

member of the Molgophidæ as one of these connecting types. This localized specialization means that we must look into the Mississippian and the Devonian for the earliest of the Amphibia in North America, as the foot prints which have been discovered in these deposits would indicate.

The discovery of the new temnospondylous form with other facts of the distribution of the Temnospondylia indicates that the order originated in North America. At least the earliest known forms occur in this continent.

The amphibian fauna of Mazon Creek at the present time may be regarded as represented by nine species which are members of four orders and five families. The orders are: Branchiosauria, Microsauria and Temnospondylia. An additional fact of interest is the discovery of osseous branchial arches in an imperfectly preserved specimen; the second species from the Pennsylvanian in which these structures have been seen. This means the presence of a fourth order of Amphibia in the Mazon Creek shales.

ROY L. MOODIE

THE UNIVERSITY OF KANSAS,
January 14, 1910

A FIXING FLUID FOR PLANT TISSUES

My experience with Bouin's fluid as a fixing material for certain plant tissues for cytological work has been so satisfactory that I take this opportunity of recommending it to plant cytologists as one which combines a number of admirable features. It has, of course, been used for a number of years in connection with animal tissues, and especially for studies of spermatogenesis, in which it gives notably clear preparations. I first tried it, along with a number of other solutions, for fixing anthers of *Oenothera*, in 1908. The formula used was as follows:

	Parts
Picric acid, saturated aqueous solution ..	75
Glacial acetic acid	5
Formaline	20

Of course, various modifications of this may be found advantageous for different plant forms.

The time of fixation must be short, otherwise maceration results. It should probably not exceed four to six hours. The time of washing must also be comparatively brief, as long washing causes deterioration and fragmentation of the material. *Oenothera* anthers, after a few hours' immersion in this fluid, frequently acquire a slight pinkish tint, which remains indefinitely after the material has been dehydrated and placed in 70 per cent. alcohol.

This solution seems to be a favorite one for studies on animal spermatogenesis, and I see no reason why it should not become popular also for various purposes in plant cytology. Its obvious advantages are (1) that, unlike osmic solutions, it leaves the tissues clear and transparent, (2) its penetration seems to be very rapid, giving an even and almost perfect fixation of the material, (3) it leaves the cytoplasm and nuclei perfectly colorless, giving particularly clear and brilliant results in staining chromatin and spindles when followed by Heidenhain's iron-hæmatoxylin stain.

R. R. GATES

MISSOURI BOTANICAL GARDEN

THE AMERICAN SOCIETY OF NATURALISTS

The American Society of Naturalists met at the Harvard Medical School, Boston, Mass., on Wednesday, December 29, 1909. There were both morning and afternoon sessions. The program consisted of original papers and demonstrations of studies on evolution, and the meeting proved to be one of the most successful in the history of the society. The variety and importance of the papers read are well shown by the following list of titles:

PAPERS

U. Dahlgren: "Origin of the Electric Tissues in Teleost Fishes" (lantern).

D. T. MacDougal: "Origination of Parasitism in Higher Plants."

F. Boas: "The Influence of Heredity and of the Environment on Man."

E. Brainard: "The Evolution of New Forms in *Viola* through Hybridism."

R. R. Gates: "The Material Basis of Mendelian Phenomena" (lantern).

A. M. Lutz: "The Relation of Chromosome

Number to Vegetative Characters in the *Cenothera*" (lantern).

G. H. Shull: "The Inheritance of Sex in *Lychnis*."

F. E. Lutz: "Experiments concerning the Reversion of Domesticated Races to the Wild Type."

W. J. Spillman: "Mendelian Phenomena Independent of de Vriesian Hypotheses."

C. B. Davenport: "Some Consequences of Imperfect Dominance."

J. Reighard: "The Biological Meaning of Conspicuousness in Animals" (lantern).

T. H. Montgomery: "Secondary Sexual Characters in Spiders."

C. W. Beebe: "Racket Formation in the Tail Feathers of the Mot-Mot."

E. M. East: "A Mendelian Interpretation of Variation that is Apparently Continuous."

W. L. Tower: "Causes and Consequences of Variability in Alternative (Mendelian) Inheritance in Experiment and in Evolution" (lantern).

W. E. Castle: "On the Nature of Mendelian Factors."

A. F. Shull: "The Artificial Production of the Parthenogenetic and Sexual Phases in the Life Cycle of *Hydatina senta*" (read by Professor T. H. Morgan).

H. S. Jennings: "Experimental Evidence on the Effectiveness of Selection."

There were interesting discussions of some of the papers; but the program this year, unfortunately, proved to be too crowded to permit of the proper time allowance for this very desirable feature.

DEMONSTRATIONS

A new departure was the demonstration of specimens, etc. This list also surely indicates that the naturalists have selected a most promising field of interest to all biologists.

U. Dahlgren: Gross and microscopic preparations of electric tissues; also lantern slides.

D. T. MacDougal: Parasitism in plants.

R. R. Gates: Lantern slides.

A. M. Lutz: Paintings, lantern slides and microscopic preparations of *Cenothera*.

F. E. Lutz: Specimens.

W. J. Spillman: Specimens.

C. B. Davenport: Illustrations of inheritance of plumage color.

J. Reighard: Colored photographs and transparencies.

C. W. Beebe: Bird skins.

E. M. East: Specimens and lantern slides.

W. L. Tower: General demonstration arranged to illustrate phases of investigation now in progress. (1) photographs; (2) specimens showing results.

W. E. Castle: Specimens.

H. S. Jennings: Diverse genotypes in *Paramœcium*.

COOPERATION

The Botanical Society of America left most of Wednesday morning free to the Naturalists, and the American Society of Zoologists adjourned early in the day. Thus good audiences were possible. It seems probable that interest in the society will continue and grow, if the program is, in future, kept closely in touch with modern work of such general importance to all biologists. This was, after all, the essential principle of the society in its early years.

PUBLICATION OF PAPERS

The papers presented before the society will be published in *The American Naturalist*, in a series, as supplied by the authors.

The president's address, on "Chance or Purpose in the Evolution of Adaptations," was delivered at the dinner in the Hotel Somerset, on the evening of the same day. This address is published in the present number of *SCIENCE*.

NEW MEMBERS

The following new members were elected: F. N. Balch, Boston, Mass.; R. S. Breed, Allegheny College; R. Chambers, University of Toronto; H. Colton, University of Pennsylvania; W. W. Ford, Johns Hopkins Medical School; A. J. Goldfarb, New York; H. G. Kribs, University of Pennsylvania; A. Petrunkevitch, American Museum of Natural History; Q. J. Simpson, Palmer, Ill.; F. M. Surface, University of Maine; C. B. Thompson, Wellesley College.

The officers elected for the year 1910 are:

President—Dr. D. T. MacDougal, Carnegie Institution.

Vice-President and chairman of the Eastern Section—Dr. H. S. Jennings, Johns Hopkins University.

Treasurer—Dr. E. M. East, Bussey Institution, Boston, Mass.

Secretary—Dr. C. R. Stockard, Cornell University Medical School.

Members of Executive Council—Dr. Raymond Pearl, University of Maine, and Dr. F. Boas, Columbia University.

H. McE. KNEWER,
Secretary for 1909