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GEORGE F. KUNZ

SCIENTIFIC JOURNALS AND ARTICLES

THE July number (volume 8, No. 3) of the *Transactions of the American Mathematical Society* contains the following papers:

J. W. YOUNG: "General theory of approximation by functions involving a given number of arbitrary parameters."

E. R. HEDRICK: "On derivatives over assemblages."

BEPEO LEVI: "Geometrie proiettive di congruenza e geometrie proiettive finite."

OSWALD VEBIEN: "Collineations in a finite projective geometry."

R. L. MOORE: "Geometry in which the sum of the angles of every triangle is two right angles."

O. VEBIEN and J. H. MACLAGAN-WEDDERBURN: "Non-desarguesian and non-pascalian geometries."

L. E. DICKSON: "Modular theory of group-matrices."

OSKAR BOLZA: "Existence proof for a field of extremals tangent to a given curve."

G. A. BLISS: "A new form of the simplest problem of the calculus of variations."

A. E. YOUNG: "On certain isothermic surfaces."

The Library Journal for July contains an article on "The Library and the Museum," by Henry L. Ward, in which he takes the ground that a union of the two is impracticable, that the two differ radically in their methods and administration and that all attempts to unite them have been failures so far as the museum part is concerned.

Bird-Lore for July-August contains articles on "A Southern California Aviary," by H. L. Sefton; "A Report on the Nesting Birds in the Vicinity of Riverview Park, Allegheny, Pa., for 1906," by W. G. Pitcairn, comprising 95 nests of 20 species, 43 nests turning out successfully in spite of the small boy. F. H. Herrick contributes the first half of a paper on "Bird Protection in Italy as it impresses

the Italian"; apparently it does not on the whole impress him favorably, for he considers that all birds should be killed and eaten, an idea he tries to carry into practise here. W. W. Cooke contributes the fourth paper on "The Migration of Thrushes" which consists mainly of a fine colored plate. There are "Notes on the Starling," predicting that the importation of this bird will be as greatly deplored as that of the English sparrow. There are important articles on the failure of New Jersey to pass a bill prohibiting spring shooting and on the failure of the bill to permit the sale of certain species of foreign game in New York. William Dutcher makes a strong plea for the preservation of the wood duck, showing that unless radical steps are soon taken the bird will be exterminated.

SOCIETIES AND ACADEMIES

THE NORTH CAROLINA ACADEMY OF SCIENCE

THE North Carolina Academy of Science held its sixth annual meeting at Chapel Hill, N. C., May 17 and 18, 1907.

The academy was called to order by its president, Collier Cobb, and an address of welcome was extended to the academy by President Francis P. Venable of the university. A response to the address was made by the retiring president, John F. Lanneau, of the Academy of Science.

In the evening the academy met in Gerard hall, and the presidential address "The Garden, Field and Forest of the Nation" was delivered. Following this address a reception was extended to the visiting members in the Y. M. C. A. building. Saturday, May 18, at 9 A.M. the academy convened for a business meeting. Twenty-one new members were elected. The following officers were elected for the ensuing year:

President—T. Gilbert Pearson, of Greensboro, N. C.

Vice-president—W. C. Coker, of Chapel Hill.

Secretary—E. W. Gudger, of Greensboro.

Members of the Executive Committee—Franklin Sherman, Jr., of Raleigh; J. J. Wolfe, of Durham, and John F. Lanneau, of Wake Forest.

The report of the treasurer showed a balance of \$122.53.

The following papers were presented:

The Sparsity of the Stars, the Measureless Remoteness of each Star from All Others: JOHN F. LANNEAU, Wake Forest College. The paper will appear in full in *Popular Astronomy*.

The Foundations of Geometry: ARCHIBALD HENDERSON, of the University of North Carolina, published in the *Journal of the Elisha Mitchel Society*, 1907.

Some New Sources of Light: C. W. EDWARDS, Trinity College. Read by title.

Some Interesting Grasshoppers (and their Relatives) of North Carolina: FRANKLIN SHERMAN, Jr., state entomologist.

He mentions the following species: *Labidura Riparia*, *Cryptocercus punctulatus*, *Stagomantis carolina*, *Diapheromera femorata*, *Eritettix navicula*, *Trimerotropis saxitalis*, *Leptysmia marginicollis*, *Melanoplus punctulatus*, *Dissoteiria carolina*, *Gryllotalpa borealis*, *Myrmecophila pergandei*, *Tridactylus* sp.

Osteogenesis Imperfecta (with a report of a case): LEWIS M. GAINES, of Wake Forest College. Read by title.

Notes on the Cultivation of Algæ for Class Use: F. L. STEVENS, of the N. C. College of Agriculture and Mechanic Arts.

Suggestions were given for the isolation and cultivation of algæ upon solid medium, consisting of .75 per cent. agar made up with Knopf's solution. This medium solidifying at lower than 34° can be safely used in plating out algæ. Cultures of several forms were exhibited.

Fusion of Sponge Larvæ with Formation of Composite Sponges: H. V. WILSON, of the University of North Carolina.

The ciliated larvæ of silicious sponges (*Stylotella*) may be made to fuse, thus giving rise to composite sponges. To accomplish this result it is only necessary to bring the larvæ in close contact at the time when the ciliary action is no longer locomotory and fixation is about to occur. The composite masses representing (in the actual experi-

ments) from two to six larvæ complete the metamorphosis.

Wind-polished pebbles, and Palæolithic Man: COLLIER COBB, of the University of North Carolina.

The close similarity between wind polished pebbles and work of man was indicated, and the errors which might result were pointed out.

Notes on Zoology of Lake Ellis: C. S. BRIMLEY, Raleigh, N. C.

The paper discusses the occurrence of various insects and reptiles taken by the writer and others in the vicinity of Lake Ellis, Craven County, N. C., during June, 1905, and May, 1906. The rare salamander, *Stereochilus marginatus*, which had not been taken for many years was found to be common, and several specimens of the frog, *Rana virgatipes*, were taken. Nine alligators were secured on the two trips by the author's companion, and several rare snakes. Five species of dragonfly new to North Carolina were secured, and (in June, 1905) numerous specimens of the yellow fly (*Diachlorus ferrugatus*). Notes on other members of the Tabanidæ are also given.

Single Phase Railway Work: F. E. LATTA, of the University of North Carolina.

The Relation of the Cattle-tick to Southern Agriculture: Dr. TAIT BUTLER, State Veterinarian, Raleigh, N. C.

The Design of High Masonry Dams: WILLIAM CAIN, of the University of North Carolina.

Three Little-known Species of North Carolina Fungi: J. G. HALL, of the N. C. Experiment Station.

These are of some interest because one is a new species and another has not been reported in print in the United States.

The first is *Martensella pectinata*, Coem, a hyphomycete described in 1863 and is characterized by procumbent sterile hyphæ and erect fertile hyphæ. The fertile hyphæ bear short, lateral branches which become the sporophores.

The sporophores are naviculate and bear the fusiform-cylindric hyaline spores upon

basidia all over their face. The face is turned outward from the main hyphæ.

The second species is one of the genus *Epicoccum* also a hyphomycete and was interesting because it showed different colors of mycelium when grown upon different media.

The last species is one of the *Pyrenomyces* and belongs to the genus *Podospora*. Its chief interest lies in the fact that the spores are joined in pairs by a non-septate hypha, thus coming very near *podospora zygospora*.

A New Form of Achlya: W. C. COKER, of the University of North Carolina.

During the fall of 1906 an *Achlya* was found at Chapel Hill, N. C., which agrees with *Achlya racemosa* var. *stelligera* Cornu in many respects, but different from it in having the antheridium cut off immediately below the oogonium, and the fertilizing tube arising from the division wall and entering the oogonium from below, as in *Saprolegnia hypogyna* Pringsheim. Such an origin for the fertilizing tube is new for the genus *Achlya*, and is not known elsewhere except in *Saprolegnia hypogyna*.

Notes upon the Preparation of the Silicate Medium for the Cultivation of Bacteria: J. C. TEMPLE, N. C. Agricultural Experiment Station.

Directions were given for the preparation of this medium obviating the necessity of dialyzing, and making it possible to prepare this medium with greater certainty and greater accuracy. The use of the medium prepared in this way for the culture of various organisms was illustrated by colonies of various bacteria growing in a thriving condition upon the medium.

Breeding Colonies of Birds (illustrated with eggs and stereopticon views): T. GILBERT PEARSON, of Greensboro.

The Efficiency of Soil Inoculation in the Production of Root Tubercles: F. L. STEVENS, of the N. C. Agricultural Experiment Station.

Data were given concerning the inoculation of soils with liquid cultures obtained from the Department of Agriculture, Washington, D. C. From many tests conducted in vari-

ous ways there was no evidence whatever that inoculation with these cultures was efficient in the production of tubercles upon legumes. The cultures employed were issued in liquid condition in hermetically sealed test-tubes, and were obtained directly from the Bureau of Plant Industry, Washington, D. C.

The Opportunities for Study and Research at the Beaufort Laboratory: H. V. WILSON, of the N. C. University.

Does Blood Tell? Heredity according to the Experience of the Children's Home Society: WM. B. STREETER, of Greensboro, N. C.

Probably the most difficult proposition one engaged in child saving has to contend with is the firmly grounded belief in the principle of heredity; that as father, so son; as mother, so daughter. Almost adamant is the conviction that 'blood will tell' but will it? If the question refers merely to mental and physical qualities, those things which depend upon physiological causes, undoubtedly the answer will be 'yes.' If it refers to moral tendencies, my experience covering a period of twenty years with children born under unfavorable conditions, leads me to answer the question in the negative. As children of my experience were recovered from the custody of vicious parents at an early age, and reared in the atmosphere of moral uprightness, have almost invariably reached their majority in the state of voluntary social purity, I conclude that it is the heredity of environment, rather than the heredity of blood, that determines moral character.

Geology of the Cape Fear River: JOSEPH E. POGUE, of the University of North Carolina.

The Relation of Sporangium of Lygodium to the Evolution of the Polypodiaceæ: RAYMOND BINFORD, of Guilford College. To be published in the *Botanical Gazette*.

The Condensation of Aliphatic Aldehydes with Aromatic Amines: ALVIN S. WHEELER, of the University of North Carolina.

The following reaction takes place without any dehydrating agent: $RCHO + 2RNH_2 = RCH(RNH_2)_2 + H_2O$. In some cases at low temperatures the addition product is ob-

tained. Condensation products of Chloral with the three nitranilines, p-bromaniline, o-toluidine, anthranilic acid, and o-anisidine were prepared. By-products, as yet unidentified, were obtained with o-toluidine and with anthranilic acid. The condensation products are readily broken down by hydrochloric acid and by acetic anhydride. When suspended or dissolved in the glacial acetic acid they react with extreme smoothness with bromine, forming beautifully crystalline compounds which are much more stable than the condensation products.

Chapel Hill Ferns: W. C. COKER, of the University of North Carolina.

A collection of the living ferns and fern allies native to Chapel Hill, N. C., was made and exhibited in pots. Twenty species were represented, including all the known Pteridophytes of the neighborhood, except *Botrychium ternatum* and its variety, *dissectum*, which had not yet appeared above ground.

Notes on Turtles of Genus Pseudemys: C. S. BRIMLEY, of Raleigh, N. C.

This paper discusses the character of the turtles of this genus and shows that the distinctive characters attributed to *P. hieroglyphica*, *P. Labyrinthica*, *P. mobilensis* and *P. Concinna* all fall within the limits of individual variation of the last named form. These conclusions are drawn from an examination of all specimens of the genus that have passed through the author's hands for the last five or six years.

Electricity in Heavy Traction (illustrated by lantern slides): J. E. LATTA, of the University of North Carolina.

The Design of High Masonry Dams: WILLIAM CAIN.

The claim is made that in addition to the three universally imposed conditions, no tension, safe unit pressures and no possible sliding at any horizontal joint, a fourth condition must be imposed, viz., that the factors of safety against overturning and sliding shall increase gradually from the base upward, to allow for the proportionately greater influence, on the upper joints of the wind and wave action, floating ice or other bodies, and espe-

cially of the great forces caused by the expansion of thick ice under an increase of temperature, and by earthquakes.

It was found that this could easily be done by taking the well-known theoretical triangular type of cross-section of dam and making some additions at the top sufficient for a roadway.

A preliminary design is given for a dam 258 feet high, with factors of safety and unit pressures marked on the drawing, satisfying all four conditions, the area of cross-section and height being the same as for the celebrated Quaker Bridge design. A comparison was instituted unfavorable to the latter, in that its factors of safety are too small, particularly in the upper portions, where by the proposed fourth condition they should be largest.

This criticism owes its significance to the fact that the new Croton Dam, of New York, 224 feet high to water surface and finished February 1, 1906, at a cost of over \$7,500,000 has a profile for 224 feet in depth, exactly the same as the quaker bridge design for the same depth.

The Optical Rotation of Volatile Oil: C. H. HERTY and G. A. JOHNSON, of the University of North Carolina.

Children's Home Society Methods: WM. B. STREETER, of Greensboro.

Gametophytes of Botrychium Virginianum: RAYMOND BINFORD, of the University of North Carolina.

They were found in moist oak woods under the leaves. Some were almost on the surface of the soil, while others were imbedded one to two inches in the soil. They seem to have gotten down by means of worm holes or cracks made by roots of trees. Sizes ranging from 2 mm. to 10 mm. were shown. Specimens of these plants were exhibited before the academy.

F. L. STEVENS,
Secretary

DISCUSSION AND CORRESPONDENCE

SEEING THE LIGHTNING STRIKE

ON July 14, 1907, at about 5:30 p.m., for the first time in my life, I saw the lightning