and even the state of the weather is predicted for a few days in advance. But science is as yet in its infancy. What will be the result of its eager investigation, time alone can tell.

Science has been already defined as systematized knowledge of facts. Any element of knowledge, in order to be a part of science, must have a place in the general system of the universal as it is known to the scientist. There is a great multitude of phenomena which science has not yet been able to include in its system. These phenomena are the raw material with which the scientist has to work. He sees before him a broad field open to be explored; but he advances boldly and apparently with the hope that the mystery of the universe may be completely solved. The majority of scientists, however, do not fully entertain that hope. Reason sees in every fact a problem which the scientific method can never solve. It sees, with Tennyson, an insoluble problem in every flower:

> "Flower in the crannied wall,
> I pluck you out of the crannies,
> Hold you here root and all in my hand
> Little flower,—but if I could understand
> What you are, root and all and all in all,
> I should know what God and man is."

The mystery of the universe is written in the smallest flower, but to the human mind, that flower is a closed book which the scientific method can never open.

There is a class of minds who are not satisfied to accept, unquestioned, the data from which science makes its start, but who question the validity of the observed phenomena.

Several sciences concur in trying to analyse and explain the process of observation. Physics tell us that we never see an object which exists outside of the body. The object outside of us possesses the power to produce vibrations which pass through the transparent lenses of the eye and form a curved picture on the retina. Thus, physics transfers the thing observed from an object without the body to an object within the body. Physiology carries the analysis a step further. It tells us that we do not perceive the picture on the retina. Each image formed on the retina sets up its peculiar nerve commotion which is carried by the optic nerve to the visual centres of the brain which are situated in the back part of the head, and each commotion thus carried modifies these centres in a peculiar way. In modern times the science of psychology adds its voice to help explain the phenomena. The brain commotions are followed by processes of ideation and thought so uniformly that there appears to be a causal relation between them. To explain this fact psychology formulates the theory that somehow connected with the brain there is an invisible entity which perceives, imagines, feels and thinks, and which is so related to the brain that a modification in the one will produce its own peculiar modification in the other. This invisible entity, the mind, perceives nothing outside of itself but by means of its relation to the physical organism, carries on a sort of telegraphical communication with the external world.

If there is such a subject of thought whose activity is all within its If, if much of the materials of thought are brought to it and flung into it, as it were, by the physical organism, what guarantee have we that sensation, thus initiated, gives us a true conception of of the external world? The hypothesis by which some of the chief modern psychologists explain phenomena is a system of natural dualism. According to this theory there are two substances; on the one hand a material and extended substance, on the other an inextended, thinking substance; these two substances acting and re-acting on each other. This theory presents to reason an insuperable difficulty. Modern thinkers, generally, eliminate the difficulty of explaining the interaction between matter and spirit by adopting one of the two opposite theories, materialism or idealism.

Materialism holds that matter is the only substance and that it is uncreated and eternal. According to this theory, the particles of matter possess inherent energy, which is a part of their essence, and which in the very natures of things acts according to fixed laws. This energy, pent up in matter, keeps the universe in a perpetual state of transformation, urges nature forward by a process of evolution from a lower to a higher or from a higher to a lower stage of organization. The energy in the world is always the same in quantity, but it appears in a great variety of different forms. Some appears as light, some as heat, some as sound, some as electricity, but above all, nature has at last produced organisms so highly evolved as to enable physical energy to express itself as consciousness and thought.

By the agreement of scientists, generally, the tendency of evolution is toward a more perfect organization; but materialism looks forward to a time when the process shall be reversed.

> "The stars shall fade away, the sun himself
> Grow dim with age and nature sink in years."

The degree of organization is

> "Not raised for ever and ever,
> But when their cycle is o'er,
> The valley, the voice, the peak, the star
> Pass, and are found no more."

But though chaos shall return, the energy in matter will continue its agitation until a new world and a new organism shall be evolved.

From the materialistic point of view, the only true way of inquiring into the nature of the universe is the scientific method. Metaphysical speculation about God and the soul is only following a shadow or phantom of the imagination.

On the other hand, is the idealistic theory of the universe. This theory, again, satisfies the mind's desire for unity. There is only one homogeneous substance. Mind, the only substance, is immaterial and inextended. There are no such things as time and space. The world appears to us to constitute a succession of events marked off by minutes, hours, days and years. The sun rises and after a given period sets again. The planets go through their revolutions in definite periods of time. In the whole system of existence, time appears to be a necessary principle. But to the idealist, this is only our way of thinking. In reality, a day is as a thousand years and a thousand years as one day."

> In time, there is no present,
> In eternity no future,
> In eternity no past.'

Because, in reality, neither days nor years, time nor eternity exist.

Again, as the world appears, objects have length, breadth and thickness: they are near together, or far apart. Everything is somewhere in space, located by its relation to other things in space. We appear to be surrounded on all sides by space, filled with various bodies and stretching away into the infinite distance. But to the idealist, this too is only our way of thinking. In reality, there are no such things as length, breadth, and thickness. Mind, the only substance, is inextended and does not exist in time and space. Hence time and space do not exist.

According to idealism, our ideas are spiritual phenomena: they exist in spirit, come from spirit, and develop according to spiritual laws. Whatever ideas may be before they become conscious, when they appear in consciousness they have taken on a definite form. The idealist believes that spiritual operations, according to certain laws present to consciousness a picture. We are living in bodies of flesh upon the earth. We are surrounded by houses, trees, hills, mountains, valleys, rivers, oceans. Above us stretch the blue heavens, studded with stars which represent a system of spheres stretching away into the infinite distance. But all this is only an appearance,—a picture drawn by the spiritual substance operating according to its own laws.

From the point of view of idealism, science takes on a new aspect. It is no longer thought of as dealing with facts and laws in the external world, but with subjective facts and spiritual laws. From this point of view, we make this distinction between science and metaphysics. Science deals with the system of facts constructed in consciousness, while metaphysics concerns itself about what is real, whether conscious or unconscious.

There is no scientific or philosophical theory which possesses the quality of absolute certainty, in the sense that it can be proved without making an assumption. As to what we are to do amid this chaos of opinions and theories, it appers that we must accept the practical position laid down by Immanuel Kant. Whatever the world is in reality, we are to live and act as if things are what they seem. We are to pursue the sciences in order to subdue nature and to make ourselves masters of nature's laws. Nature, whether it be material or spiritual or both has placed us in our present position. We can do nothing other than accept that position as it is, or in the suggestive words of Robert Browning,

> "There may be heaven, there must be hell,
> Meantime there is our earth here—well."

Falmouth, N. S.

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—The showers of Friday night and of Monday afternoon, although far from supplying all the moisture needed by the languishing crops, are most acceptable for the valuable relief they have afforded and as precursors of the more abundant rains. Now that the clouds have begun to give up their treasures, it may be hoped that the rainfall will be sufficient for the needs of the country. A light hay crop indeed seems inevitable, but it is possible that most other crops may yet yield a fair average.