of their publications and requesting the committee to choose what books it desired.

The only disappointment to the committee is that caused by the comparatively small number of private individuals so far represented in the list of donors. A partial explanation of this is undoubtedly to be found in the fact that the appeal was issued at just about the end of the academic year when many professors had left their laboratories for their summer vacation.

The committee wishes to express its thanks to all those organizations and persons who have responded to its call and to make known to these contributors an expression, recently received by cable, of the great gratitude of the Moscow representative committee of Russian scientists.

It also wishes to repeat its appeal to individual scientific workers for contributions of reprints to the number of six each, if possible, of their published papers since January 1, 1915. The committee has at its disposal only a limited fund to cover the necessary clerical work. It asks, therefore, that contributors of literature cover the cost of its transportation to New York, from which point all cost of handling and shipment will be borne by the American Relief Administration. Contributors should send, with each consignment, one copy of a list of the publications sent by them and five copies of this list (apart from the consignment) together with all letters containing advices of shipments, express and shipping receipts to the American Relief Administration, Russian Scientific Aid, 42 Broadway, New York City. The publications themselves should be sent by parcels post or express, or if very heavy, by freight, to the American Relief Administration, care Gertzen and Company, 70 West Street, New York City. Requests for further information should be sent to the American Committee to Aid Russian Scientists, 1701 Massachusetts Avenue, Washington, D. C.

The answer to one such request for information which has been received from numerous inquiries may be given here and now. The contributed material is not turned over to the Soviet government, nor is the distribution of this material determined by the Soviet government. The distribution is effected under the general direction of the American Committee by the American Relief Administration working in cooperation with a special committee in Moscow of Russian scientists representing various Russian universities and scientific organizations. The extraordinary independence of the American Relief Administration, extraordinary in the light of the existent circumstances, as regards its activities in Russia, is perhaps not generally realized here in America.

VERNON KELLOGG,
Chairman
L. O. HOWARD
DAVID WHITE
RAPHAEL ZON
American Committee to Aid Russian Scientists with Scientific Literature

SCIENTIFIC EVENTS

THE RECOVERY OF HELIUM

SATISFACTORY operation on a laboratory scale of a simplified and much cheaper method of recovering helium is reported through the American Chemical Society by H. Foster Bain, director of the U. S. Bureau of Mines. In a test made within the last month at the cryogenic laboratory in the Interior Department building, helium was recovered from natural gas in one operation in sufficient purity for use in dirigibles or balloons.

"This development," Mr. Bain said, "indicates that very soon commercial production of helium for lighter-than-air craft is probably feasible." Not only will this work insure safety from fire and explosions, but it is almost certain to result in an entirely new type of airship design. The motor, for instance, could be placed inside the envelope of a helium ship if necessary.

The research work leading up to this achievement was directed by the United States Helium Board, composed of Lieutenant Commander F. M. Kraus, representing the Navy, Colonel R. F. Favel, representing the Army, and Dr. R. B. Moore chief chemist of the U. S. Bureau of Mines, H. S. Mulliken, production engineer, alternate. The actual work of development was directed by a group of men known as the Board of Helium Engineers, with the following membership: M. H. Roberts, Franklin Railway Supply Company; R. C. Tolman, of

the California Institute of Technology; W. L. DeBaufre, University of Nebraska; Edgar Buckingham, of the U. S. Bureau of Standards, and John W. Davis, of the U. S. Bureau of Mines. The government also had the assistance of Dr. Frederick Keyes, Massachusetts Institute of Technology, and Dr. Harvey N. Davis, Harvard.

Helium recovery as carried on at government plants in Texas, results in a gas of about 64 per cent. purity, and necessitates a second operation to remove impurities. By the old method the flow from the natural gas wells is directed through a series of compressors which reduce the various gases in the mixture to liquid form. Methane (illuminating gas) becoming liquid at a higher temperature is taken off first. The remaining gases are then, one by one, liquified and helium, having an exceedingly low liquefying point, remains. The difficulty with this method is to liquefy all of the nitrogen in the mixture.

THE USE OF OXYGEN IN METALLURGICAL OPERATIONS

USE of oxygen in connection with the enrichment of the blast in the blast furnace and in practically all phases of pyro-metallurgical work will furnish the key to success in the further development of such metallurgical operations, according to Dr. F. G. Cottrell, formerly director and now consulting metallurgist of the United States Bureau of Mines, who first directed the bureau's attention to this subject. Through this enrichment process, it is hoped to increase the efficiency of metallurgical operation with a resultant production of metals at lower cost and possibly the use of lower grade ores.

The Bureau of Mines now has outlined plans for two studies which will be carried on simultaneously. The first will cover the present-day processes for the production of oxygen, in order to determine the feasibility of attempting to produce oxygen, or oxygenated air, in such amounts and at such a cost as to permit of its use in metallurgical operations. The second study will be devoted to the feasibility of using oxygen, or oxygenated air, in metallurgical operations.

Because of his interest in this investigation, M. H. Roberts, vice-president of the Franklin Railway Supply Company, was asked to select an advisory committee to work with the Bureau of Mines and to act as chairman of this committee. The committee will consist of Dr. F. G. Cottrell, director of the Fixed Nitrogen Research Laboratory; Professor W. L. DeBaufre, chairman of the mechanical engineering department of the University of Nebraska; Dr. D. A. Lyon, chief metallurgist of the Bureau of Mines; Dr. R. B. Moore, chief chemist of the Bureau of Mines; Dr. R. C. Tolman, professor of physical chemistry and mathematical physics, California Institute of Technology; J. W. Davis, mechanical engineer of the Bureau of Mines; F. W. Davis, metallurgist of the Bureau of Mines; Frank Hodson, president of the Electric Furnace Construction Company, and P. H. Royster, assistant metallurgist of the Bureau of Mines.

Previous to the war, some work was done in Belgium on the enrichment of the blast with oxygen in connection with the smelting of iron ores in the blast furnace. In the United States, the late J. E. Johnson, Jr., was interested in the possible use of oxygen in metallurgical operations and carried on some experimental work along these lines previous to his death.

ACOUSTICAL RESEARCH

THE London *Times* writes editorially in regard to the desirability of cooperation in the conduct of acoustical research as follows:

> Architects are still unable to predict with certainty the acoustic properties of the halls and chambers they design. Commenting a few weeks ago on the failure in this respect of the new London County Hall, we suggested that bodies such as the Royal Institute of British Architects and the National Physical Laboratory might get together for the devising and conduct of experiments for future guidance. But, so far as we are aware, no practical steps have been taken in this country. Meantime similar problems are engaging attention in the United States, where, indeed, the late Professor Sabine, of Harvard, had already made valuable progress in exploration of the acoustic properties of architectural interiors. A scheme is on foot to establish an American Institute for Acoustic Research. Pro-