readers of that journal. Over 500,000 birds have been marked to date.

The trustees of the British Museum (Natural History) are providing headquarters in the Bird Room at South Kensington and permit the address of the museum to be used. Rings will in future be inscribed "British Museum (Natural History), London," instead of "Witherby High Holborn London," with an identification number as before.

The plan will be directed by a committee as follows: Dr. A. Landsborough Thomson (chairman), A. W. Boyd, A. B. Duncan, P. A. D. Hollom, Lord Ilchester, Lord Mansfield, H. F. Witherby and Miss E. P. Leach (hon. secretary). *British Birds* will continue to publish the results.

The ringing of wild birds has shown exactly where some of our summer visitors go in winter. More than a dozen swallows ringed in Great Britain as nestlings have been reported from South Africa; conversely starlings have been ringed in Great Britain in winter and recovered in Norway in summer above the Arctic Circle; others have been shown to come from Northern Germany and the Baltic States; but native British starlings are non-migratory. Unexpected movements have come to light. Several kittiwake gulls ringed on the Farne Islands have now been recovered in Newfoundland and Labrador; the species is also native on that side of the Atlantic. The swallow, again, is shown to return to the place of birth or previous breeding; birds ringed as adults often return to the same house or barn, and birds ringed when young return commonly to the same district.

Differences in behavior between individuals of a species have been noted; of lapwings hatched in Scotland or the north of England, some remain there throughout the winter, some cross to Ireland and some travel to Portugal. Light has also been thrown on longevity and on constancy to mates. The aluminium rings are no inconvenience to the birds and the ringing is entrusted only to competent collaborators.

THE ATOMIC-PHYSICS OBSERVATORY OF THE CARNEGIE INSTITUTION OF WASHINGTON

A MAJOR event last year in physical science was the direct observation and measurement by investigators in the Carnegie Institution's Department of Terrestrial Magnetism at Washington of the basic forces which bind together the primary building blocks of matter—protons and neutrons—to form the nuclei of all atoms heavier than hydrogen. The principal experiments were those made on the elastic "scattering" of high-speed protons through various angles after collisions with stationary protons. A proton-beam from the million-volt equipment was passed through hydrogen gas. The angular scattering to be expected because of the like positive charges on two protons was known and was approximately confirmed at 600,000 volts. At 900,000 volts a markedly different and increased scattering was found, demonstrating that a large "new" force (superposed on the familiar electrical repulsion) was being encountered abruptly at these correspondingly closer distances of approach. The experiments were made in Washington by Drs. M. A. Tuve, L. R. Hafstad and N. P. Heydenburg, of the staff of the Department of Terrestrial Magnetism. The most significant results of the experiments were brought out by their colleague, Professor G. Breit, of the University of Wisconsin, a research associate of the institution. A detailed theoretical analysis by Dr. Breit and his associates, Professor E. U. Condon, of Princeton, and Dr. R. D. Present, of Purdue, showed that the "new" force exhibited in these experiments was an attraction and not an additional repulsion (as for elastic spheres); also that the proton-proton, proton-neutron and neutron-neutron interactions—the three forces which underlie the structure of all atomic nuclei—are all attractive and of nearly identical magnitude.

Dr. J. A. Fleming, director of the Department of Terrestrial Magnetism, states that the institution has made provision that the department's investigators will shortly be equipped to carry these studies to still closer "distances of approach" between particles, and subject these universally important forces to a still more detailed examination. This will be done through the use of the exceedingly high voltages—above 5,000,000 volts—which will be available under precision control with a new super-voltage equipment, construction on which was begun on May 20, at the department's laboratory in Washington.

This installation, planned in detail several years ago as an embodiment of many years of experience by this pioneer high-voltage laboratory for nuclear physics, has been given the designation "Atomic-Physics Observatory." It comprises an electrostatic generator of large size and associated high-voltage vacuum-tube, mounted inside an egg-shaped pressure-vessel of steel 55 feet high which will contain dry air compressed to 50 pounds per square inch. Beneath this vessel is a subterranean observing-room and separate control-room joined by a tunnel-maze. Earth is thus utilized for shielding against the dangerously intense gamma rays and neutrons which will be produced. The above-ground steel pressure-vessel with its dome 37½ feet in diameter reduces at the bottom to a segment of a sphere 15½ feet in diameter in an overall height of 55 feet. A circular brick curtain-wall 35½ feet in diameter will be added after completion of the pressure-vessel and thus the completed structure will resemble an astronomical observatory.

Since the regions of space to the study of which this large equipment is dedicated are approximately as remote from our world of ordinary dimensions in the direction of minuteness as are the farthest spiral nebulae in the direction of greatness, and since these small regions to a large extent are equally inaccessible as regards individual selection or detailed examination, the novel use of the word "observatory" may be more appropriate than perhaps appears at first sight.

A similar equipment is also under construction at the Westinghouse Research Laboratories in Pittsburgh under the supervision of Dr. William H. Wells, formerly (1933–1934) associated with the staff of the Carnegie Laboratory.—*Correspondent.*

THE SCIENTIFIC EXHIBIT OF THE AMERICAN MEDICAL ASSOCIATION

THE Scientific Exhibit at the Atlantic City session of the American Medical Association, according to the *Journal* of the association, was characterized by the high character of exhibits presented. There were 254 exhibits in all, of which 219 were presented by individual exhibitors; twenty-five by government and national organizations; five by councils and bureaus from the American Medical Association headquarters, and two special exhibits subsidized by the Board of Trustees.

The special exhibit on anesthesia was presented under the auspices of a committee composed of D. Chester Brown, chairman, Danbury, Conn.; Frank H. Lahey, Boston, and Paul Nicholas Leech, Chicago, assisted by members of the Associated Anesthetists of the United States and Canada, the American Society of Anesthetists and the American Society of Regional Anesthesia. In addition to continuous demonstrations by a competent corps of demonstrators, there were talks and motion pictures throughout the week in an area adjoining the exhibits. A pamphlet describing the exhibit was distributed.

The special exhibit on fractures was presented under the auspices of a committee composed of Kellogg Speed, chairman, Chicago; Frank D. Dickson, Kansas City, Mo., and Walter Estell Lee, Philadelphia, assisted by an advisory committee composed of Isidore Cohn, New Orleans; H. Earle Conwell, Birmingham, Ala.; Frederic J. Cotton, Boston; Richard B. Dillehunt, Portland, Ore.; Eldridge L. Eliason, Philadelphia; Leo Eloesser, San Francisco; George W. Hawley, Bridgeport, Conn.; Melvin S. Henderson, Rochester, Minn.; James M. Hitzrot, New York; William L. Keller, Washington, D. C.; Roy D. McClure, Detroit; Frank R. Ober, Boston; Dallas B. Phemister, Chicago, and J. Spencer Speed, Memphis, Tenn. More than fifty physicians from various parts of the country assisted with the demonstrations. Acknowledgment is made to the Surgeon General of the United States Army, Major A. S. Dabney, Major W. W. McCaw, soldiers from the Walter Reed Hospital, Dr. James H. Mason, III, of Atlantic City, and Mrs. Mildred Jones and Miss Flora Keats, nurses from the Atlantic City Hospital, for the very efficient service which they rendered in connection with the fracture exhibit. Appreciation is also expressed to the management of the Atlantic City Hospital for its cooperation.

Other features of the Atlantic City session included a symposium on pneumonia by the Section on the Practice of Medicine, a symposium on heart disease composed of twenty-five exhibits presented in cooperation with the American Heart Association, and motion picture programs by the Section on Obstetrics, Gynecology and Abdominal Surgery, by the Section on Ophthalmology and by the Section on Orthopedic Surgery, shown in spaces adjoining the exhibits of those sections.

An endeavor was made to correlate the exhibits with papers read before the various sections of the Scientific Assembly, with the result that fifty papers were accompanied by material in the Scientific Exhibit.

THE NATIONAL CONFERENCE ON WEIGHTS AND MEASURES

Two hundred and thirty-one members and guests attended the twenty-seventh National Conference on Weights and Measures which was held in Washington from June 1 to 4. According to the account of the meeting given in the *Technical Bulletin* of the National Bureau of Standards, delegates from thirty-one states and the District of Columbia were present as well as representatives of manufacturers of weighing and measuring appliances and others interested in weights and measures.

The sessions were opened with an address by Dr. Lyman J. Briggs, president of the conference, who presented a proposal for legislation to fix the standards of weights and measures of the United States. The Secretary of Commerce, the Honorable Daniel C. Roper, also addressed the conference on June 3, his subject being "Sustaining Standards through Cooperation." In all thirteen papers were presented and discussed, while many other subjects not specifically listed on the program received attention at the general session on the morning of June 2.

Perhaps the most important actions taken were the endorsement of the proposed bill to fix the standards of weight and measure for the United States, the endorsement of a bill to standardize the sizes of cans for food products and the amendment of certain codes of specifications and tolerances for commercial weighing and measuring apparatus, particularly the tolerances for vehicle scales.

An exhibition of recent developments in weighing and measuring apparatus was arranged in connection