hybridization in poultry. DeVries's distinction between varietal and specific crosses, based on their behavior in inheritance, does not hold, as is shown by contrasting the behavior of those characters that are new to the race with those that have been lost. Furthermore a similar comparison shows that deVries's view, that a patent character dominates a latent one, as color does albinism, is not always found to hold in poultry. Standfuss's idea, that older characters or species dominate, has been shown by Bateson and Saunders not to hold good, and Davenport is able to confirm their conclusion. Of nineteen characters examined nine old ones dominated and ten new ones. The result depends clearly on some physiological peculiarity of the character that has no relation to its antiquity. These and other conclusions of the author are of importance for a fuller understanding of the laws of inheritance.

This admirable study of Professor Davenport's gives promise of still more important work to follow when the history of the material is further worked out. The Carnegie Institution is to be congratulated on the high order of work accomplished under its auspices.

T. H. Morgan

Columbia University

Societies and Academies

The Philosophical Society of Washington

The 629th meeting was held on February 16, 1907, President Hayford in the chair. The evening was devoted to a paper by Dr. C. G. Abbot, on 'Solar Radiation and Terrestrial Temperature.'

The speaker gave a general account of the work of the Smithsonian Astrophysical Observatory in recent years, including its two expeditions of 1905–1906 to Mt. Wilson. The means of observing solar radiation both in total, and for all parts of its spectrum, were briefly described, and bolographic spectrum energy curves extending from wave-length 0.37 μ to 2.8 μ were exhibited. Such curves are obtained in twelve minutes each, and a series of eight or ten, covering the hours from low to high sun, is secured on each favorable day. By means of the expression $\log d = m \log a + \log d_0$ (in which d and d_0 are ordinates of such curves for a given wave-length at the earth's surface and outside the atmosphere, respectively, m, is secant of the sun's zenith distance, and a the transmission of the atmosphere for zenith sun) the form of the spectrum energy curve outside the atmosphere is obtained. By means of diagrams it was shown how closely this straight line equation fits the observations, and further evidence of the trustworthiness of the formula as a means of estimating the transmission of solar radiation in the atmosphere is furnished by the close agreement of simultaneous Washington and Mt. Wilson determinations of the solar constant, though a mile difference of altitude and 3,000 miles difference of longitude is between the stations.

About sixty values of the 'Solar Constant of Radiation,' as determined by Mt. Wilson observations of 1905, were shown in a diagram, and the evident change of nearly eight per cent. in August, 1905, pointed out. It was stated that single determinations were thought to be accurate, relatively, to one per cent. for usually good Mt. Wilson days.

The average numerical value of the solar constant is believed to be 2.12 calories per square centimeter per minute; and high values obtained by Langley, Ångström, and others, as quoted in text-books, can be shown to be ill founded. Ångström, indeed, has himself withdrawn his value four calories, but it still continues to be quoted.

Observations of the reflecting power of clouds were described and preliminary results showing wide departure of clouds from ideal matt surfaces were presented. Attention was drawn to the very large amount of solar radiation lost by reflection of clouds to space, and the probability that variations of cloudiness may in many instances mask the effect of variations of the solar radiation. Inland stations, only, seem likely to yield trustworthy evidence of direct connection between variations of the solar constant and the terrestrial temperatures, but evidence was cited of a direct connection of the kind as shown in Mr. Langley's paper (*Astrophysical Journal*, June, 1904) where nearly one hundred stations over

the north temperate zone united, not only as a whole, but by groups separately, to show a marked fall of temperature immediately succeeding an observed fall of solar radiation. A large number of inland meteorological stations have been selected to furnish data for an examination of the probability of variation of solar radiation heretofore, and this material is being worked over at the Astrophysical Observatory, and will form a part of Vol. II. of its *Annals* now being prepared.

R. L. FARIS,
Secretary

THE CHEMICAL SOCIETY OF WASHINGTON

THE 172d regular meeting was held in the Cosmos Club, February 14, at 8 P.M. After the regular business, President Fireman brought before the society the subject of the advisability of appointing a local sanitary committee—"The chemist, like every other citizen, is vitally interested in the sanitary conditions of the locality in which he lives. But, more than any other citizen, he is qualified, owing to his particular training, to examine into, and form a true judgment of the sanitary conditions surrounding him. Self interest, and whatever altruism there is in each civilized person should impel him, especially the chemist, to take an active interest in observing how the local sanitary requirements are provided for." After discussing the subject pro and con, the president was authorized to appoint a committee of seven to advise the society on local sanitary matters, and the committee was instructed to report at the next meeting.

Mr. Sherman Leavitt then read a paper on 'The Manner in which the Alkaline Earth Metals are held in Solution by Carbonic Acid.' The writer gave an account of the investigation of the boiler-water supplies of several western railroads, in collaboration with Professor Keiser, of Washington University, St. Louis. This work, carried on during 1901–1904, showed that the methods for testing waters were not capable of giving the necessary information for properly softening waters for steam purposes. The results indicated that the calcium carbonate held in solution by carbonic acid, as an acid carbonate, required two molecules of carbonic acid instead of one. Later experiments were conducted in a temporary laboratory established in an ice plant, where the temperature was kept at 28° F. The investigator finally succeeded in isolating an acid carbonate of calcium which was found to decompose at about +2° C. On analysis, this compound gave a percentage of water and carbon dioxid gas corresponding very closely with a formula for the acid carbonate containing two molecules of carbonic acid in combination with one of calcium carbonate. Barium was found to give a similar compound with even more favorable results.

On February 16, Professor E. C. Franklin, of the Department of Physical Chemistry at Stanford University, delivered an address before the Chemical Society at the George Washington University on some of his researches regarding the reactions which take place in liquid ammonia. The speaker called attention to the fact that liquid ammonia was neutral and had properties in all respects analogous to those of water. The lecture was illustrated by charts and equations.

J. A. LECLERC,
Secretary

BUREAU OF CHEMISTRY

THE ELISHA MITCHELL SCIENTIFIC SOCIETY OF THE UNIVERSITY OF NORTH CAROLINA

THE 170th meeting was held in the main lecture room of Chemistry Hall on Tuesday evening, February 12, 7:30 P.M., with the following program:

PROFESSOR COLLIER COBB: 'Some Human Habitations.'

PROFESSOR JOSEPH HYDE PRATT: 'The Fishing Industries of North Carolina.'

ALVIN S. WHEELER,
Recording Secretary

DISCUSSION AND CORRESPONDENCE

THE 'FIRST SPECIES' AND THE 'FIRST REVISER'

THE vast extension of our knowledge of animals and plants has forced upon all investigators the necessity of reducing systematic nomenclature to law and order, and to eliminate from it all elements of personal