Pittsburgh	2,224	2,760
Portland	1,185	146
Providence	1,022	475
Richmond	657	285
Rochester	969	236
St. Louis	2,084	1,192
St. Paul	855	171
San Francisco	3,088	538
Seattle	1,160	157
Spokane	449	39
Syracuse	821	168
Toledo	538	280
Washington, D. C.	2,217	694
Worcester	866	286
Total	78,238	49,265

SALT REQUIREMENTS OF REPRESENTATIVE AGRICULTURAL PLANTS

THE Division of Biology of the National Research Council has organized a nation-wide cooperation among plant physiologists and agricultural chemists, concerning the general problem of the physiological requirements of certain representative agricultural plants. This project is in charge of a special committee consisting of B. E. Livingston (Johns Hopkins University), K. F. Kellerman (U. S. Department of Agriculture), and A. F. Woods (Maryland Agricultural College).

It is planned that the cooperation will carry out experimental work, by water and sand cultures, on wheat and soy bean, for a beginning. The first problem is to determine the best total concentrations and the best sets of salt proportions with 3-salt mixtures, each plant studied being considered in several phase of its development. For wheat these phases are: (1) the germination phase (till plantlets are 4 cm. high), (2) the seedling phase (for 4 weeks following the germination phase), (3) the vegetative phase (from end of seedling phase to appearance of flowers), and (4) the reproductive phase (from end of vegetative phase to the ripening of grain). Each phase is to be treated separately, the plants having been grown with the best 3-salt solutions for the preceding phases, respectively. Twenty-one different sets of salt proportions are to be tested with each of the six types of possible 3-salt solutions.

It is hoped that these tests may be made by a large number of experimenters in different places, all using the same methods so that the results may be comparable, and that many different climatic complexes and seasons of the year may be thus included. The general problem falls naturally into convenient portions, so that any worker or group of workers may confine attention to a certain more or less restricted field. All seeds will be supplied from the same source. Of course each worker will publish his results as he may desire, with whatever interpretation may seem warranted. It is hoped that out of this cooperation may result a clear and definite advance in our knowledge of this aspect of nutritional physiology, which not only may be valuable in a scientific way but also may furnish valuable suggestions to those who are experimenting with the fertilizer treatment of crop plants in the field. It is suggested that the results of this correlated set of researches may become a definite national contribution to knowledge about one of the most important and fundamental of all physiological problems. The cooperation was planned in war-time, but is is as much needed in time of peace as in time of war, and it is being pushed forward with all reasonable haste.

The Special Committee on Salt Requirements of Representative Agricultural Plants has prepared a comprehensive plan for the project, which may be obtained on request, and has made arrangements for special lots of chemicals for this work, also for the special cork supports needed in water cultures. Correspondence regarding this project is earnestly requested, and all experimenters in this field are asked to join in this national undertaking in one way or another. Correspondence should be addressed to the chairman of the special committee, at the laboratory of plant physiology of the Johns Hopkins University, Baltimore, Md.

MEETING OF THE AMERICAN INSTITUTE OF MINING ENGINEERS

LESSONS learned from the war by the American mining world will be applied toward

greater progress in American mining at the one hundred and nineteenth meeting of the American Institute of Mining Engineers, which will be held here during the week of February 17. Prominent members of the Canadian Mining Institute, National Research Council, the American Institute of Electrical Engineers will join the American mining experts in their discussions.

At no period in the history of American mining have the problems of production, especially as to labor and scientific processes, been so momentous as to-day and at this meeting important readjustment plans will be presented. The program calls for ten business sessions, at which some forty subjects will be presented; a number of social features of a metropolitan kind, and an all-day excursion to the federal shipyard in Newark Bay where the first electric-welded ship is being built.

It is expected that this meeting of the institute will be attended by mining experts from every state in the union and from a number of foreign countries, who are identified with the most important mining operations now going on. Many of these men have in the past two years been serving the government in their respective fields.

At the joint session with the electrical engineers there will be six important papers on the subject of electric-welding. Some of these by officials of the National Research Council and Emergency Fleet Corporation, who have participated in the development of electric-welding which has made great strides forward in the war work of the last two years.

The institute meeting will open on Monday morning, February 17, Tuesday will be Canadian Mining Institute day and Wednesday will be featured by the session with the electrical engineers and the National Research Council session, followed by the annual banquet in the evening.

The officers of the American Institute of Mining Engineers are: Sidney J. Jennings, *president;* L. D. Ricketts, Philip N. Moore, *past presidents;* C. W. Goodale, *first vice-presidents;* George D. Barron, *treasurer;* Bradley Stoughton, *secretary.*

SCIENTIFIC NOTES AND NEWS

Edward Charles Pickering, professor of astronomy in Harvard University and director of the Harvard College Observatory, died on February 3 at the age of seventy-two years.

To oversee the opening of the port of Dantzig and to supervise relief work there Professors Alonzo Taylor, of the University of Pennsylvania, and Vernon L. Kellogg, of Stanford University, started on January 29 on a railroad journey across Germany. Drs. Taylor and Kellogg will, on their return, make a report on food conditions in Germany.

Major C. E. Mendenhall, professor of physics on leave of absence from the University of Wisconsin, has been appointed scientific attaché to the United States legation at London and will sail for England immediately.

Dr. Alexis Carrel, who had been in charge of a field hospital in the Montdidier section, has returned to take up his work at the Rockefeller Institute for Medical Research.

Brigadier-General John M. T. Finney, of Baltimore, chief consulting surgeon of the American Expeditionary Forces, who sailed nineteen months ago for France as head of the Johns Hopkins Base Hospital Unit, returned to the United States on January 22.

Lieutenant Colonel Allerton S. Cushman, having received his honorable discharge from the Ordnance Department, U. S. A., where he has served for the past eighteen months, has returned to his former professional activities as head of the Institute of Industrial Research, Washington, D. C.

Lieutenant Colonel J. H. Hildebrand has returned after an absence of a year in France to his position of professor of chemistry in the University of California. He has been recently Commandant of Hanlon Field, near Chaumont, which included the Experimental Field and the A. E. F. Gas Defense School of the Chemical Warfare Service.

Major J. H. Mathews, Ordnance Department, U. S. A., has been released from military service and has returned to the University of Wisconsin. Professor Mathews has been pro-