Each of these reports, given in the language of the author, was followed by a discussion, first in French, then in English and later in German.

The union recorded the forthcoming entry of Swedish chemists.

The International Bureau of Physico-Chemical Standards, a section of the union, reported that more than two hundred samples of calorimetric standards have been distributed to different industrial laboratories. In this connection, a permanent committee on thermochemistry has been formed for the purpose of studying the use of salicylic acid as a secondary standard.

The Committee on Nomenclature of Inorganic Chemistry met under the presidency of Professor Hollman and discussed the different reports presented by Professor Grillart. No change will be made in nomenclature so long as the edition of Beilstein is unfinished. The plan will be drawn up by chemists universally and the bases of nomenclature which are now in use will serve as practical terminology until the new order is established.

Various modifications of statutes required by changes in the statutes of the International Research Council were approved.

The former Committee on Chemical Elements was then dissolved and replaced by three committees. One, the International Committee on Atomic Weights, will publish an annual atomic weight table. This committee is composed of the following persons: Mr. Urbain, honorary president, Mme. Curie, Messrs. Baxter, Hoenigschmidt, Lebeau and Meyer. A second committee, known as the International Committee on Atoms, will study the question of atomic structures. A third Committee on Radioactive Substances, in conjunction with the Committee on Radium Standards, will study radioactive substances solely.

The International Committee on Atomic Weights plans to publish an international table as soon as possible. This is to be the only official table, and to this end atomic weight sections of each separate country will refrain from publishing national tables.

The union will hold its next session two years from now in Madrid; the 1934 session will be held in Switzerland. The union will thus continue to meet every two years. Furthermore, it has decided to resume its international congresses, the last of which met in New York in 1912. Owing to the war, the 1914 congress, scheduled for Moscow, could not be convened. The next congress will be in Madrid in 1932 during the conference of the union. It will be international and will embrace all branches of chemistry, pure and applied. As in the Liége session, a certain number of questions will first be placed in the order of the day and different sections of the congress will receive a limited number of reports. One special committee will be authorized to accept or reject these reports, which should, of necessity, be of truly international interest, and should not duplicate publications which a chemist might present through his national society. In the details of organization of the congress, considerable attention was given to the report of Bernhard Hesse on the Eighth International Congress, and as a result problems, no matter how interesting, will be barred from the session if they are not of international significance.

INTERNATIONAL CONGRESS ON BITUMINOUS COAL

A THIRD international conference on bituminous coal will be held at the Carnegie Institute of Technology in November, 1931, according to a recent announcement made by President Thomas S. Baker, who organized the first two international congresses.

An invitation will be extended to the scientific men of all countries to take part in the meeting, which is the only one of its kind of international scope. Prominent men of affairs in America will assist Dr. Baker in organizing the meeting.

The purpose of the congress will be similar to that of the meetings held in 1926 and 1928: to present for discussion the results of recent studies of coal. Particular attention will be paid to the economics of the new methods and processes that are being evolved, he indicated.

The program will include papers on carbonization, liquefaction and gasification of coal, by-products of coal, the mechanism of combustions, cleaning of coal and its preparation for the market, pulverized fuels, power plants and domestic heating. The discussions will be confined to coal above ground. Beginning at the mouth of the mine, however, practically every phase of distribution and consumption will be treated by outstanding authorities in the several fields.

"The condition of the coal industry during the past few years can hardly be called healthy," President Baker said, "and the current business let-down has brought extreme depression to this basic world industry. We hope that as a result of the discussions held we may be of assistance in uncovering new processes which may help it on the road to recovery."

Announcement of this third world meeting comes in logical sequence to the previous congresses. The first conference was organized by President Baker in 1926 for the purpose of finding new uses for bituminous coal and especially to discuss the problem of liquefying coal to supplement the petroleum oil supply of the world. This meeting, although it was the first of

its kind to be held, attracted 1,700 investigators from thirteen different countries. Two years later followed the second congress which was broader in its scope, including discussions on pulverized fuel, low temperature carbonization of coal, rubber from coal, the hydrogenation of coal and by-product nitrogen. Speakers during the two conferences have included M. Georges Claude, Dr. Friedrich Bergius, Professor Franz Fischer, Dr. C. H. Lander, Dr. R. Lessing, General Georges Patart, Dr. Fritz Hofman, Dr. Karl Krauch and many other fuel technologists.

AERONAUTIC RADIO RESEARCH AT THE BUREAU OF STANDARDS

THE development of radio aids to aviation is being forwarded through work of the National Bureau of Standards, which is operating also as the research division of the Aeronautics Branch, Department of Commerce. In recent months improvements have been made in equipment for use with the system of radio range beacons which the department is installing on the airways. Since a beginning has been made in the installation of beacons of the type which operate a visual indicator, a greater need has been felt for an automatic volume control on the receiving set used aboard the airplanes. Such a device has been developed at the bureau. It relieves the pilot entirely of manipulation in the use of the visual indicator of the beacon signals. It can be used to advantage also in receiving aural-type beacon signals. Another application is in connection with the runway localizing beacon for use either at airports or as part of the system of blind-landing aids which is being developed at the bureau. In connection with the automatic volume control, a deflection instrument is used which serves as an approximate distance indicator. Recent experiments have also added a means of indicating when the airplane is directly over the beacon transmitter, so that the landing field location is thus conveniently and directly indicated to the pilot.

Another device developed at the bureau to facilitate the use of the visual-type range beacon is the "deviometer." By its use a pilot can follow any chosen course, within limits, on either side of the equi-signal line for which the beacon transmitter is adjusted. It is a shunting arrangement which varies the relative current in the coils actuating the two reeds of the reed indicator, and a pointer indicates the number of degrees off the equi-signal line for which the deviometer is set. The device has been found useful in experimental flight tests. The bureau recently furnished one to an air transport company for service tests.

As part of the aeronautical radio work at the bureau special attention has been devoted to receiving sets. For receiving both telephone messages and beacon signals aboard an airplane, receiving sets of special design must be employed. They must be so designed as to function under particular conditions of vibration, local interference, small input voltage, high output level required, and special audio-frequency requirements. The basic designs for such sets have been developed at the bureau. It also keeps in touch with commercial developments in aircraft radio receivers by means of laboratory measurements and experimental trials on an airplane. Satisfactory receiving sets are now found to be available commercially.

SHIPPEE-JOHNSON PERUVIAN EXPEDITION

THE Shippee-Johnson Peruvian Expedition will sail from New York on December 5 to carry out, with the endorsement of the American Geographical Society, a program of aerial mapping in various parts of Peru. The expedition is equipped with two Bellanca cabin monoplanes, one of which will be used for photographic work and the other for transporting supplies. The photographic plane in addition to being equipped with the most up-to-date and efficient of photographic apparatus has a supercharged 300 horse-power motor which will make it possible to rise to altitudes up to 28,000 feet for photographic work in the Maritime Cordillera of the Andes.

The primary purpose of the expedition is to map from the air and study and photograph on the ground the little known agricultural communities on the floor of the deep gorge of the Colca River some seventy miles north of Arequipa. The Chimú Valley, the site of Chan-Chan, the capital of the kingdom of the Great Chimú, whom the Inca conquered shortly before the Spanish conquest, will also be photographed from the air and an attempt will be made to discover whether aerial mapping in the heavily forested eastern valleys of the Andes and the Amazon lowland is feasible.

Lieutenant George R. Johnson, co-leader and photographer of the expedition, served as chief photographer of the Peruvian naval air force during 1928 and 1929, and during that time made a remarkable series of aerial photographs of Peru, a selected group of which the American Geographical Society has just published as full-page illustrations (8½ by 6½ inches) in a book entitled "Peru from the Air."