TOADS ON THE SEASHORE.

During a vacation recently spent at Cape May, New Jersey, I was much interested in observing the habits of the toads on the seashore. Between the 'board-walk' and high-water mark is a narrow belt of uneven sand, dotted with tufts of beach-grass and raised here and there into miniature 'dunes.' Here the toads congregate in considerable numbers, and as evening draws on they may be seen hopping about in quest of food. As they were not to be seen during the heat of the day, I became interested to know where they concealed themselves. A short search revealed their whereabouts. Like so many of the small animals of the contiguous waters, they bury themselves in the sand for concealment. Upon looking attentively over the surfaces of the little dunes, one saw here and there a pair of bright eyes, not unlike the sand in color and as fixed as gems in a rock. It was only necessary to touch the sand in the immediate vicinity of the eyes, when a toad would hop out and tumble clumsily over the hummocks in endeavors to escape.

Whether the toads captured any prey while concealed in the sand I was unable to discover, but I should think it improbable, as their mouths were usually beneath the surface and there would be little chance for them to shoot out their tongues.

Frederick W. True.

GENERAL.

Professor Arthur Cayley, the eminent mathematician, died at Cambridge, England, on January 26, at the age of seventy-four.

John S. Burdon-Sanderson, M. A., Fellow of Magdalen College, and Waynflete Professor of Physiology, has been appointed Regius Professor of Medicine, at Oxford, in place of Sir Henry W. Acland, Bart., Christ Church, resigned. Professor Burdon-Sanderson continues to direct the lectures and practical instructions in the Department of Physiology, with the assistance of Dr. Haldane and Mr. Pembrey.

Applications for the table at the Biological Laboratory of Cold Spring Harbor, maintained by the American Association should be sent to Professor W. H. Conn, Wesleyan University, Middletown, Conn., or to Professor F. W. Hooper, Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.

The Johns Hopkins University Circular for January consists of scientific notes on work done at the University. It includes a reprint from the *Journal of Geology* of Professor Brooks' paper, *On the Origin of the Oldest Fossils and the Discovery of the Bottom of the Ocean*, and a reprint from *Natural Science* of a review of Professor Brooks' monograph, *The Genus Salpa*. It also contains notes in chemistry, astronomy and botany.

The French Minister of Education, M. Leygues, has opened the new buildings for the scientific departments of the Sorbonne.

The list of books for sale issued by Bernard Quaritch in January includes many valuable works in natural history, especially in botany and ornithology.

SOCIETIES AND ACADEMIES.

NEW YORK ACADEMY OF SCIENCES.

Biological Section : January 14, 1895.

Notes on Neurological methods and exhibition of photo-micrographs.

A paper on *The Use of Formalin in Golgi's method* was read by Mr. O. S. Strong. The writer found that formalin (40% solution of formaldehyde) may be used (instead of osmic acid) mixed with potassium bichromate. Pieces of adult brain were placed in the following: Potassium bichromate (3½%–5%) 100 volumes + formalin 2½ to 5 vol. During several days or more the tis-

sue is transferred to the silver nitrate solution (1%). Or the tissue after 1 to 2 days may be transferred from the above bichromate-formalin mixture to the following: Pot. bich. (5%) 2 vols. + formalin 1 vol. After 12 to 24 hours the tissue is put into silver solution. The advantages of this method are that it avoids the use of osmic acid and that the stage of hardening favorable for impregnation lasts longer than when the osmium-bichromate mixture is used and good results are consequently more certain. In other words, the formalin-bichromate does not overharden. In this respect it is also superior to the lithium bichromate method of the author (N. Y. Acad. of Sc. Pro. vol. XIII., 1894). For embryonic tissue the formalin method is probably not equal to the osmium-bichromate method, possibly because it does not harden sufficiently. For such tissue *lithium* bichromate (which hardens more rapidly than potassium bichromate) had better be mixed with the formalin instead of potassium bichromate. While good results are obtainable, especially with advanced embryonic tissue, with either of the above, yet the author believes that for such tissue the osmium-bichromate method is probably in certain respects somewhat superior.

A fuller account will be published later.

Dr. Ira Van Gieson reported some preliminary observations on the action of formalin as a fixative and preservative of the central nervous system for the ordinary histological staining methods; solutions of formalin, four, six and ten per cent. were used, followed by 95 per cent. alcohol and celloidin embedding. Sections of the human cord, cerebellum and cortex prepared in this way gave very thorough fixation of the ganglion cell, neuroglia cells, and fine nerve fibres.

Weigert's haematoxylin method can be applied to such sections, and gives very good results for the plexus of fine fibres in the cortical and spinal grey matter. The myelin of the fine fibres is well preserved and gives the characteristic bluish black reaction with the Weigert haematoxylin stain, as in chrome hardened preparations. The background of the grey matter is especially clear and the fibres sharply delineated. The formalin hardened sections should be soaked in the neutral copper acetate solution, diluted one-half with water, for 2 hours, then thoroughly washed in water and immersed in the Weigert lithium-carbonate haematoxylin solution two to twelve hours. Weigert's borax-prussiate of potassium solution is used for differentiation. The differentiation takes place rapidly and must be watched carefully.

The formalin sections of the central nervous system may also be used for Rehm's modification of Nissl's method; but the staining of the chromatin and minute structure of the nucleus and cytoplasm is not quite so sharply outlined as with absolute alcohol fixation.

The duration of the hardening in formalin solutions has a very important and varying influence on the nerve fibers and ganglion cells with reference to the application of such methods as the Weigert and Nissl groups of stains. A further study to define the more exact limitations of formalin as a new histological preservative for the nervous system will be published later and the more exact periods of time in the hardening necessary for different stains detailed.

Mr. R. H. Cunningham, *On the Sources of Illumination for Photo-Micrography*, noted a practical mode of employing the arc light with satisfactory results.

Mr. C. F. Cox illustrated the *Latest Theories of Diatom Structure*, exhibiting lantern slides of Mr. T. F. Smith, of London.

Dr. Edward Leaming projected a series of his micro-photographs of bacteria, fertilization processes of sea-urchin, *Toxopeneustes*, and Golgi preparations.

BASHFORD DEAN, *Recording Secy.*

THE BIOLOGICAL SOCIETY OF WASHINGTON, JAN. 26.

Council meeting at 7:30 P. M.

A New Cotton Enemy, brought over from Mexico: Mr. L. O. Howard.

Anatomy of a Leaf-gall of Pinus virginianus: Mr. Theo. Holm.

Abnormal Feet of Mammals: Mr. F. A. Lucas.

The Mesozoic Flora of Portugal compared with that of the United States: Prof. Lester F. Ward.

Frederic A. Lucas, *Secretary.*

SCIENTIFIC JOURNALS.

THE ASTROPHYSICAL JOURNAL, JAN.

On the Conditions which Affect the Spectro-Photography of the Sun: A. A. Michelson.

Photographs of the Milky-Way: E. E. Barnard.

The Arc-Spectra of the Elements I. Boron and Berylium: H. A. Rowland and R. Tatnall.

On Some Attempts to Photograph the Solar Corona Without an Eclipse, made at the Mount Etna Observatory: A. Riccò.

Discovery of Variable Stars from their Photographic Spectra: E. C. Pickering.

Preliminary Table of Solar Spectrum Wave-Lengths I.: H. A. Rowland.

Observations of Mars made in May and June, 1894, with the Melbourne Great Telescope: R. L. J. Ellery.

Recent Changes in the Spectrum of Nova Aurigæ: W. W. Campbell.

The Modern Spectroscope. X. General Considerations Respecting the Design of Astronomical Spectroscopes: F. L. O. Wadsworth.

Minor Contributions and Notes.

Reviews.

Recent Publications.

AMERICAN JOURNAL OF MATHEMATICS, JAN.

Sur une transformation de mouvements: Par Paul Appell.

Extrait d'une lettre adressée à M. Craig: Par M. Hermite.

On the First and Second Logarithmic Derivatives of Hyperelliptic Functions: By Oskar Bolza.

Sur la definition de la limite d'une fonction. Exercice de logique mathématique: Par G. Peano.

Theorems in the Calculus of Enlargement: By Emory McClintock.

On Foucault's Pendulum: By A. S. Chessin.

BULLETIN OF THE TORREY BOTANICAL CLUB, JAN.

Family Nomenclature: John Hendley Barnhart.

A Revision of the North American Species of the Genus Cracca: Anna Murray Vail.

A Revision of the Genus Scouleria *with Description of one new Species:* Elizabeth G. Britton.

Studies in the Botany of the Southeastern United States—III.: John K. Small.

New Plants from Idaho: Louis F. Henderson.

Buxbaumia Aphylla: Geo. G. Kennedy.

Herbert A. Young: Wm. P. Rich.

Proceedings of the Club.

Index to Recent Literatare Relating to American Botany.

NEW BOOKS.

The Factors in Organic Evolution: A Syllabus of a Course of Elementary Lectures. David Starr Jordon. Pp. 149. Ginn & Co. $1.50.

The Geological and Natural History Survey of Minnesota. N. H. Winchell. Minneapolis, Harrison & Smith. 1894. Pp. 210.

Anatomy and Art. President's address before the Philosophical Society of Washington. Robert Fletcher Washington. 1895. Pp. 24.

Annual Reports of the Bureau of Ethnology of the Smithsonian Institution, 1890–1891. J. W. Powell. Washington, Government Printing Office. Pp. 742.