

THE OLD AND THE NEW

Modern discoveries in the realm of Science are communicated to the public by means of newspapers and magazines. Unless the discovery be of such a nature as to revolutionize some part of our usual method of living, it is soon taken for granted and forgotten. Yet our modern civilization, of which we are justly proud, owes much of it's perfection to men and women who have devoted their lives to the study of the practical sciences.

On being born into this world, man must accept the various things provided for him by an all-wise Creator. In his early years he sees many objects and happenings whose occurrences are seemingly unexplainable,—trees, flowers, rain and snow, the existence of the lower animals and fishes, as well as the growth and multiplication of the various forms of life. The human mind possesses a thirst for knowledge, so that we are eager for explanations of the phenomena with which we come in contact. As a result of the investigations of humans ever since the creation of the first man, we now have a knowledge of Nature which has been passed on to us by means of written testimony. The average school-boy of today knows more than did all of the great scholars of the ancients. In his school years he acquires the knowledge which has been received from them in addition to the facts which later scientists have discovered. The school children of the future will learn, not only this knowledge, but also the facts and principles which are being daily gleaned by our modern investigators. In this constant study of the various things found on our earth were born the so-called 'natural sciences,' Physics, Chemistry, Biology, etc. Philosophy defines a science as a knowledge of things through their causes. Our perception of such wondrous happenings as thunder and lightning, volcanic eruptions, earthquakes, etc. immediately causes us to ask 'Why do these happen?'

In the early ages the progress of science was slight. Many of the important discoveries were due to mere chance. Watts 'happened' to notice the lid of a kettle being pushed up by the steam pressure beneath. This resulted in his investigating the power of steam to create motion, with the ultimate appearance of the steam engine. We all know the tremendously important part which

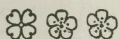
railways play in our life today,—and all because of an accidental observance of a kettle. The principle of Archimedes, which makes possible the operation of ships and balloons, was made known to that famous scientist of antiquity by means of an accident. In the Middle Ages the lure of wealth caused the Alchemists to perform numerous experiments with the object of converting lead into gold. Altho these men failed in their attempts, the ardent study which they made could not fail to bring to light many chemical facts, one important one being the discovery of the existence and properties of acids. Many other instances might be given to show that much of the scientific knowledge of the past was made known to man through mere accident.

Today, however, the method of studying the natural sciences is very much different. Instead of waiting for something to happen, men try to find out more about the things found in Nature, and to this end, make use of the findings of preceding investigators. They attempt to deduce a cause for an observed effect by using related principles already known. The scientist of today endeavours to discover some means of improving our living conditions; he makes use of scientific laws to produce some article or process which will perform some necessary work for us in less time and with less labor on our part than would any device or process now in use. This study of special branches of a science, with the above object in view, is known as scientific research.

Large universities maintain research departments in which the investigators are students who have shown much promise in special scientific lines. The student's expenses are met by means of bursaries awarded either by the university or wealthy people. Progressive manufacturing concerns also employ clever students to institute a special study of that branch of a science which relates to their products. This is done for the purpose of making the manufactured article as satisfactory as possible. The General Electric Company owes to its famous research laboratory the successive improvements which their incandescent lamps have undergone during the past five or six years. Federal governments also maintain departments in which science men conduct investigations relating to crops, insect pests, disease germs and the like. The Carnegie and Rockefeller Institutes

finance researches relating to public health and other matters of importance to humanity. The finding of new kinds of vegetable foods, of effective ways of dealing with diseases, etc. have amply justified the expenditure of time and money in these investigations.

The findings of the natural scientists have helped in the perfection of our civilization to no small extent. Man long ago discovered that after providing food, clothing and shelter for himself, he had time for other things,—diversions which helped to make up our civilization. These would include music, philosophical thought and religion, literature, recreation, etc. The scientists have enabled us to obtain the necessities of life with less effort than before, so that now we have more time to devote to the appreciation of those things in which the mind delights.



Love sought is good, but given unsought is better
—*Shakespeare*

Modesty is not only an ornament, but also a guard
to virtue.—*Addison*.

Poetry is the breath of beauty.—*Leigh Hunt*.

Wisdom adorns riches and shadows poverty.
—*Socrates*.

But they whom truth and wisdom lead
Can gather honey from a weed.—*Cowper*.

Men love to hear of their power but have an extreme
disrelish to be told their duty.—*Burke*.

Truth needs no colour; beauty no pencil.—*Shakespeare*.