ternal magnetic fields. This would make them especially promising for use in electric meters, where "stray" magnetism from large electric equipment is likely to be encountered.

Magnets of manganese-bismuth derive many of their unusual properties from being power-type magnets. Each individual MnBi particle, about 40 millionths of an inch in diameter, is itself a tiny magnet. The particles are "insulated" from one another by being imbedded in a plastic binder, or matrix, which forms the body of the magnet and keeps the particles separated. Once magnetized, each particle adds to the total magnetism.

The new magnets can be cast or molded, possibly even extruded, into any shape desired. Because the plastic binder is an electric insulator, manganese-bismuth magnets are nonconductors of electricity.

Further work on the new magnetic material has been assigned to Westinghouse's materials engineering department. The super-pure manganese-bismuth is prepared in this way: Manganese and bismuth are ground together to extremely small size under an inert atmosphere of helium gas. Purpose of the helium atmosphere is to prevent the powdered materials from catching fire spontaneously, which they would do on exposure to oxygen in the air. The mixture is then sealed in a glass vessel under low-pressure helium. Using precise temperature control, the manganese and bismuth unite chemically at a temperature slightly below 520°F—the melting point of bismuth. The resulting MnBi is reground to a fine powder. The particles are then imbedded in a plastic matrix, oriented in a powerful magnetic field, and molded to shape.

Courses for Science and Mathematics Teachers

During March 1956 the AAAS Science Teaching Improvement Program mailed a questionnaire to 809 4-year colleges asking for information concerning the contributions of colleges to the improvement of the teaching of science and mathematics in high schools. The questionnaire was directed toward the in-service, or "emergency" problem.

The colleges selected were those that had enrollments in excess of 500, since it was felt that this group would train most of the teachers. Questionnaires have been returned by 727 of the colleges, which are in the 48 states, Alaska, Hawaii, Puerto Rico, and the District of Columbia. Only 39 institutions with enrollments greater than 1000 have not replied.

Teachers are often assigned science or mathematics as a second, third, fourth, or fifth teaching field, after having been granted certification on the basis of a bachelor's degree earned in other areas. When these teachers attempt to return to college to take graduate courses in science and mathematics, they often find that the prerequisites for such courses preclude their enrollment. Usually the advanced degree in professional education is the only alternative.

The first question on the STIP questionnaire was directed toward determining the number of colleges that meet this problem by offering special subject-matter courses for graduate credit and for teachers only. Eighty-two of the 727 colleges answered *Yes* to all three parts of the question. Some of the colleges offer courses with no prerequisites; however, nearly all special subject-matter courses name a few prerequisite courses.

A second question was directed toward establishing the number of colleges that offer correspondence courses for teachers of science and mathematics. Only 28 courses in mathematics are offered by the responding colleges. There are 66 courses in science, with distribution as follows: astronomy, 8; biology, 17; botany, 6; chemistry, 7; geology, 5; physics, 7; physiology, 7; zoology, 5; other science, 4. Of the 727 colleges reporting, 679 do not offer correspondence courses in science or mathematics. Professional education courses are offered by 39 of the colleges.

A third question dealt with extension courses given for teachers off the campus. The problem of graduate credit is more commonly present here, since more scheduled activity is required of the student. It was not determined whether or not graduate credit is allowed for the courses summarized in the following data: astronomy, 15; biology, 82; botany, 30; chemistry, 33; geology, 37; mathematics, 113; physics, 31; physiology, 15; zoology 28; other science, 30; professional education, 193. Among the colleges responding, 495 do not offer extension courses in these subjects.

Other types of assistance offered by colleges to high-school teachers are as follows: 419 colleges provide assistance in classroom activities and career guidance; 182 hold workshops; 155 convene summer institutes; 165 send representatives to in-service conferences; 99 grant scholarships; and 99 offer lecture series to which teachers are invited. These programs for the in-service teacher sometimes provide special bases for awarding college credit. When outside grants are given, the grantor may specify that graduate credit be given to those who desire it.

The provision of scholarships for teachers by 99 of the colleges is encouraging. These scholarships range from a partial remission of fees to a sizable stipend, but in all cases they are a direct aid because they improve the over-all salary situation. They not only make it easier for the teacher to attend school and increase his subject matter competence but also provide increased qualifications for raises based on the state salary scale.—I. E. W., J. M.

Chairman for AAAS Meeting

The appointment of local committees to assist with phases of the 123rd annual meeting of the AAAS began auspiciously when Eugene Holman, chairman of the board and chief executive officer of the Standard Oil Company of New Jersey, accepted appointment as general chairman of the New York meeting. Holman, whose undergraduate and graduate training in petroleum geology was received at Simmons University and the University of Texas, respectively, has been associated with Standard Oil Company of New Jersey since 1929, serving as president 1944–53; prior to that he was with the Texas Company, U.S. Geological Survey, and the Humble Oil and Refining Company. In World War I, he served in the photographic branch of the aviation service.

It is anticipated that the first committee which Mr. Holman will form will be the Exhibits Committee. This committee need not concern itself with assisting in the sale of conventional boothspace since at this time, 6 months in advance of the meeting, nearly all of the 74 booths on the Hotel Statler mezzanine, adjacent to the ballroom, have been assigned. The Exhibits Committee will consider the further development of panel exhibits by large industries, around the mezzanine well, or upper lobby, of the hotel. It is indicated that these displays of some of the latest technologic accomplishments of large firms will make the association's 1956 Annual Exposition of Science and Industry one of the largest and most diversified since its beginnings in 1924.

Intraspecific Differences in Rabbit Serum Proteins

Jacques Oudin of the Pasteur Institute in Paris has recently announced [*Compt. rend. acad. sci.* **242**, 2606 (14 May 1956)] the discovery in rabbit serums of soluble protein antigens that serve to distinguish one individual within the species from another, much as do the blood group isoantigens. The discovery resulted from investigation of the antigenic properties of specific antigen-antibody precipitates.

Antigen was mixed with homologous antiserum from an immunized rabbit, and the specific precipitate was washed, mixed with Freund's adjuvent, and used