part of 1899 in the quest of health and occupied himself by observing 'facts and fancies about animals and plants.' His place of residence was about a hundred miles south of Jacksonville. His observations, with occasional reveries on other subjects, combined with remarks upon the conditions prevailing in the times of Bartram, Michaux and Say, make up the chief part of the volume. In an appendix he presents a list, with notes, of one hundred and fifty species of insects collected.

The most important discovery made was that of the left humerus of the great auk from a large shell mound on the Spanish Grant. The writer found a second specimen of a similar animal thirty feet distant from the one obtained by Mr. Blatchley (see SCIENCE, XVI., p. 203). Hence it would seem as if the facts were well established that the great auk was once a resident of Florida, and presumably of the whole Atlantic coast.

This mound is over one thousand feet long and ten feet thick, composed largely of the shell of the *Donax,* which is still used for food. Twenty-seven other species of mollusca were secured, besides several fish, turtles, alligators and half a dozen mammals. A few implements were also picked up.

The author presents his facts in a very pleasant way, easily appreciated by all intelligent people, apart from tourists and scientists.

C. H. HITCHCOCK.

HANOVER, N. H.

## SCIENTIFIC JOURNALS AND ARTICLES.

*Journal of Physical Chemistry,* December.—'On the Passage of a Direct Current Through an Electrolytic Cell,' by S. L. Bigelow. A study of the cause of the residual current when the electromotive force is below the decomposition point. 'On the Critical States of a Binary System,' by Paul Saurel. 'Deduction of the Magnitude of the Osmotic Pressure in Dilute Solutions according to the Kinetic Theory,' by Peter Fireman. The deduction is drawn that the osmotic pressure of a substance in dilute solution is equal to the corresponding gas pressure of that substance at the same temperature. The conclusion is also drawn that, in general, the kinetic energy of the molecules of a liquid is equal to that of gas molecules at the same temperature. This number of the *Journal* also contains the index to Volume VI.

January.—'The Rate of Oxidation of Ferrous Salts by Chromic Acid,' by Clara C. Benson. This paper includes an analytical method for determining ferrous iron in the presence of ferric salts and chromic acid. 'Electromotive Force of Alloys of Tin, Lead and Bismuth,' by E. A. Shepherd. 'Reduction of Insoluble Cathodes,' by Alfred T. Weightman. Chiefly a study of the reduction of lead sulfid. 'Electrolytic Preparation of Sodium Amalgam,' by E. S. Shepherd.

THE *Journal of Comparative Neurology* for December contains the following articles: 'On the Origin of Neuroglia Tissue from the Mesoblast,' by Shinkishi Hatai. Describes and figures the proliferation of neuroglia cells from the walls of the embryonic capillaries. 'On the Number and on the Relation between Diameter and Distribution of the Nerve Fibers Innervating the Leg of the Frog,' by Elizabeth Hopkins Dunn. A continuation and control of a previous study, showing, among other conclusions, that the largest nerve fibers do not run the longest course, as Schwalbe supposed, but terminate in the thigh. In the next paper, 'A Note on the Significance of the Size of Nerve Fibers in Fishes,' by C. Judson Herrick, this conclusion is confirmed for the fishes, and observations presented tending to show that the size of nerve fibers, within certain limits, is determined by the state of functional development of the organ innervated. 'The Eye of the Common Mole, *Scalops aquaticus machrinus,*' by James Rollin Slonaker. The eye is described in detail and found to be in so greatly reduced condition as to render it very improbable that it can function at all. Twenty pages of book reviews complete the number.

## SOCIETIES AND ACADEMIES.

### ENTOMOLOGICAL SOCIETY OF WASHINGTON.

THE 174th regular meeting was held on January 8, 1903, eighteen members and two

visitors present. Officers for 1903 were elected as follows:

*President*—Mr. D. W. Coquillett.

*Vice-Presidents*—Mr. Nathan Banks and Dr. A. D. Hopkins.

*Recording Secretary*—Mr. Rolla P. Currie.

*Corresponding Secretary*—Mr. Frank Benton.

*Treasurer*—Mr. J. D. Patten.

*Members of the Executive Committee* (in addition to the officers)—Dr. H. G. Dyar, Dr. L. O. Howard and Mr. C. L. Marlatt.

Mr. W. E. Hinds, Field Agent in the Division of Entomology, U. S. Department of Agriculture, was elected a corresponding member.

Dr. Dyar read his address as retiring president, entitled 'Recent Work in Lepidoptera.' The author stated that the classification of Lepidoptera, ten years ago, stood essentially as in the time of Linnæus. During the past few years, however, material changes have had to be made as the relationships of families and genera have come to be better understood. The studies of Meyrick, Hampson, Chapman and Tutt in England, and those of Comstock, Packard, Kellogg, Bodine and the author in America, have led them to adopt a common general scheme of classification, though difference of opinion still exists as to the details of this scheme. The author reviewed briefly the work of recent American lepidopterists. Taking up the butterflies, he compared the work of Scudder and Edwards, mentioning also that of French, Holland, Skinner and Beutenmüller. He then spoke of what has been done in the different groups of moths—in the Sphingidæ by Beutenmüller and Packard, in the Saturnians by Neumoegen and Dyar and also by Packard, in the Noctuidæ by Grote and Smith, in the Notodontidæ by Packard, in the Geometridæ by Hulst, in the Pyralids by Fernald, and in the Tineids by Lord Walsingham and recently also by Dietz, Kearfott and Busck. The author summed up by pointing out the work particularly needed in the near future, viz., a monograph of the butterflies, comprehensive works on Sphingid and Noctuid larvæ, a monograph of the Geometridæ, supplementing and reviewing Dr. Hulst's work, tables for determining the Tortricidæ, and continued descriptions of new species of Tineids.

Mr. Banks presented his 'Notes on Brachynemuri of the *B. ferox* Group.' A critical study of large series of specimens heretofore determined as belonging to the species *peregrinus, carrizonus, ferox* and *quadripunctatus* resulted in the discovery of three more forms hitherto undescribed. *Brachynemurus peregrinus* Hagen is considered a synonym of *B. ferox* Walker. The author presented descriptions, exhibiting specimens and a plate of drawings showing the inter-antennal and prothoracic markings and profile views of the male anal appendages.

ROLLA P. CURRIE,
*Recording Secretary.*

## THE GEOLOGICAL SOCIETY OF WASHINGTON.

THE 135th meeting (tenth annual meeting) was held in Washington, December 17, 1902. Major C. E. Dutton spoke informally of the geologic work of the late Major J. W. Powell, and Mr. Bailey Willis of the work of the late Dr. R. B. Rowe.

After the conclusion of the regular program, the annual meeting was held, at which the reports of the secretaries and of the treasurer were presented. The election of officers resulted as follows:

*President*—C. Willard Hayes.

*Vice-Presidents*—G. P. Merrill and Waldemar Lindgren.

*Treasurer*—G. W. Stose.

*Secretaries*—Walter C. Mendenhall and Alfred H. Brooks.

*Members of the Council*—G. O. Smith, T. W. Stanton, T. Wayland Vaughan, David White and Arthur C. Spencer.

ALFRED H. BROOKS,
*Secretary.*

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

A MEETING was held November 24, Professor Farrand in the chair. Professor Lough was elected secretary of the section. Mr. J. B. Miner presented the results of some experiments on the perception of time intervals bounded by varied stimuli. Intervals of one, two, three, four and six seconds bounded by sounds, lights, or one sound and one light were given the subject, who then endeavored to reproduce the interval by taps

on a telegraph key. For intervals bounded by sounds the reproduced interval changed from plus to minus at a point between intervals of two and three seconds. There is very little difference between intervals bounded by sounds and those bounded by lights; but a considerable difference is given when the interval is bounded by a sound followed by a light or *vice versa*. The same interval bounded by varied stimuli seemed to the subjects to be longer than when bounded by like stimuli. Memory of intervals bounded by varied stimuli required more effort. Mr. Miner believed that this represented the difference in difficulty of muscular adjustment on which the memory of the time interval depended. The increase in variability with the longer intervals followed the law suggested by Cattell and Fullerton, rather than Weber's law.

Mr. Miner also read a paper by Mr. J. H. Bair, who was unable to be present, on the general practice curve. The paper was based on experiments made with a pack of 48 cards (six different pictures, and eight of each picture). The cards when dealt in the same order and then immediately after in a different order required a longer time for the second order. If dealt 2, 3, 4, $5 \cdots n$ times in the same order before dealing in some new order, the successive practices in the same order followed the law of the practice curve, which is an asymptotic approach to a physiological limit; and at the same time dealing the cards in any order required also less and less time. This shows that practice in one order gives practice ability in another order antagonistic to it, and the more practice in one order the greater the ability to respond quickly to the new order.

Professor MacDougal reported a series of experiments showing the influence of variations in visual stimulation upon reactions to auditory signals. Reaction time was shorter in darkness than in light, in weak light than in strong light and in colored than in neutral light. Reaction time was more constant under neutral than under colored light; changes of quality of light were followed regularly by increased rapidity of reactions. These changes are apparently due to changes in the attentive condition of the reactor, not to any immediate organic influence of the intensity or quality of the light.

JAMES E. LOUGH,
*Secretary.*

## THE ACADEMY OF SCIENCE OF ST. LOUIS.

*October 20, 1902.*—Professor A. S. Chessin presented for publication a paper on 'Some Relations Between Bessel Functions of the First and of the Second Kind.'

Professor Wm. Trelease exhibited photographs showing the variations in the ring or collar of *Lepiota naucinoides*, and a series of lantern slides illustrating autumnal coloring of foliage.

*November 3, 1902.*—Mr. G. G. Hedgcock gave an illustrated account of 'The Sugar Beet Industry in the United States and Some of the Difficulties attending It.'

Five persons were elected to active membership.

*November 17, 1902.*—Dr. M. A. Goldstein addressed the Academy on 'The Uses of the Tuning Fork as a Means of Medical Diagnosis.'

One person was elected to active membership.

*December 1, 1902.*—Dr. Adolf Alt delivered an address on the 'Development of the Eye,' illustrated by colored drawings and stereopticon views made from sections prepared and photographed by him.

*December 15, 1902.*—A paper by C. F. Baker, entitled 'A Revision of American Siphonaptera,' was presented and read by title.

Dr. C. B. Curtis delivered an illustrated address on 'Color Photography,' outlining the theory of color vision and the various ways in which a given color sensation can be produced, and describing the processes by which the natural colors of objects can be approximately reproduced by photographic means.

Two persons were elected to active membership.

*January 5, 1903.*—The reports of officers for the year 1902 were received, and the following officers for 1903 installed:

*President*—Henry W. Eliot.
*First Vice-President*—D. S. H. Smith.
*Second Vice-President*—Wm. K. Bixby.
*Recording Secretary*—Wm. Trelease.
*Corresponding Secretary*—Ernest P. Olshausen.
*Treasurer*—Enno Sander.
*Librarian*—G. Hambach.
*Curators*—G. Hambach, Julius Hurter, A. H. Timmerman.
*Directors*—F. E. Nipher, Adolf Alt.

Mr. Julius Hurter presented a paper entitled 'A Contribution to the Herpetology of Missouri,' illustrated by specimens of nineteen reptiles not included in his former paper on the same subject, and bringing the total thus far recorded for the state up to ninety-three.

Dr. Hermann von Schrenk presented some notes on the bitter-rot disease of apples, referring particularly to recent investigations and cultural experiments. He exhibited specimens of the cankers formed on apple limbs by the bitter-rot fungus (*Glœosporium fructigenum* Berk.) in various orchards, and of the artificial cankers produced in apple trees at the Missouri Botanical Garden by inoculating branches with spores from apples affected with the bitter-rot disease, and spores from pure cultures of the fungus from cankers occurring naturally in the orchard. Cultures showing the perfect or ascus stage of the fungus were exhibited, and attention was called to the fact that up to date the perfect form had been found only in cultures and on several apples kept in the laboratory. He announced the discovery two weeks ago, by Mr. Perley Spaulding, of the perithecia and perfectly formed asci and ascospores of the bitter-rot fungus in several of the cankers produced on apple limbs from pure cultures of the bitter-rot fungus, as well as from bitter-rot spores taken from cankers obtained in an affected orchard. This discovery is considered extremely important, as it demonstrates for the first time, beyond question, that the bitter-rot fungus actually produces its perfect fruit in the cankers, and thereby strengthens the contention that the cankers on apple limbs are actually formed by the bitter-rot fungus. The asci are apparently as evanescent in the cankers as they are in the cultures, and it is, therefore, not at all improbable that many of the supposed pycnidial spores found in both the natural and artificially produced cankers were really ascospores. Drawings were exhibited showing the perithecia found in the cankers with asci and ascospores.

Two persons were elected to active membership.

William Trelease,
*Recording Secretary.*

TORONTO ASTRONOMICAL SOCIETY.

During the November and December sessions of this society, W. F. King, Government Astronomer at Ottawa, contributed a paper dealing with the general outlook of 'Astronomy in Canada.' A detailed description was given of the new government observatory at Ottawa, which was now nearing completion, and its equipment. The instruments being set up were said to be of superior excellence, the optical parts of the large telescope and most of the other instruments being the work of John A. Brashear, of Allegheny, Pa. Mr. King was quite sanguine of the future of the institution under his control.

C. A. Chant, M.A., Ph.D., first vice-president, contributed a paper dealing with 'New Developments in Wireless Telegraphy,' with special reference to the labors of Marconi. Upwards of fifty lantern slides were shown, illustrating the development of method and apparatus used from Hertz to Braun of Strassburg, Professor Slaby of Berlin and Professor Fessenden, late of the U. S. Weather Bureau, up to November, 1902. Reference was made to the desirability of knowing the precise nature of the office rendered by the ether in originating and transmitting these electric waves or shocks, and also the nature of the oscillations about the aerial wire, and its earth connection, in order to give a solid scientific basis for further practical developments of the system. Dr. Chant has been doing some original work of value along these lines. The result of some of this work will be found elaborated in the forthcoming number of the *American Journal of Science.*

Under the heading 'Vagaries of the Mariner's Compass' Arthur Harvey, F.R.S.C.,

was able to show, from curves of magnetic variation based on the records of the magnetic observatory, an apparent variation of the *rate of motion* of the north magnetic pole.

J. R. COLLINS,
*Secretary.*

TORONTO, December 23, 1902.

## *DISCUSSION AND CORRESPONDENCE.*

### GUESSES ON THE RELATIVE WEIGHTS OF BILLS AND COINS.

THE question raised in SCIENCE for November 7 as to whether women are capable of making closer estimates than men is an interesting one, but the comparison of results from different colleges is somewhat uncertain. Some of the errors can be eliminated by testing young men and young women from the same state who have always been educated together. The question 'How many one-dollar bills will equal in weight a five-dollar gold piece?' was asked of 76 male and 58 female students of the University of Wyoming with the following results:

Male students: Average guess, 391; median, 56; average variation from the average guess, 516; average variation from the median, 366.

Female students: Average guess, 1,324; median, 50; average variation from the average guess, 2,125; average variation from the median, 1,299.

Since the true number is 7, the guesses of the women are slightly better if we take the median, but the most noticeable point is the much greater variety in the guesses of the women, which is in accordance with the report of Mr. Messenger in SCIENCE for April 25. This agrees well with common observation. Probably most grade books of classes nearly equally divided between the two sexes would show that the highest and lowest marks were given to women.

In the West coin is usually preferred to paper and five-dollar gold pieces are more common than one-dollar bills in Wyoming.

E. E. SLOSSON.

UNIVERSITY OF WYOMING.

### THE PUBLICATION OF REJECTED NAMES.

WITHIN the last few days I have received two papers in which rejected manuscript names are published in such a way as to render them valid, as I understand the rules. As there is evidently a misconception or divergence of opinion, it is worth while to discuss these cases.

1. Mr. Nathan Banks, in his most interesting paper on the 'Arachnida of the Galapagos Islands' (*Proc. Wash. Ac. Sci.*, 1902), cites on p. 50 *Filistrata oceanea* and *Loxosceles galapagoensis* Marx MS., n. spp. On p. 51 he states that these were *nomina nuda*, but that they are identical with his species of the same genera described below. On p. 55 the *Filistrata* is described as *F. fasciata*, and the *Loxoceles* as *L. longipalpis*. It is evident that the Marxian names have 'priority of place,' and it is clearly stated that they pertain to the two species described; it seems to me, therefore, that they are valid.

2. Mr. F. H. Knowlton (*Bull. Torr. Bot. Club*, November, 1902, p. 640) gives an account of a fossil fruit from Vermont which he says Lesquereux named in manuscript *Carya globulosa*. A description of the fruit immediately follows the publication of this name; but on the next page we are told that the fruit belongs to *Cucumites*, and 'in view of the fact that *Carya globulosa* was never actually published, it may be appropriate to name it in honor of Lesquereux, who first detected it. It may be called *Cucumites lesquereuxii*.' On the contrary, *C. globulosa* was just then published, and I do not see how we can avoid calling the plant *Cucumites globulosus*. T. D. A. COCKERELL.

E. LAS VEGAS, N. M.
December 6, 1902.

### THE IROQUOIS BOOK OF RITES.

I HAVE before me the La Fort manuscript from which my old friend, Horatio Hale, took the text of the condolence song of the 'Younger Brothers.' It varies considerably from his version, partly from haste in copying, and partly because he made the spelling more consistent in some cases. The differences are mostly in the vowels, but some con-