Order 3. Pholidota Weber.
Order 4. Tubulidentata Flower.

A further examination of the literature reveals the fact that the term Pholidota Weber (1904), comprising the *Manidæ*, is antedated by Pholidota Merrem ("Tentamen systematis Amphibiorum," 1820), applied to the *Reptilia*. As Squamata Huxley (1872), which also has been frequently used to designate the *Manidæ*, is itself antedated by Squamata Oppel (1811), applied to an order or superorder (Osborn) of Reptilia, it seems necessary to adopt some other name for this group. I therefore propose that the order to which the Manidæ belong, be called the Lepidota [Gr. λεπιδωτός, scaly].

Making this change and listing the families, our classification of the Edentates is as follows:

SUPERORDER EDENTATA Vicq d'Azyr.
Order 1. Tæniodonta Cope.
Family *Conoryctidæ* Wortman.
Family *Stylinodontidæ* Marsh.
Order 2. Xenarthra Gill.
Suborder Pilosa Flower.
Family *Bradypodidæ* Bonaparte.
Family *Megalonychidæ* Zittel.
Family *Megatheriidæ* Owen.
Family *Myrmecophagidæ* Bonaparte.
Family *Orophodontidæ* Ameghino.
Suborder Loricata Flower.
Family *Dasypodidæ* Bonaparte.
Family *Glyptodontidæ* Burmeister.
Order 3. Lepidota Lane.
Family *Manidæ* Gray.
Order 4. Tubulidentata Huxley.
Family *Orycteropodidæ* Bonaparte.

H. H. Lane
State University of Oklahoma,
Norman, Oklahoma,
February 15, 1910

THE NORTH CAROLINA ACADEMY OF SCIENCE

The ninth annual meeting of the North Carolina Academy of Science was held at Wake Forest College, Wake Forest, N. C., on April 29 and 30, 1910, with thirty-one members in attendance. The meeting of the executive committee, held on the afternoon of April 29, was followed by a general meeting for the reading and discussing of papers. At night in Wingate Memorial Hall, the academy was formally welcomed to Wake Forest College by President W. L. Poteat. President W. C. Coker, of the academy, then delivered the presidential address, "Science Teaching in the Schools and Colleges of North Carolina."

Because of their interest to the general public, the following papers were then given with lantern slide illustrations and diagrams: "Pellagra," a preliminary report, by Professor J. J. Wolfe, of Trinity College; "Halley's Comet," by Professor A. H. Patterson, of the University of North Carolina; "The Comet, What is It?" by Professor John F. Lanneau, of Wake Forest College.

On Saturday morning, April 30, the academy reconvened for the annual business meeting. The reports of the secretary-treasurer and of various committees were heard. Forty-six new members were received into the academy. These, together with the 43 former members, give a total membership of 89. The report of the treasurer showed the finances of the academy to be in a very flourishing condition. A large and representative committee was appointed to collect data and report to the next meeting of the academy a course of study in the sciences for the high schools of the state. It is the purpose of the academy to transmit this with its recommendation to the state superintendent of public instruction and to the North Carolina Teachers' Assembly.

The following officers were chosen for the ensuing year:

President—W. H. Pegram, Trinity College, Durham, N. C.

Vice-president—W. S. Rankin, State Board of Health, Raleigh, N. C.

Secretary-Treasurer—E. W. Gudger, State Normal College, Greensboro, N. C.

Executive Committee—F. L. Stevens, A. & M. College, W. Raleigh, N. C.; H. H. Brimley, State Museum, Raleigh, N. C.; H. V. Wilson, University of North Carolina, Chapel Hill, N. C.

In point of attendance, number of new members added, number of papers read, general interest as shown in the discussion of papers, this meeting excelled any since the founding of the academy.

The following papers were presented:

The Cause of Pellagra (a preliminary report): Jas. J. Wolfe, Trinity College, Durham, N. C.

Believing that pellagra must be an infectious disease, and that, because of its generalized nature, the organism was most likely to occur in the blood, the writer, last September, began a

study of some specimens of pellagrous blood with the hope of throwing some light on the etiology of this disease.

The usual smear preparation was made, stained with methylene blue and studied under a Zeiss apochromat. Bacteria were seen in considerable numbers in most cases—especially severe ones. Milder cases were more difficult and not as yet entirely convincing. These bacteria are polymorphic, but generally spherical, grouped often in doubles like a dumb-bell or in irregular clumps, sometimes in chains and usually between .5 and 1 μ in diameter.

A culture derived from damaged corn shows an organism quite similar in grouping, size, color reactions and polymorphism. This is now being tested with animals.

Peculiarities in Distribution of North Carolina Birds: FRANKLIN SHERMAN, Jr., Raleigh, N. C.

The main points brought out in this paper are as follows:

1. The song sparrow was long known to breed mainly if not exclusively on the very verge of the coast region. Records were given showing that it nests quite freely in the mountain region also. There is no evidence that it nests in any of the central sections of the state.

2. The towhee has been known to breed only in the eastern and western sections. Data were given showing that it also nests in the central section to some extent, though perhaps not so abundantly.

3. The barn swallow has been known to nest only on the coast. A record was given of its nesting at about 2,600 feet elevation in the mountains. It is not known in nesting season in the central part of the state.

4. The loggerhead shrike is mainly a winter visitor, going north to breed. Two or three breeding records are on file. Several new records are added, especially from the eastern section.

5. The robin has been known to breed only in the western half of the state. Data were given showing that in 1909, at least, it nested in a number of eastern localities. It may be extending its breeding range to the southward.

The tendency shown by certain birds (confirmed by some other animals and plants) to occur in the eastern and western extremes of the state is attributed to high humidity of the coast region which gives to the plants or animals the conditions of a more northern latitude. The western part of the state furnishes the same conditions by altitude.

The Comet: What is It? JOHN F. LANNEAU, Wake Forest College, Wake Forest, N. C.

The Resin of Pinus sabiniana: CHARLES H. HERTY and E. N. TILLETT, University of North Carolina, Chapel Hill, N. C. (Read by title.)

Medical Entomology: Z. P. METCALF, Department of Agriculture, Raleigh, N. C.

A short popular account of some of the more recent developments in the science of medical entomology, which was defined as that branch of entomology which treats of the relation of insects and insect-like animals in the transfer of diseases from man to man, man to animal and animal to animal. This relation was declared to be twofold: In the first case the insect is a necessary intermediate host and in the second case the insect is merely an incidental or accidental factor in the transfer of the disease. The work of the board of health of the city of Asheville, N. C., was cited as an example of applied medical entomology.

The Ammonifying of North Carolina Soils: F. L. STEVENS and W. A. WITHERS, assisted by P. L. GAINEY and F. W. SHERWOOD, North Carolina Agricultural Experiment Station, W. Raleigh, N. C.

Remarks on the Relation of our Birds to the Farm and Garden: C. S. BRIMLEY, Raleigh, N. C. (Read by F. Sherman, Jr.) Published in full in the current number of the *Journal of the Elisha Mitchell Scientific Society.*

Where to find Amebas: E. W. GUDGER, State Normal College, Greensboro, N. C.

The directions given in the books are very indefinite, as the writer found to his sorrow in his early biological days. Acting on a suggestion made by Dr. D. H. Tennent, now of Bryn Mawr College, he at that time successfully sought them in the yellowish-green diatom deposits on the bottom of stagnant ditches or of quiet pools in brooks. In seven years these have never failed to furnish abundant material. The writer's classes are supplied from a tiled drain at the foot of a bank less than one hundred yards from the laboratory. These amebas vary in size from quite small to those so large that they can not be seen in their entirety under the ordinary high objective.

The Origin of Thermal Waters, with Special Reference to Hot Springs, Ark.: COLLIER COBB, University of North Carolina, Chapel Hill, N. C.

Some Aids to Better Work in Science: C. W. Edwards, Trinity College, Durham, N. C. (Read by title.)

A new Hybrid Habenaria of North Carolina: J. G. Hall, North Carolina Agricultural Experiment Station, West Raleigh, N. C.

A hybrid *Habenaria* was reported from the neighborhood of Kinston, N. C. This natural hybrid seemed to be pretty well intermediate between the two supposed parents *H. ciliaris* and *H. blephariglottis*. Photographs of the flowers were shown and these presented some characters of the parents and the hybrid.

The Present Status of the Darwinian Hypothesis: W. L. Poteat, Wake Forest College, Wake Forest, N. C.

Some Experiments on Ionization by Impact: The Time Variation of a Current through a Gas Ionized by Radium: J. Blanchard, Trinity College, Durham, N. C.

The ionization vessel was a glass tube with parallel plate electrodes about five centimeters in diameter, both plates coated (though unequally) with a thin layer of a very impure salt of radium. With the plates about one centimeter apart, and the pressure about one millimeter, with a potential difference sufficient to produce considerable ionization by impact, it was found that the current decreased with the time the battery key remained closed, reaching its minimum value in about an hour. On opening the key the initial conductivity was almost totally regained in about the same time. Upon reversing the potential at the end of an hour the current was sometimes found to be greater than it was initially in this reverse direction, but also decreasing with the time as before.

The potential difference apparently causes an increased amount of ionization near the positive plate.

Further experiments are in progress.

Is the Fusarium which Causes Cowpea Wilt Genetically connected with Neocosmospora? B. B. Higgins, North Carolina Agricultural Experiment Station, West Raleigh, N. C.

In 1889 the wilt disease of cotton was studied by Professor Geo. F. Atkinson and its causal fungus named *Fusarium vasinfectum*. A few years later (1894–99) the wilt disease of cotton, watermelon and cowpea was studied by Erwin F. Smith. He found no specific differences between the fungi upon any of the three hosts. He found, however, upon some of the plants previously killed by the wilt fungus, an acigerous fungus which he considered the perfect stage of *Fusarium vasinfectum*. The fungus was therefore renamed by him *Neocosmospora vasinfecta*, and this conclusion has been accepted by subsequent writers. The evidence upon which this conclusion was based was very weak, however; and a recent study of the two forms by the writer—the results of which will at an early date be published in bulletin form—has caused the writer to reopen this question which was considered closed.

Some Experiments in the Propagation of the Diamond-back Terrapin: Henry D. Aller, Fisheries Laboratory, Beaufort, N. C. (Read by the secretary.)

This paper appears in full in the current number of the *Journal of the Elisha Mitchell Scientific Society.*

The Present Status of the Relativity Problem: C. W. Edwards, Trinity College, Durham, N. C. (Read by title.)

The Locus of a Moving Point when the Sum of its Distances from Two Fixed Points, their Difference, their Product or their Quotient is Constant: John F. Lanneau.

The loci determined by the first three conditions are the well-known ellipse, hyberbola and lemniscate.

Under the fourth condition: Take line through the fixed points F and F' as x-axis; the point O, midway between them, as origin; $2c$ for distance F to F'; K for the constant quotient when the moving point is on one side of the y-axis, and therefore $1/K$ the quotient when it has the corresponding position on the other side.

1. The equation of the locus is

$$x^2 + y^2 \mp 2c\frac{K^2+1}{K^2-1}x + c^2 = 0.$$

The locus, therefore, consists of two equal circles whose centers are on the x-axis beyond F and F', at equal distances from O.

2. A discussion of the equation shows:

If $K = 1$, the circles are of infinite radius, and are tangent at O.

If K is either 0 or ∞, the circles reduce to the points F and F'.

If K has, in turn, any series of values between 1 and 0, or between 1 and ∞, the loci form a group of circles about F and a similar group about F'—the number of circles in each group limited only by the number of values given to K.

3. None of the circles of the F and F' groups pass through either of the fixed points F and F'.

Any circles drawn through F and F' are extraneous to the loci, but each such circle is orthogonal to every circle in the loci groups.

Notes on Fungi: F. L. STEVENS and J. G. HALL, North Carolina Agricultural Experiment Station, West Raleigh, N. C.

Three new species of *Claviceps* were described. Two of them are upon *Paspalum* and are thought to be the perfect stages of the fungus usually known as *Sclerotium Paspali* S. Germination of the sclerotium was described and the characters of the fungus were illustrated by photographs and specimens. The third species grows upon gama grass (*Tripsacum dactyloides* L.). Both sphacelia and ascosporic stages were exhibited. Technical descriptions were given under the names *Claviceps Paspali* (S.) n. comb.; *C. Rolfsii* n. sp., and *C. Tripsaci* n. sp. These will be published in full elsewhere soon.

Specimens of a *Cercospora* upon persimmon which was thought to be new were also shown.

Some Methods of Making Illustrations: Z. P. METCALF, Department of Agriculture, Raleigh, N. C.

A brief consideration of some of the more important methods of making illustrations considered from the standpoint of the biologist.

Precautions Necessary in Estimating Climates of Geological Time: COLLIER COBB, University of North Carolina, Chapel Hill, N. C.

The Jaws of the Spotted Sting Ray Aëtobatus narinari: E. W. GUDGER, State Normal College, Greensboro, N. C.

This ray and its jaws were described by George Marcgrave from a specimen from Brazilian waters in a book published in 1648. Unlike other pavement-toothed rays, this fish has only the central row of teeth, the lateral ones having entirely disappeared. Marcgrave correctly counted its fourteen I-shaped upper teeth, and its seventeen broad V-shaped lower ones. The lower jaw is narrower and longer than the upper and projects beyond the lips. With it and the snout the ray digs up the clams which constitute its chief food.

The paper was illustrated with photographs of the fish and with a pair of dried jaws.

The writer has in preparation for the U. S. Bureau of Fisheries, a paper on this ray, reviewing all the work ever done on it, and including his own observations and photographs.

The Cocoanut Crab: JOHN F. LANNEAU.

Called also the robber crab and the pouch crab. Shaped more like a lobster than a crab. Found on islands of the South Pacific. Weight usually five or six pounds, sometimes twenty. Feeds on fallen cocoanuts. Said to climb the trees. Is highly esteemed as food, especially the rich, fatty content of the pouch. Is found on our island of Guam. It and other singular forms of life on that pleasant little island would repay a biologist's investigation. His visit would likely be facilitated by our Secretary of War or Secretary of Navy.

A Double Flowering Dogwood: F. L. STEVENS and J. G. HALL, North Carolina Agricultural Experiment Station, West Raleigh, N. C.

A case of double flower of the common flowering dogwood (*Cornus florida* L.) due to the excessive development of the small bracts that subtend the individual flowers of the ordinary head was reported. There was as well the suppression of all the individual flowers except the central one, which appeared entirely normal.

A Note in the Development of the Gall-fly Diastrophus nebulosus O. S.: J. D. IVES, Wake Forest College, Wake Forest, N. C.

This paper is published in full in the current number of the *Journal of the Elisha Mitchell Scientific Society.*

Pecan Culture in North Carolina: W. N. HUTT, State Horticulturist, Raleigh, N. C.

E. W. GUDGER,
Secretary

SOCIETIES AND ACADEMIES

THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE

THE thirty-ninth meeting was held at the Sheffield Biological Laboratory, New Haven, Conn., on Wednesday, May 18, 1910, at 4:15 P.M., with President Morgan in the chair. An executive meeting was held.

New members elected: A. B. Eisenbrey, H. D. Senior, Edna Steinhardt, H. F. Swift.

Members present: Atkinson, Beebe, Davenport, Gies, Harrison, Henderson, Janeway, Lee, Levin, I., Lusk, MacCallum, Meltzer, Mendel, Morgan, Murlin, Norris, Pearce, Shaklee, Stewart, H. A., Wolf.

Scientific Program

"An Examination of Fröhlich's Theory of the Treppe," Frederic S. Lee and E. N. Harvey.