It is of course true that many such research projects do not result in an immediate solution of the problem. However, this is not to be considered a failure. The investigator publishes the facts and principles which he has learned in one or more of the technical journals which serve his field of study. These journals are widely circulated among scientists, and are available in large libraries, so that other investigators are able to take up where other men have left off. In brief, this is the way that modern scientific research operates.

It should be further explained here that the processes of scientific investigation are largely inductive; that is, scientific investigation is based primarily on the principle of collecting small items of information (facts), systematically tabulating and analyzing these facts, and then drawing a conclusion based on the same. This is the method which was championed by Francis Bacon during the Renaissance, and is now the main procedure used in thousands of research science laboratories. Visit practically any biological or medical research laboratory, and you will find the scientists and technicians painstakingly collecting and tabulating many individual units of information from which they hope to--and often do--arrive at a useful conclusion. Likewise in a geological research project, the investigator may go out to study many individual strata, collect many samples, and record the results of careful microscopic investigations of those samples in the laboratory. Finally, after a great deal of work with these small items of information, he can arrive at a valid conclusion concerning the nature of the rock formation being studied. This conclusion may or may not be what was expected when the research was begun, but that is a commendable characteristic of the scientific method of research, and illustrates the fact that it is a logical and valid process of obtaining information about the world around us. However, when considering this inductive process of scientific investigation, we must remember that there are also disciplines in which deductive reasoning is necessarily prominent and right. A case in point is that of Bible study, where we are approaching a body of divinely revealed truth, from which we are to draw the finer principles by a deductive process. For example, we start with the larger principle that God created the entire universe, and by deductive reasoning arrive at the conclusion that He is the creator of each of the separate heavenly bodies which we observe, even though most of those bodies are not specifically mentioned in the Bible.

Facts, Theories, and Hypotheses

It is true that scientific investigation is a precise and accurate procedure, but this does not mean that everything written by scientists is to be taken as truth or fact. The collecting and reporting of data by scientists can be trusted, for they learned long ago that honesty in this matter is absolutely necessary; but there are certain areas of investigation which do not lend themselves to a rapid solution or analysis. During the process of investigation of such an area, it is natural that the scientists involved will express their opinions as to the final outcome of the research.