contention that the relation is linear. This can be shown graphically, as illustrated in Fig. 1.

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PEANUT "POUTS"

MANY years ago my attention was called to a condition of peanut plants which resembles very closely a condition known in potatoes as tipburn. Associated with the peanut plants showing this condition was the common potato or bean leafhopper (*Empoasca fabae* Harris). At that time I surmised that this disease was similar to potato tipburn and was caused by the leafhopper. Other duties prevented any more work on the problem until last year. This past season, laboratory and field experiments have proven beyond a doubt that the disease which is known locally as "pouts" is caused by the common potato or bean leafhopper. This disease appears first as a distinct blackish discoloration at the tip of the leaflet, and the discoloration progresses gradually toward the base of the leaflet until the whole leaflet is involved. If the disease is severe, the entire leaf turns blackish, shrivels and dies. Typically, in the field, the plants recover about blooming time and there is no further evidence of the disease. At this time also, the leafhoppers disappear from the peanut field and seem to migrate to the fields of soy-beans. Although we have not as yet been able to prove this migration in the field, all the evidence points in that direction.

In the field plants which were protected from the leaf-hoppers the disease did not develop, whereas unprotected plants did develop the disease. Plants in the field which had the disease and which were freed from leafhoppers and protected by cages recovered. Diseased plants moved from the fields to the laboratory freed from leafhoppers and kept free recovered rapidly and made normal growth. Plants which were not freed from leafhoppers continued to show the effects of the disease and if the number of leafhoppers was large, the plant was killed outright. In the laboratory we have shown that the disease known as "pouts" is caused by what may be termed the mass effect of toxins. In the laboratory small plants, with two leaves, which were in good growing condition and which were stimulated by plant food and frequent waterings were able to outgrow the effects of one or two leafhoppers per plant. Those, however, which had three or more leafhoppers per plant did not recover and were killed, thus showing the mass effect.

The name "pouts" was given to this disease by the farmers because they said the peanut plant was "pouting" and after it commenced to bloom, it ceased to "pout." The name is, therefore, very appropriate and should be used to designate this condition of the peanut plant.

Thus we add to the long list of the host plants of this leafhopper still another important economic crop, for it has been shown in the past or experiments are now in progress which indicate that this insect is an important pest of alfalfa, clover, garden beans, soybeans, beets, potatoes, cotton and peanuts.

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DATA ON FORAMINIFERA COLLECTED BY THE WORKS PROGRESS ADMINISTRATION

DATA on more than 15,000 genera and species of foraminifera, including 45,000 illustrations, are to be available for the information of geologists, engineers and other scientists as a result of work now being done by the Geological Research Project of the Works Progress Administration in New York City. Substantial progress toward the completion of the gigantic task of assembling this material has been reported to the Washington, D. C., office of the Division of Women's and Professional Projects of the Works Progress Administration. Ellen S. Woodward, assistant WPA administrator, is director of this division.

Results of the project are expected to be of material benefit to geologists, to the mining and petroleum industries and to those engaged in city planning, in agriculture and in the control and development of waterways. The project's manuscript has already been used in connection with the solution of problems in rock layer relationship for the American Museum of Natural History.

Workers on the project are collecting material on foraminifera never before assembled in one place. Shells of these microscopic, single-celled animals are found in the rock layers making up the outer crust of the earth. Through identification of the tiny fossilized remains, an estimate can be made of the type of rock and soil to be encountered in drilling or excavating operations. They serve the geologist or the engineer as the x-ray serves the surgeon.

In both the pure science of geology and its various applied forms, one of the most important considerations is the age of the different rock layers and their arrangement in relation to each other. Of the several ways in which ages and relationships can be determined by far the most accurate method is by means of animal remains embedded in the rocks. These animals lived in the ancient seas during the geologic age in which the particular rock layers were formed. Certain species of fossils occur in rock layers of a particular age, regardless of the geographic location of the rock formations. By identifying the animal remains of a rock layer, its age and its relationship to surrounding layers may be determined.

The foraminifera are especially valuable in making such determinations. They are widely distributed; they have lived in great numbers since early geologic times; and many species are sharply restricted to rock formations of certain definite periods.

Although geologists have been accumulating data on foraminifera for more than two hundred years, this material has never been presented in a systematized form. A vast amount of unorganized data exists in geological libraries throughout the world. But only in large cities, such as New York, London or Rome, is there anything approaching a comprehensive collection of material. Even these collections are of little use to the research worker, as they are in chaotic condition.

It is the task of the Geological Research Project to collect and orientate material on foraminifera so that for the first time it may be presented to the scientific world in usable form for ready reference. The finished product will consist of at least twenty-five volumes of about 1,000 pages each, containing in all approximately 45,000 illustrations and bound in loose-leaf form so that supplementary material may be added to keep the work up to date.

The vision that made the project possible must be credited to Dr. Brooks F. Ellis, geologist of note, who more than ten years ago started unaided the long and difficult task. In 1930 he joined the faculty of New York University and subsequently secured the help of student assistants. Later he was aided by workers from the Emergency Work Bureau and the Civil Works Administration. New York University and the American Museum of Natural History agreed to supply the necessary literature. Finally, with the creation of the Works Progress Administration, the enterprise was made a WPA project.

As the WPA staff has been carefully selected from a large group of applicants, all are especially well qualified. The linguistic ability of some of the personnel is astonishing. One man has a thorough knowledge of ten modern languages as well as Greek and Latin. Many hold masters' degrees, while several have Ph.D. degrees in science. The roll of American and foreign universities represented is a long one.

Several prominent scientists who are familiar with the work of the project have declared that the results will have a vital and stimulating bearing upon the work of scientists in this field the world over.

As for practical results, since foraminifera constitute an excellent index to sub-surface conditions, the problem of water supply and the control and development of the waterways of the country will be more easily solved. The mining and petroleum industries will be aided directly and materially by the results achieved by this project.

At present the petroleum industry, according to experts' reports, is losing millions of dollars every year through unscientific methods of prospecting and developing. The present compilation will not solve all the difficulties encountered, but its application will greatly lessen the element of chance and will be of very great value to the federal and state governments in regulating and developing the production of petroleum.

Also, through the improvement in geologic and stratigraphic methods which this compilation will bring about, many related fields, such as agriculture and irrigation, will be materially benefitted.

Records on foraminifera have been used extensively in engineering work in and about New York City. City geologists have found them invaluable in developing the engineering and geologic background of such undertakings as the water supply system, bridge and pier foundations, the mid-town tunnel and certain harbor developments. These experts agree that on completion the WPA compilation will be put to immediate and productive local use.

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QUOTATIONS

SCIENCE AND DEMOCRACY

SCIENCE as we know it is the child of democracy. Freedom of thought and of expression is the essence of both—a heritage from the British and French revolutions. That freedom is in peril. In none of the totalitarian states may an authority in any branch of science utter theories that conflict with the views of the ruling dictator on man's place in nature, society or the laboratory. Organized British science is alarmed. But not sufficiently alarmed, in the opinion of Ritchie Calder, a well-known journalist of London. He addresses an open letter to Lord Rayleigh, president of the British Association for the Advancement of Science, and demands an active cooperative participation of scientists all over the world in solving the problems that confront society.

To most of us science means medicine, and hence better health; observatories, and hence more knowledge about the stars; agricultural experiment stations, and hence better plants and animals; chemical laboratories, and hence compounds that outdo nature's. It stands for much more. Its triumphs are impossible