odd forms referred to *Trichotropis*. A new species of *Neoconcha* has a strong resemblance to *Torellia*. *Modiolaria lateralis* Say, originally described from the Florida coast, was obtained from South Trinidad Island, 700 miles off the coast of Brazil in the South Atlantic.

WM. H. DALL

PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES

(VOLUME 2, NUMBER 1)

THE first number of volume 2 of the *Proceedings of the National Academy of Sciences* contains the following articles:

1. *A Possible Origin for Some Spiral Nebulæ:* G. F. BECKER, United States Geological Survey, Washington.

It is suggested that nebulæ may be developed from nebulous streamers or "bacula." Comparison of the theoretical shape of the nebulæ at certain stages of their development with the Whirlpool nebula is not unfavorable to the hypothesis.

2. *A Peculiar Clay from near the City of Mexico:* E. W. HILGARD, University of California.

The analysis shows that the predominant base is magnesia. A peculiarity of the clay is its exceptionally high absorptive power for water.

3. *Studies of Magnitude in Star Clusters, I. On the Absorption of Light in Space:* HARLOW SHAPLEY, Mount Wilson Solar Observatory, Carnegie Institution of Washington.

The examination of the Hercules cluster indicates the conclusion that the selective extinction of light in space is entirely inappreciable and that probably the non-selective absorption in space is also negligible.

4. *Studies of Magnitudes in Star Clusters, II. On the Sequence of Spectral Types in Stellar Evolution:* HARLOW SHAPLEY, Mount Wilson Solar Observatory, Carnegie Institution of Washington.

The giant second-type stars are present in large numbers in the globular clusters. The results offer difficulties for the conventional scheme of evolution of spectral types, but the difficulties are not so severe for Russell's hypothesis.

5. *Experimental Evidence for the Essential Identity of the Selective and Normal Photo-Electric Effects:* R. A. MILLIKAN and W. H. SOUDER, Ryerson Physical Laboratory, University of Chicago.

Photo-electric phenomena are not in general conditioned by the presence of a gas. All distinctions between the normal and selective effects in lithium have disappeared.

6. *Concomitant Changes in Terrestrial Magnetism and Solar Radiation:* L. A. BAUER, Department of Terrestrial Magnetism, Carnegie Institution of Washington.

Changes in the earth's magnetism of appreciable amount are found associated with changes in solar radiation. Decreased solar constant is accompanied by increased magnetic constant. Various minor but important correlations are established.

7. *Submarine Solution of Limestone in Relation to the Murray-Agassiz Theory of Coral Atolls:* A. G. MAYER, Department of Marine Biology, Carnegie Institution of Washington.

By exposing pieces of shell of the mollusc *Cassis* to solution in sea-water for a year under various conditions, it is shown that the rate of solution is too slow to be favorable to the theory that the solvent action of sea-water for limestone is a primary factor in deepening and widening the lagoons of coral atolls.

8. *The Archegonium and Sporophyte of Treubia Insignis Goebel:* D. H. CAMPBELL, Department of Botany, Stanford University.

Treubia is probably on the whole nearer the leafy liverworts than is any other anacrogynous genus.

9. *Brief Notes on Recent Anthropological Explorations under the Auspices of the Smithsonian Institution and the U. S. National Museum:* ALEŠ HRDLIČKA, Division of Physical Anthropology, U. S. National Museum.

The topics treated are: Search for Neolithic Human Remains in Southwestern Russia;

Explorations in the Birusa Caves and Rock Shelters on the Yenisei River, Siberia; Development of the Child among the Negrito, the African Negro, the Eskimo, and Native Siberians.

10. *A Theory of Nerve-Conduction:* A. G. Mayer, Department of Marine Biology, Carnegie Institution of Washington.

The theory of nerve-conduction is based upon the phenomena of adsorption. The results lend no support to the theory that the velocity of propagation of nerve impulse is that of a shear in the substance of the nerve.

11. *Zuñi Culture Sequences:* A. L. Kroeber, Museum of the Affiliated Colleges, San Francisco.

The author gathered a large number of potsherds in and near Zuñi, and is able to make a tentative chronological classification of the objects.

12. *The Numerical Results of Diverse Systems of Breeding:* H. S. Jennings, Zoological Laboratory, Johns Hopkins University.

The proportions of the population which are found after n generations arising from continued breeding in various ways are tabulated for 24 different methods of mating.

13. *On the Effects of Feeding Pituitary Body (Anterior Lobe) Substance, and Corpus Luteum Substance to Growing Chicks:* Raymond Pearl, Biological Laboratory, Maine Agricultural Experiment Station.

The commencement of the laying period in pullets is neither retarded nor accelerated by feeding pituitary and corpus substance, but the body growth is retarded.

14. *A Preliminary Report on Further Experiments in Inheritance and Determination of Sex:* Richard Goldschmidt, Osborn Zoological Laboratory, Yale University.

The article states a number of new results found by the author in continuing his earlier work on the interbreeding of gypsy moths. Every gradation of intersexualism from a normal female to a normal male, and from a male three-fourths of the way toward the female has been obtained.

15. *On the Degree of Inbreeding which exists in American Jersey Cattle:* Raymond Pearl and S. W. Patterson, Biological Laboratory, Maine Agricultural Experiment Station.

American Jersey cattle are about one half as intensely inbred when eight generations are taken into account as would be the case if continued brother $\times$ sister breeding had been followed. In general, Register of Merit animals are *less* intensely inbred than the ordinary population.

16. *Upper Limit of the Degree of Transitivity of a Substitution Group:* G. A. Miller, Department of Mathematics, University of Illinois.

The degree of transitivity of a substitution group of degree n which does not include the alternating group of this degree is always less than $\frac{5}{2}\sqrt{n} - 1$.

17. *The Extension of the Montana Phosphate Deposits Northward into Canada:* F. D. Adams and W. J. Dick, Commission of Conservation of Canada.

An account of the explorations carried out to ascertain whether phosphate-bearing rocks extend northward from Utah, Idaho, and Montana into Canada. In some places such an extension has been found.

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NOTES ON METEOROLOGY AND CLIMATOLOGY

SNOWFALL AND SNOW COVER

The destructive snowstorm of December 13, 1915, in the vicinity of New York showed strikingly the ocean control on the depth of snowfall. While the precipitation (rain and melted snow) was heavy everywhere, the depth of snowfall, according to press reports, ranged from little or nothing in eastern Massachusetts to one foot between New York and New Haven and two feet near Albany. The warmth of the ocean effectively prevented snowfall where the winds blew off the water and made it sticky and dense near the coast, even though the surface wind was from the north. Not until February or March does heavy snowfall usually occur with winds from the ocean. A