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-

fessor C. A. Ruckmick, of Wellesley College, Massachusetts, to whom the proposal is due, calls attention to the progress which has followed combined intensive research in the photographic and lighting industries, and thinks that the time has come when equal advantages might be gained for acoustics. Already there exist more than a dozen American laboratories where investigations into different branches of the subject are in progress, but these could be encouraged and expanded by cooperation and concerted attacks on special problems. There is no doubt as to the scope of the work that might be undertaken. The acoustic qualities of confined areas, such as halls and chambers, improvements in telephone and phonograph reproducers, sound localization, consonance and dissonance are the mere headings of sections covering many subjects of scientific interest and practical value. We wish well to the American scheme, and would give a still more hearty welcome to a similar British scheme.

THE AMERICAN SOCIETY OF ZOOLOGISTS

THE American Society of Zoologists, in conjunction with Section F of the American Association and in association with other biological societies, will hold its twentieth annual meeting under the auspices of the Massachusetts Institute of Technology on Wednesday, Thursday and Friday, December 27, 28 and 29, 1922.

Zoological papers by persons not members of the society may be placed on the program on recommendation of a member of the organization. All titles should be in the hands of the secretary by November 22, accompanied by an abstract of not more than 250 words. Titles and abstracts for the genetics program should be sent to Professor L. J. Cole, Madison, Wisconsin, secretary of the genetics section of the society.

Abstracts of papers to be presented will be published for distribution before the meeting and will appear in *The Anatomical Record* for January, 1923. Non-members of the society who desire copies of the preliminary program and abstracts should notify the secretary immediately.

The biologists' smoker will be held on Wednesday evening in the Walker Memorial Building of the Massachusetts Institute of Technology. All biologists are invited. The zoologists' dinner will occur at the Parker House on Thursday evening. Professor Kofoid will give the address. All zoologists are invited.

The Parker House will be the hotel headquarters of the society. Fifty rooms are available at rates from $2.50 up. Reservations should be made directly with the hotel management.

W. C. ALLEE,
Secretary

ZOOLOGY BUILDING,
THE UNIVERSITY OF CHICAGO

SCIENTIFIC NOTES AND NEWS

DR. JACQUES LOEB, member of the Rockefeller Institute for Medical Research, has been elected an honorary member of the Société Royale des Sciences Médicale et Naturelles of Brussels.

DR. CASIMIR FUNK, associate in biological chemistry at the College of Physicians and Surgeons, Columbia University, has been elected a foreign member of the Halle Academy of Science in the division of scientific medicine.

DR. FREDERICK BELDING POWER, of the U. S. Bureau of Chemistry, has been awarded the Flueckinger gold medal by the Society of Swiss Chemists for "invaluable work on alkaloids and etheral oil."

THE first Warren Triennial Prize of $500 has been awarded for an essay on "The Circulation in the Mammalian Bone-Marrow," by Drs. Cecil K. Drinker, Katherine M. Drinker and Charles C. Lund, of Boston. A second prize was awarded to an essay on "The Effect of Roentgen Rays on the Nuclear Division," by Dr. James Mott Mavor, Union College. A second prize of $250 was awarded this year because of the difficulty in determining the relative merits of the first two papers.

LADY MANSON was the recipient on September 26 of the first presentation of the medal struck in memory of Sir Patrick Manson, from funds collected by the Manson Memorial Fund. This medal, which is in bronze, bears on the obverse a profile of Sir Patrick, and the device "Tropical Medicine and Hygiene." It will be presented triennially to any specially distinguished worked in tropical medicine, the re-