cess is not a foregone conclusion. To supply deficiencies in knowledge the board would doubtless have to undertake much research through its own staff or through other agencies. But after doing its best to lay a scientific foundation for its plans, the board would often have to advise proceeding in an experimental fashion on the basis of probabilities. It would be doing pioneer work; for it would be trying to better the social organization of one of the most advanced countries in the world—to do things which have not yet been done. Hence it could not expect to achieve as brilliant a record as did the elder statesmen of Japan, who were seeking to pull abreast of other nations and so had models to imitate. And of course the usefulness of the board could be wrecked by the appointment of men chosen for partisan reasons. Or a board of men possessing technical competence but lacking in other qualities might antagonize the Executive, Congress and the public, and so lose its influence. Perhaps the idea of trying to mobilize the intelligence of the country for systematic and continuous study of social problems will be rejected by public opinion. But it would seem that we have had enough experience with reforms that produce almost as much harm as they remove to be willing to try a more scientific method of dealing with social problems.

SCIENTIFIC EVENTS

THE AGRICULTURAL PROBLEMS OF MEXICO

THE special correspondent of *The Christian Science Monitor* writes from Mexico City that the 35,829,500 acres of arable land can not be cultivated until the population has reached at least 30,000,000 inhabitants. This statement, made in a recent study by A. Lozcano, agricultural engineer, and regarded as an argument that Mexico should let down its immigration bars, followed closely upon the recent publication of a symposium by a group of Mexican technicians, of which Señor Lozcano was one.

The symposium, entitled "The Agricultural Problem of Mexico," according to the correspondent, was issued at a time when other effects of Mexico's preoccupation over problems of population and their relation to more organized and efficient production were beginning to show themselves.

One instance was the announcement of plans for the founding of ten new cities on different irrigation systems, and another the continued pace at which commonland-grants are being parceled by the government, a total number of 7,141 peasants having been provided with such parcels during the month of September.

The problem of improving means and methods of better cultivation are said to have been greatly exaggerated in Mexico. That phase of the question is secondary compared with that of increasing the agricultural and national population.

The ten cities to be constructed by the National Irrigation Commission on as many national irrigation systems in different parts of the country will represent a total outlay of about 5,000,000 pesos, or an average of 500,000 pesos each.

The new centers will be modeled after the agricultural city, Anahuac, built last year on National Irrigation System No. 4 in the northern part of the country, and which now has a total population of about 5,000. They will include complete water, drainage and light systems, well laid out streets, office buildings, shops, warehouses, post office and telegraph service, branches of agricultural banks for colonists and common land-grant owners and hotels.

The purpose of the new cities is to provide a more comfortable way of living for the thousands of colonists and to give them the benefit of more modern social and educational advantages.

When work now being carried on at different systems is concluded, 728,945 acres of land will be under cultivation. Every system has its chain of highways and roads connecting it with important distribution centers. According to the report, the efficiency with which this work has been carried on and the systems put to practical use are superior to those shown by similar services in other countries.

Plots are obtained by immediate payment in full, or by promise-of-sale contracts of two types, short and long-term—the latter covering a period of from 24 to 25 years.

THE LINDBERGH COLLECTION OF SPORES IN ARCTIC AREAS

COLLECTIONS of micro-organisms which Colonel Charles A. Lindbergh made on his flight through the Arctic areas in the summer of 1933 are described in the January issue of *The Scientific Monthly,* by Fred C. Meier, senior agriculturist, U. S. Department of Agriculture, with field notes and material by Colonel Lindbergh. Mr. Meier has been studying air-borne organisms for several years—particularly those that drive northward over the plains each year to spread rust in the wheat fields. He interested Colonel Lindbergh in making this contribution to the scientific work of the department, and together they worked out new and improved apparatus for taking samples of the micro-flora of the Arctic air.

Colonel Lindbergh devised a spore trap which he

called "the skyhook," a light, strong contrivance, easy to operate, and well adapted to protecting the sterile glass slides from contamination except for the time they were exposed. Mr. Meier prepared the slides and has examined and photographed them. He credits Colonel Lindbergh with careful and painstaking work and says that "Colonel Lindbergh's knowledge of pure-culture technic made him thoroughly aware of the necessity of developing a trap that could be used with minimum danger of error resulting from contact with dust in the cockpit."

In his flights between the American mainland and Denmark, by way of Greenland and Iceland, Colonel Lindbergh exposed 26 slides and returned them with field notes and free-hand maps indicating exactly where and for how long, and under what conditions each slide had been exposed. Mr. Meier has taken care of the preservation of the slides and has examined and photographed representative sections. He has been able to identify the genus and in some cases the species of many of the objects trapped in the petroleum jelly which covered the slides. More complete identifications will in many cases have to await the assistance of botanists familiar with the characteristics which identify various kinds of pollen, and of scientific workers who are specialists in different groups of fungi, mosses and lichens. On one slide, exposed far north of the Arctic Circle, Mr. Meier was able to discover under the microscope more than 40 different types of objects in a space five centimeters square. This was on a slide exposed 3,000 feet above sea level along the northeastern coast of Greenland.

Mr. Meier and other Department of Agriculture workers, assisted by Army, Navy and Coast Guard flyers, have done a considerable amount of aerial work in trapping spores and other micro-organisms, but this has been overland and in places where it was to be expected that the catch would be abundant. "This Lindbergh collection," according to Mr. Meier, "is the first of its kind to give concrete evidence of the part played by air currents in the distribution of fungi between northern lands." He points out the possibility that a single living spore which is transferred by the air currents and dropped in a spot favorable for reproduction might create a center for rapid spread of infection.

GRANTS IN AID OF RESEARCH ADMINISTERED BY THE NATIONAL RESEARCH COUNCIL

THE National Research Council has been informed that the Rockefeller Foundation has appropriated $80,000 to the council to be used for individual grants in aid of research in the natural, medical and mathematical sciences during the ensuing three-year period, 1935–37. This fund is available for use in grants of moderate size (usually less than $1,000) for the purchase of apparatus, materials and supplies, for employing technical assistance, and for field expenses. In general grants will not be made for personal services or fellowship stipends, for expenses of publication, for the purchase of books, for travel to attend scientific meetings, or for the research work of students under instruction. In the awarding of grants preference is ordinarily given to the support of investigations (a) in which the problem itself and the methods to be employed are clearly stated and in which definite results can be expected with the aid of a single grant and (b) toward the prosecution of which the university or other institution also contributes financially or through other special support. The fund is administered by a special committee of the Research Council composed of the chairman and the treasurer of the council, together with the chairmen of the council's seven divisions of science and technology.

Applications for grants to be made this spring should be submitted before April 1, 1935. Correspondence should be addressed to Dr. C. J. West, secretary, Committee on Grants-in-Aid, National Research Council, 2101 Constitution Avenue, Washington, D. C.

During the past five years the Rockefeller Foundation has appropriated to the National Research Council sums for individual grants and for conferences totaling $370,000. From these sums 638 grants have been made for the support of individual investigations and for conferences for the construction of research programs or for the coordination of research on special subjects.

ISAIAH BOWMAN,
Chairman

ANNUAL MEETING OF THE METALLURGICAL ADVISORY BOARD

REPORTS on metallurgical investigations made at the Carnegie Institute of Technology during the past year will be given by a group of investigators at the eighth annual open meeting of the Metallurgical Advisory Board to be held at the institute on Friday, February 8. Approximately 400 metallurgists are expected to attend the meeting.

Dr. John Johnston, director of the department of research and technology of the U. S. Steel Corporation, will preside at the morning session, and Dr. Frank N. Speller, chairman of the Advisory Board, will give the address of welcome.

Progress made by the Metals Research Laboratory in theoretical investigations will be reported by the director, Dr. R. F. Mehl. The various projects now being studied in the laboratory are classified under four major heads, namely, plastic deformation of metals, precipitation from solid solution, oxidation of