mains 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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WORKS PROGRESS ADMINISTRATION,
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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

without perfect objectivity, a separation of hopes and desires from the things studied. It is primarily an attitude, perhaps the most important mental acquisition of man. Because of this attitude it is democratic. It knows no creed, no country. It achieves the only true internationality the world has ever known and thereby presents striking evidence that men can sink their differences of opinion and their passions and work for a common cause.

The salvation of this international democracy of science and of this objectivity, as Mr. Calder and others see it, lies in a world-wide organization. He suggests that the British and American Associations unite to make the force of massed scientific thinking felt throughout the world. The first step would be the drafting of "a Magna Charta, a Declaration of Independence, proclaiming that freedom of research and of exchange of knowledge is essential, that science seeks the common good of all mankind, that 'national science' is a contradiction in terms." Even before this ringing appeal was addressed to Lord Rayleigh the more energetic spirits in England had started a movement to unite the British and American Associations for the purpose of combating the infectious bigotry that afflicts much of Europe. The British Association now discusses at its annual meetings the part that science can play in pointing out the course that society should follow if it would march on. This year its council took the initiative in "showing the nations of the world that they are members of a great commonwealth and in furthering the cause of international peace." To prove that these are not hollow words a deputation under Lord Rutherford is to convene with the Indian Science Congress and set an example of international action and solidarity.

Mr. Calder has not exaggerated. To save science his "World Association" is needed, an organization which shall indicate how the objective attitude of the laboratory may be applied in governing a people, in breaking down prejudices, in preventing war, in solving problems that mean progress not in one country alone but the world over. Will the American Association heed the appeal of its British counterpart? There was never a time when science had so vital a message to deliver, so high a social mission to perform.—*The New York Times.*

REPORTS

RESEARCH AWARDS OF YALE UNIVERSITY SCHOOL OF MEDICINE

FORTY-ONE awards, amounting to $28,263, have been assigned to members of the Yale teaching and research staffs under the provisions of the George H. Knight Memorial Fund and the Fluid Research Fund. These grants are made annually to aid in defraying the expenses of special investigations during the coming academic year. Awards have been made as follows for 1937–38:

Edgar Allen, professor of anatomy, to continue studies of the effects of sex hormones in small animals.

Henry G. Barbour, research associate in pharmacology and toxicology, for a continuation of investigations of the biological effects of heavy water in mammals.

Robert W. Clarke, instructor in physiology, for a study of renal clearance in monkeys.

George R. Cowgill, associate professor of physiological chemistry, for the following investigations: (1) joint research with Drs. Hoff and Nahum on the heart in vitamin B deficiency; (2) an extension of the work with the plasmapheresis technique on the effect of dietary factors on the regeneration of blood hemoglobin and blood cell stroma; (3) the relation of heightened metabolism due to hyperthyroid activity and other factors to the body's quantitative need for various dietary factors, particularly vitamins.

Daniel C. Darrow, assistant professor of pediatrics, for (1) a study of distribution of water and electrolyte in adrenal insufficiency; (2) a study of the distribution of water and electrolyte in convulsions.

Clyde L. Deming, clinical professor of urology, for a study of the anatomical origin of prostatic hypertrophy.

J. G. Dusser de Barenne, Sterling professor of physiology, for a continuation of studies on the physiology of the cerebral cortex and cerebellum in monkeys.

James C. Fox, clinical professor of neurology, and Donald G. Marquis, assistant professor of psychology, for studies of vibratory sensibility.

John F. Fulton, Sterling professor of physiology, for a continuation of studies of cerebral-cerebellar relationships in primates.

Arthur J. Geiger, instructor in medicine, Louis S. Goodman, instructor in pharmacology and toxicology, and Louis N. Claiborn, clinical instructor in surgery, for studies in pernicious anemia.

Edwin F. Gildea, associate professor of psychiatry and mental hygiene, for studies of lipoids in relation to disorders of the nervous system.

Alfred Z. Gilman, assistant professor of pharmacology and toxicology, for a continuation of the study of the osmotic relations between blood and urine.

Robert T. Hill, instructor in anatomy, for a study of the physiological relations of male and female gonads, and their connections with the rest of the endocrine system.

David I. Hitchcock, associate professor of physiology, for technical assistance in connection with studies of the standardization of hydrogen ion determinations, and of the combination or other reactions of amino acids and proteins with acids, bases and salts.