Jennings, in a paper entitled 'Modifiability in Behavior. I. Behavior of Sea Anemones,' shows that the course of the internal physiological processes, the past experience of the organism, and various other internal factors, partly determine the behavior of sea anemones and modify fundamentally their reactions to external stimuli. In a second paper entitled 'The Method of Regulation in Behavior and in other Fields,' the same author gives a general outline of the method of regulation shown in the behavior of the lower organisms. E. B. Wilson's 'Studies on Chromosomes,' No. II., deals with some of the specific classes of chromosomes in the *Hemiptera*, and their history in the maturation phenomena, and is intended to clear the ground for a study of the sexual relations of the chromosome groups. An appendix records facts, determined by later observations, that give complete confirmation of the theoretic expectations regarding the sexual relations, stated in the general discussion. (See issue of SCIENCE for October 20, 1905.) Chas. W. Hargitt (Variations among Scyphomedusæ), gives a detailed study of the variations found in *Aurelia flavidula*, with a view to determine their relations to the problems of adaptation and natural selection. Lorande Loss Woodruff (An Experimental Study of the Life-History of *Hyptrichous Infusoria*), describes five cultures, all of which passed through cycles of greater and less general vitality as measured by the rate of division. Recovery from a period of extreme depression was effected by extract of beef. Minor fluctuations occurred which are termed 'rhythms' and are to be clearly distinguished from cycles. A description is given of the cytoplasmic and nuclear changes during the life-cycle, as well as of a series of experiments on the effect of salts on the division rate.

SOCIETIES AND ACADEMIES.

THE CONVOCATION WEEK MEETINGS OF SCIENTIFIC SOCIETIES.

There will meet at New Orleans:

The American Association for the Advancement of Science.—The week beginning on December 28. Retiring president, Professor W. G. Farlow, Harvard University; president-elect, Professor C. M. Woodward, Washington University, St. Louis, Mo.; permanent secretary, Dr. L. O. Howard, Cosmos Club, Washington, D. C.; general secretary, Professor C. A. Waldo, Purdue University, Lafayette, Ind.; secretary of the council, Dr. John F. Hayford, U. S. Coast and Geodetic Survey, Washington, D. C.

Local Executive Committee.—Honorary president, President E. B. Craighead, Tulane University; executive president, Professor George E. Beyer, Tulane University; secretary, Henry M. Mayo, The New Orleans Progressive League; treasurer, Mr. Clarence F. Low, of the Liverpool, London and Globe Insurance Company.

Section A, Mathematics and Astronomy.—Vice-president, Dr. W. S. Eichelberger, U. S. Naval Observatory, Washington, D. C.; secretary, Professor L. G. Weld, University of Iowa, Iowa City, Iowa.

Section B, Physics.—Vice-president, Professor Henry Crew, Northwestern University, Evanston, Ill.; secretary, Professor Dayton C. Miller, Case School of Applied Science, Cleveland, Ohio.

Section C, Chemistry.—Vice-president, Professor Charles F. Mabery, Case School of Applied Science, Cleveland, Ohio; secretary, Professor Charles L. Parsons, New Hampshire College of Agriculture, Durham, N. H.

Section D, Mechanical Science and Engineering.—Vice-president, Professor F. W. McNair, Houghton, Mich.; secretary, Professor Wm. T. Magruder, Ohio State University, Columbus, Ohio.

Section E, Geology and Geography.—Vice-president, Professor Wm. North Rice, Wesleyan University, Middletown, Conn.; secretary, Dr. Edmund O. Hovey, American Museum of Natural History, New York, N. Y.

Section F, Zoology.—Vice-president, Professor Henry B. Ward, University of Nebraska, Lincoln, Nebr.; secretary, Professor C. Judson Herrick, Denison University, Granville, Ohio.

Section G, Botany.—Vice-president, Dr. Erwin F. Smith, U. S. Department of Agriculture, Washington, D. C.; secretary, Professor F. E. Lloyd, Teachers College, Columbia University, New York, N. Y.

Section H, Anthropology.—Vice-president, Dr. George Grant MacCurdy, Yale University, New Haven, Conn.; secretary, George H. Pepper, American Museum of Natural History.

Section I, Social and Economic Science.—Professor Irving Fisher, Yale University, New Haven, Conn.; secretary, Dr. J. F. Crowell, Bureau of Statistics, Washington, D. C.

Section K, Physiology and Experimental Medicine.—Vice-president, Professor Wm. T. Sedg-

wick, Massachusetts Institute of Technology, Boston, Mass.; secretary, Dr. Wm. J. Gies, College of Physicians and Surgeons, Columbia University, New York City.

At New Orleans in conjunction with the American Association for the Advancement of Science there will meet:

The American Chemical Society.—President, F. P. Venable, University of North Carolina; secretary, Dr. William A. Noyes, the Bureau of Standards, Washington, D. C.

The Botanical Society of America.—January 4. President, Professor R. A. Harper, University of Wisconsin; secretary, Dr. D. T. MacDougal, N. Y. Botanical Garden, Bronx Park, New York City.

The Association of Economic Entomologists.—January 1, 2, 3. President, Professor H. Garman, Lexington, Ky.; secretary, Professor H. E. Summers, Ames, Iowa.

The Society for Horticultural Science.—December 27. President, Professor L. H. Bailey, Cornell University; secretary-treasurer, V. A. Clark, Phœnix, Ariz.

The American Mycological Society.—January 1–4. President, Chas. H. Peck, state botanist, Albany, N. Y.; secretary, C. L. Shear, U. S. Department of Agriculture, Washington, D. C.

The Southern Society for Philosophy and Psychology. President, Professor J. Mark Baldwin, The Johns Hopkins University; secretary, Professor E. F. Buchner, University of Alabama.

At Ann Arbor will meet:

The American Society of Naturalists.—President, Professor William James, Harvard University; secretary, Professor W. E. Castle, Harvard University. President (Central Branch), Professor H. H. Donaldson, University of Chicago; secretary, Professor W. J. Moenkhaus, Indiana University. The Eastern Branch will not meet this year.

The American Society of Zoologists (Eastern and Central Branches).—December 28, 29, 30. President (Eastern Branch), Professor W. E. Castle, Harvard University; secretary, Professor H. S. Pratt, Haverford College. President (Central Branch), Professor Frank R. Lillie, University of Chicago; secretary, Professor C. E. McClung, University of Kansas.

The Society of American Bacteriologists.—December 28, 29. President, Professor Edwin O. Jordan, University of Chicago; secretary Professor Frederic P. Gorham, Brown University, Providence, R. I.

The American Physiological Society.—December 27, 28. President, Professor W. H. Howell, the Johns Hopkins University; secretary, Professor Lafayette B. Mendel, New Haven.

The Association of American Anatomists.—December 27, 28, 29. President, Professor Charles S. Minot, Harvard Medical School; secretary, Professor G. Carl Huber, 333 East Ann St., Ann Arbor, Mich.

The Society for Plant Morphology and Physiology.—December 27, 28, 29. President, Professor E. C. Jeffrey, Harvard University; secretary, Professor W. F. Ganong, Smith College, Northampton, Mass.

At New York City will meet:

The Astronomical and Astrophysical Society of America.—December 28. President, Professor Simon Newcomb; secretary, Professor Geo. C. Comstock, Washburn Observatory, Madison, Wis.

The American Physical Society.—December 29, 30. President, Professor Carl Barus, Brown University; secretary, Professor Ernest Merritt, Cornell University, Ithaca, N. Y.

The American Mathematical Society.—December 28, 29. President, Professor W. F. Osgood, Harvard University; secretary, Professor F. N. Cole, Columbia University.

The American Paleontological Society.—December 27, 28. President, Professor William B. Scott, Princeton University; secretary, Dr. Marcus S. Farr, Princeton University.

At Cambridge will meet:

The American Psychological Association.—December 27–29. President, Professor Mary Whiton Calkins, Wellesley College; secretary, Professor Wm. Harper Davis, Lehigh University.

The American Philosophical Association.—December 27–29. President, Professor John Dewey, Columbia University; secretary, Professor John Grier Hibben, Princeton University.

At Ithaca will meet:

The American Anthropological Association.—December 27–29. President, Professor F. W. Putnam, Harvard University; secretary, Dr. Geo. Grant MacCurdy, Yale University, New Haven, Conn.

At Ottawa will meet:

The Geological Society of America.—December 27, 28, 29. President, Professor Raphael Pumpelly; secretary, Professor Herman L. Fairchild, Rochester, N. Y.

THE BIOLOGICAL SOCIETY OF WASHINGTON.

THE 404th regular meeting of the Biological society was held October 28, 1905, with President Knowlton in the chair and 66 persons present. Mr. A. A. Doolittle presented a specimen of a peculiar form of fruit of walnut (*Juglans*) recently picked up by one of the high school pupils. Dr. A. D. Hopkins made note of two species of bark beetles so destructive of forest trees in Colorado that they render the forests more liable to fire because of the increased amount of dead and fallen timber. Dr. H. M. Smith noted the unusual occurrence of so many woodcock in the vicinity of Washington, especially on the Maryland side of the Potomac River between Washington and Indian Head. Dr. T. S. Palmer reported the bagging of 96 woodcock. Dr. Smith also noted the capture of a reed bird near Washington a few days since in the spring plumage of the bobolink. Dr. Knowlton reported the presence of wild geese, recently, in a garden at Laurel, Maryland; and also of a loon, the latter apparently wounded. Mr. H. W. Oldys presented, with whistled notes, a song of a hermit thrush recently under his observation.

For the first paper of the evening, on 'The Changes in the Bird Life on an Indiana Farm during Recent Years,' Dr. B. W. Evermann gave a list of the birds (48 species) which he observed during a week's stay (June 25 to July 1) on a farm in Carroll County, Indiana, and called attention to some of the changes in the bird life of that region in recent years. Attention was called to the physical conditions existing there thirty years ago—the heavy forests, the large swamps, the numerous smaller ponds—and these were contrasted with present conditions—forest largely cut off and the underbrush cleared away, the swamps drained and now in corn and cabbage, and the ponds all gone, and with them practically all the swamp-loving birds as well as those that love the forest. These changes are especially noticeable with the crow blackbirds, red-shouldered blackbirds, herons, bitterns, golden swamp warblers and the like; also the woodpeckers, bluebirds, tanagers, orioles and warblers. Discussion followed by Mr. Kallock.

The second paper was by Dr. L. O. Howard, giving 'Some Notes on the Yellow-fever Mosquito.' Discussion followed by Dr. Carroll, of the U. S. Army, who particularly noted that *Stegomya* bites negroes in Washington, though rarely in yellow-fever countries. Mr. Schwarz noted that the mating *Stegomya* has not been seen by him in Cuba, and that none of this genus are flying at the time of day, about five in the afternoon, at which *Culex pipiens* is abundant and mating.

For the third paper on 'An American Cretaceous Chimæroid Ovicapsule,' Dr. Theodore Gill exhibited the impression of a Cretaceous chimæroid ovicapsule from the vicinity of Laramie, Wyoming, originally submitted to him for identification by Dr. Frank H. Knowlton and now in the custody of Dr. T. W. Stanton, in the National Museum. It is the first of the kind noticed in the United States and is interesting on account of its resemblance to the ovicapsules of chimæroids of the family of Harriottidæ found in the deep seas of the Atlantic and Pacific. It is also important as an indication of the structural features of the chimæroids of the Cretaceous period. The previously known ovicapsules of chimæroids of Mesozoic age had been obtained from Jurassic beds of Würtemberg and indicated a relationship of their makers to the callorhynchids. This paper was discussed by Dr. Stanton.

E. L. MORRIS,
Recording Secretary.

THE PHILOSOPHICAL SOCIETY OF WASHINGTON.

THE 607th meeting was held on November 18, 1905.

Mr. Burbank spoke informally on the recent observations on terrestrial magnetism in Labrador; disturbances in the declination amounting to 1° 50″ were noted.

Mr. E. Buckingham presented a paper on 'The Capillary Motion of Water in Soils.'

Previous work by the speaker showed that the rate at which carbonic acid and air mix by diffusion through layers of soil is approximately proportional to the square of the porosity of the soil. Experiments on water vapor and air appear to give the same result. The experiments also showed that the loss of water

by direct evaporation from depths of over two inches in the rock must in general be insignificant from an agricultural point of view, hence if the capillary flow of water upward can be nearly stopped an inch or two below the surface by the formation of a dry surface layer, the wasteful loss of water by evaporation will be much decreased.

Laboratory experiments by Mr. J. O. Belz in the physical laboratory of the Bureau of Soils, in which arid and humid climatic conditions were simulated, showed that such a dry layer may be formed naturally under very arid conditions. A very rapid initial evaporation forms a dry surface layer, and the rate of evaporation then falls off very greatly, the result being that in the long run the total loss of water from the soil is less under very arid conditions than under humid conditions. Under arid conditions, a soil has thus an automatic tendency to protect itself from the great loss of water which would at first sight be expected to occur under such conditions.

Mr. Briggs applied these principles to the conditions of desert plants.

Mr. J. C. Blake then read a paper on 'The Electrical Behavior of Colloidal Mixtures.'

The early work of Quincke and others on the migration of visible particles was shown to be in accord with the recent work on 'Colloids.' The rate of migration of visible particles as well as of colloids is almost identical with that of the common ions in electrolytic solution. It was shown that each colloidal particle is probably accompanied by an ion, which causes the migration of the particle, the ion and colloidal particles being surrounded by an electric double layer. The absolute conductivity of the colloidal material in a colloidal mixture agrees with the idea that each colloidal particle carries the ionic charge. Hence colloidal mixtures are to be regarded as true solutions largely ionized, one of the ions being associated with the colloid.

CHARLES K. WEAD,
Secretary.

THE NEW YORK ACADEMY OF SCIENCES. SECTION OF ANTHROPOLOGY AND PSYCHOLOGY.

AT a meeting held November 27, 1905, in conjunction with the New York Section of the American Psychological Association, Professor Woodbridge occupying the chair, Professor Robert MacDougall was elected chairman for the coming year, and Professor R. S. Woodworth secretary. The following papers were presented:

Smell Discrimination of Students: WILL S. MONROE.

A statistical inquiry into the ability of 255 girls to recognize odors showed that, on the average, 6.72 out of a set of 20 common odors, chiefly essential oils, were correctly named. Those most often identified were wintergreen, camphor, peppermint, vanilla and cloves; those least often, hemlock, bergamot, asafœtida, wormwood and lavender. A census of odor names showed that some of those least often recognized, as lavender, were believed to be familiar. The fact is simply that people do not know as many odors as they suppose.

Linguistic Standards: FREDERIC LYMAN WELLS.

The speaker contended that the current standards of 'good use,' based as they are on the individual introspection of rhetoricians, or on a reactionary adherence to selected historical models, were not adequate to the changing needs of a language. By the application of statistical methods, it is possible to obtain standards that are free from the arbitrariness of one-man introspection, and also furnish, in the 'probable error,' a measure of their own validity. A statistical study of the relative 'force' of synonyms yielded results having a very small probable error, which nevertheless did not agree with any of the definitions of force which the introspective grammarians have laid down.

A Threshold Study of the Reading Pause: F. M. HAMILTON.

The author showed how the tachistoscopic method could be adapted to the reading not only of isolated words, but also of sentences and paragraphs; to the analysis of processes at the threshold of word recognition; and to the study of the marginal field of perceptual regard. Light is thrown by these experiments upon the questions of literal reading, reading cues, value of context, etc.

Vision and Localization during Rapid Eye Movements: R. S. Woodworth.

The author sought to show that vision occurs during movements of convergence, and also in rapid 'jumps' of the eye from one fixation point to another. The latter fact is best shown by the clear vision of a rapidly moving object that occurs when the eye moves in the same direction and with the same speed as the object. This can not be explained, as has been attempted, by supposing that only an after image of the impression received during the eye jump comes to consciousness, for the object is not only seen, but correctly localized in space.

The Measurement of Scientific Merit: J. McKeen Cattell.

A method was explained by which it was possible to select a group of the leading 1,000 men of science of the United States for the study of individual differences and by which degrees of scientific merit could be measured. The more eminent scientific men are distributed in accordance with the positive half of the curve of error, the first hundred differing among themselves about as much as the next two hundred or the last seven hundred. Data were also given in regard to the distribution of scientific men, including their birthplace, their place of residence and the institutions with which they are connected.

Temperament as Affecting Philosophic Thought: Brother Chrysostom.

It was urged that the temperament of a philosopher was so potent a factor in determining his emphasis of certain doctrines, his introduction of illogical views and his personal influence in the founding of his school, that it must be considered in order to understand his philosophy. Heredity, environment, race, epoch, the personality of the philosopher and of the master who first influenced him, were mentioned as elements in the temperamental complex that determines the cast of his thought.

Are Mental Processes in Space? W. P. Montague.

The paper consisted in a protest against the current view of mental processes as real occurrences that occur nowhere, and an attempt to show that they could exist in space without being either punctiform or figured (compare sounds and odors), and without displacing matter or being wedged into the spaces between material particles (compare stresses, velocities and accelerations). Potential energy, like mental action, exists in space without being visible and without displacing matter. Both are localized intensive states; and it was suggested that mental processes may be forms of potential energy into which the kinetic energy of the nerve currents must be transformed in order to be redirected.

R. S. Woodworth,
Secretary.

DISCUSSION AND CORRESPONDENCE.

THE THEORY OF ISOLATION AS APPLIED TO PLANTS.

President Jordan, in his opportune and clearly stated paper on 'The Origin of Species through Isolation,'[1] has suggested the following as a general law:

> Given any species in any region, the nearest related species is not likely to be found in the same region nor in a remote region, but in a neighboring district separated from the first by a barrier of some sort.

This we were inclined to accept as applicable to plants with little or no hesitation.

For several years the writer has studied, more or less critically, the plants of a well-defined floral region, and it has almost invariably been his experience that the difficult problems which confronted him were not the discrimination of the various species of a given locality or region, but the question of the relationship of his plants to similar forms occurring in another, usually adjoining, territory.

Consequently it was with considerable surprise that we read Professor Lloyd's[2] bold assertion that, if the general law stated by President Jordan were put in the converse form, 'it would be more in harmony with the facts in the case as understood by the botanists.'

In addition to the general and 'sweeping'

[1] Science, II., **22**: 545–562. November 3, 1905.
[2] Science, II., **22**: 710–712. December 1, 1905.