in general to suffer, because when young men see the poverty of the most successful investigators they hesitate to enter such fields of labor and the recruiting of the voluntary army of science is naturally reduced. Certainly no scientific man has the smallest desire to be a millionaire; but moderate competence is useful to him as to others. A certain amount of money gives him a proper influence for good in society, and enables him to devote himself to those investigations which his nature tells him he is most capable of conducting. On the other hand, keep him in poverty and he soon loses his enthusiasm; he becomes a fakir sitting in rags by the roadside, and the ripest years of his life are often wasted. Is there any intrinsic reason why the greatest efforts of the best minds in the most fertile of fields should lead to poverty? Yet the history of the world proves that they generally do so —to the loss not only of science but of the world. And why, pray? Because when science asks for her dole, the world replies, "But those great men, Smith and Jones, are proud to labor for nothing; why then should I pay you?" Alas, poor ignorant world does not know that if Smith and Jones are genuine workers they are probably too much engrossed in their toil to bestir themselves for payment; while if, as more often happens, they are merely purveyors of others' labors, then their lofty and popular pose is adopted for a purpose. And, indeed, snobbery is often a paying cult, and those who labor for nothing do little but frequently get much!

In science as in other things, the proper and honest procedure is to pay for work done; and, to be frank, the encouragement of science, of which we hear so much nowadays, must in the end come to this—or to nothing. And in science as in other things snobbery is a false pose which brings only contempt upon those who adopt it.—*Science Progress.*

PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES

THE third number of Volume 3 of the *Proceedings of the National Academy of Sciences* contains the following articles:

The Condensation and Evaporation of Gas Molecules: Irving Langmuir, research laboratory, General Electric Company, Schenectady, N. Y. A discussion of the evaporation *vs.* the reflection theory with conclusions favoring the former.

The Ninth Satellite of Jupiter: Seth B. Nicholson, Mount Wilson Solar Observatory, Carnegie Institution of Washington. Comparison of the orbits of the Eighth and Ninth Satellites. The mean period of the Ninth is 745 days and its diameter is probably about 15 miles.

Aortic Cell Clusters in Vertebrate Embryos: H. E. Jordan, department of anatomy, University of Virginia. The hemogenic activity of embryonic endothelium is a normal function at a certain stage of embryonic development.

Rheotropism of Epinephelus Striatus Bloch: Hovey Jordan, Bermuda Biological Station for Research, Agar's Island, Bermuda. The lip region is the most sensitive part of the body surface. The end organs of tactile sensitivity serve also as organs of rheotropic sensitivity.

Studies of the Genus Phytophthora: J. Rosenbaum, Bureau of Plant Industry, Washington, D. C. A search for determining characters of diagnostic values in testing the different species.

A Possible Function of the Ions in the Electric Conductivity of Metals: Edwin H. Hall, Jefferson Physical Laboratory, Harvard University. A discussion of the number of ions necessary to maintain currents of great density, and of the temperature relations of conductivity if due to ions.

The Gravimetric Survey of the United States: William Bowie, Division of Geodesy, U. S. Coast and Geodetic Survey. A summary of the present status of the subject.

The Magnetization of Iron, Nickel, and Cobalt by Rotation and the Nature of the Magnetic Molecule: S. J. Barnett, department of physics, Ohio State University. A confirmation of the assumption that only electrons are in orbital revolution in all the substances investigated.

The Intensities of X-Rays of the L Series: David L. Webster and Harry Clark, Jefferson Physical Laboratory, Harvard University. A discussion of the intensities in the case of platinum as functions of the potentials producing them.

The Use of Vasectomized Male Mice as Indicators: C. C. Little, Harvard Medical School.

Photographic Magnitudes of Stars in the Selected Areas of Kapteyn: Frederick H. Seares, Mount Wilson Solar Observatory, Carnegie Institution of Washington.

Archaeology of Mammoth Cave and Vicinity: A Preliminary Report: N. C. Nelson, American Museum of Natural History, New York. Two isolated horizons of culture have been found; one indicating an agricultural people, the other a hunting people.

The Production in Dogs of a Pathological Condition which closely Resembles Human Pellagra: Russell H. Chittenden and Frank P. Underhill, Sheffield Laboratory of Physiological Chemistry, Yale University. The abnormal state is due to a deficiency in some essential dietary constituent or constituents presumably belonging to hitherto unrecognized but essential components of an adequate diet.

The Complete Enumeration of Triad Systems in 15 Elements: F. N. Cole, Louise D. Cummings and H. S. White. There are eighty types.

New Data on the Phosphorescence of Certain Sulphides: Edward L. Nichols, department of physics, Cornell University.

The Reactions of the Melanophores of the Horned Toad: Alfred C. Redfield, zoological laboratory of the Museum of Comparative Zoology, Harvard College.

The Coordination of the Melanophore Reactions of the Horned Toad: Alfred C. Redfield, zoological laboratory of the Museum of Comparative Zoology, Harvard College.

Petrified Coals and Their Bearing on the Problem of the Origin of Coals: Edward C. Jeffrey, botanical laboratory, Harvard University. Coals containing "coal balls" are abnormal, but there is no good evidence that "coal balls" are organized from material accumulated *in situ.*

The Effect of Degree of Injury, Level of Cut and Time within the Regenerative Cycle upon the Rate of Regeneration: Charles Zeleny, department of zoology, University of Illinois.

Preliminary Note on the Distribution of Stars with Respect to the Galactic Plane: Frederick H. Seares, Mount Wilson Solar Observatory, Carnegie Institution of Washington. A comparison of Mount Wilson counts with Kapteyn's, in which good agreement is found, as compared with both the results of Chapman and Melotte are not homogeneous.

National Research Council; Research Committees in Educational Institutions; Central Committees on Research; Reports of Meetings of the Executive Committee.

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SPECIAL ARTICLES

A QUANTITATIVE METHOD OF ASCERTAINING THE MECHANISM OF GROWTH AND OF INHIBITION OF GROWTH OF DORMANT BUDS[1]

1. Each plant possesses a number of dormant buds, which may grow out when they are isolated but which remain dormant under normal conditions. The problem to be solved is the mechanism of inhibition in the latter and of growth in the former case. Former results published by the writer on *Bryophyllum calycinum*[2] indicated that both phenomena are reciprocal, inasmuch as the growth of a bud depends upon the availability of certain material, while the inhibition is due in general to the non-availability of such material, and this non-availability is frequently brought about by the absorption or withdrawal of the material by another growing organ. Thus each node of *Bryophyllum calycinum* has two leaves and in the axil of each leaf is found

[1] From the Laboratories of The Rockefeller Institute for Medical Research, New York.

[2] Loeb, J., *Bot. Gaz.*, 1915, LX., 249; 1916, LXII., 293; 1917, LXIII., 25. "The Organism as a Whole," New York, 1916, p. 153.