the little crustacean, laboriously designated *Brachyuropushkydermatogammarus,* is destined to be unhonored and unsung, unless by chance it be given a convenient and satisfactory nickname. It is unfortunate to launch a species upon the scientific sea with the handicap of a "bad name" which can never be lived down or in any way altered.

There is a well-known law of evolution which operates toward the extinction of gigantic and cumbersome forms: the dinosaurs are already gone, the elephants and redwoods are much reduced in distribution, the whales are doomed, and likewise, we hope, battleships! Nature acts as though she appreciated the unwarranted expense involved in producing a huge beast, the difficulty of its establishing, the extravagance of its maintenance and finally its susceptibility to a single fatal accident which results in the destruction of tons of material.

A natural selection working in taxonomy should and doubtless will eliminate the long technical names which we frequently see, because they are not only useless to most of us but they impede the work of those who are expected to profit from their existence.

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SOIL SCIENCE

IN his note in the January 17, 1930, issue of SCIENCE relative to the term "pedology" as name for soil science, Dr. W. A. Hamor called attention to its use since 1896 as the name for another science, as recognized by lexicographers.

Webster gives this: "pedology; paedology . . . 1: Med. Pediatrics; 2. Child study." In contrast Webster gives this for geology, for example, which is recognized by lexicographers as a science: "The science which treats of the history of the earth and its life. . . ." The Encyclopaedia Britannica (fourteenth edition, 1929) gives this: "Children, diseases of. The study of this subject, known also as pediatrics, is comparatively modern."

Probably most soils scientists know that in 1862 Fallou (German) published a 488-page book on pedology. Fallou defined natural soil science or pedology as the description of the nature of soils, no matter what their relation to vegetation or industry might be.

W. W. WEIR

NEW YORK CITY

DR. HAMOR'S objection to the adoption of "pedology" as a name for soil science[1] seems to be sound and his suggestion of "humology" for that use is excellent.

As a worker in the field of soil science I enter my protest against such a monstrosity as "chthonology," in which, I think, the public would join. Scientific nomenclature is cluttered up too much with useless letters; why not apply the principles of simplified spelling? If we must have Greek, write it "thonology," even at the risk of its being interpreted "wolf science" by some Greek scholar. But *humology* seems better.

A. M. PETER

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PRESS NOTICE OF THE DES MOINES MEETING IN IOWA

MR. T. J. EDMONDS, who had charge of the local publicity for the Des Moines meeting, has prepared a statement showing the amount of space given the meeting by the press of Iowa.

In advance of the meeting there were published 1,710 articles (including 30 editorials and 36 photographs) totaling 10,998 column inches. In addition, advance notice of the meeting was given from 15 radio stations.

During the meeting there were published 7,436 articles (including 33 editorials and 88 photographs) totaling 74,781 column inches.

The press of the State of Iowa alone therefore published in connection with the meeting 9,146 articles (including 63 editorials and 124 photographs) totaling 85,779 column inches.

In the Des Moines papers the meeting was noticed by 15 eight-column headlines.

AUSTIN H. CLARK,
Director, Press Service

REPORTS

AWARDS OF THE AMERICAN SOCIETY OF PLANT PHYSIOLOGISTS

THE CHARLES REID BARNES LIFE MEMBERSHIP

AT the recent Des Moines meeting of the American Society of Plant Physiologists, the fourth and fifth awards of the Charles Reid Barnes life membership were made. The two recipients of the honor were Professor George J. Peirce and Professor Charles A. Shull. Accounts of the establishment of this honorary life membership and of the first two awards are found in previous issues of SCIENCE[1] Each year the

[1] SCIENCE, 71: 70.
[1] SCIENCE, 65: 175–176, 1927; 67: 264–265, 1928.

society awards to some deserving member an honorary life membership in honor of Charles Reid Barnes, the first professor of plant physiology at the University of Chicago. The three previous awards, in the order of their occurrence, were to Burton E. Livingston, Francis E. Lloyd and Herman A. Spoehr.

Professor Peirce took his B. S. degree at Harvard University in 1890 and his Ph.D. degree at the University of Leipzig in 1894. From 1895 to 1897 he was assistant professor of botany at Indiana University. Since 1897 he has been at Stanford University, first as assistant professor of botany, then as associate professor of plant physiology and since 1910 as professor of botany. From 1909 to 1910 he was a collaborator with the U. S. Forest Service, and from 1910 to 1911 he was a special agent of the U. S. Department of Justice in the study of the effects of smoke on vegetation.

Professor Peirce has contributed numerous scientific papers, especially in the fields of respiration, irritability, parasitism and the effects of smoke and other atmospheric impurities on vegetation. In 1903 he published his text-book of plant physiology—the first book on the subject to be published in this country. In 1925, he published "The Physiology of Plants and the Principles of Food Production." He is also one of the authors of a text-book of biology.

Professor Peirce is no less known as a teacher than as an investigator and author. He takes a very great personal interest in all his students and has the happy faculty of arousing and holding their interest in the subject being discussed. He is a man of kindly personality, of great human sympathy and of broad interests. His interests extend beyond the realm of his science, as is evidenced by his election to the chairmanship of the Palo Alto Board of Health and the Palo Alto Chapter of the Red Cross.

Professor Shull received his B. S. at the University of Chicago in 1905 and his Ph.D. degree in 1915. During part of his graduate student days he was a member of Dr. Barnes's classes and also his student assistant. He traces much of his interest in plant physiology to the inspiration received from Dr. Barnes. He was assistant professor of biology at Transylvania College from 1906 to 1908, and professor of biology and geology from 1908 to 1912. From 1912 to 1918 he was at the University of Kansas, first as assistant professor of botany and then as associate professor of plant physiology and genetics. During the period from 1918 to 1921, he was professor of plant physiology and head of the department of botany at the University of Kentucky. He went to the University of Chicago in 1921 as associate professor of plant physiology. Since 1925 he has been professor of plant physiology at this institution.

Professor Shull has exerted a great influence on plant physiology in several different ways, notably as an investigator, as a teacher and as an editor. He is the author of a large number of scientific papers which have added much to our knowledge, especially in the fields of seed germination, permeability, water relations of seeds and plants, water-holding power of soils, respiration and the energy relations of the leaf. His teaching is characterized by clarity of presentation and by contagious enthusiasm. His lectures fairly bristle with the problems remaining to be solved in plant physiology. Many a student has been led to make plant physiology his field of research through listening to his lectures. The recent successful establishment of the American Society of Plant Physiologists and its official journal, *Plant Physiology,* and the placing of these enterprises on a firm foundation were due more to the courage, clear vision and hard work of Professor Shull than to any other one person. He is editor-in-chief of *Plant Physiology* and associate editor of *Botanical Gazette.*

The members of the committee for the fourth and fifth awards of the Charles Reid Barnes life membership are J. D. Sayre, Earl S. Johnston, R. B. Dustman, J. H. Gourley and Walter Thomas, *chairman.*

THE STEPHEN HALES PRIZE

IN 1927, Professor Charles A. Shull, then president of the American Society of Plant Physiologists, conceived the idea that this year, the two hundred and fiftieth anniversary of the birth of Stephen Hales, would be an opportune time for the society to do honor to this pioneer plant physiologist and biological investigator who stands as a prominent landmark in the scientific horizon of the seventeenth and eighteenth centuries. Under Professor Shull's leadership, there was established by the society the Stephen Hales prize endowment fund. Every other year a prize and certificate are to be awarded to some deserving plant physiologist of North America. The first award was made at the recent Des Moines meeting.

After long and careful consideration, the committee made the award to Professor D. R. Hoagland, professor of plant nutrition at the University of California and chemist of the California Agricultural Experiment Station. Professor Hoagland took his A. B. degree at Stanford University in 1907 and his A. M. degree at the University of Wisconsin in 1913. He was instructor in agricultural chemistry at the University of California from 1907 to 1910, chemist in the U. S. Department of Agriculture from 1910 to 1913 and assistant professor of agricultural chemistry at the University of California from 1913 to 1920. Since 1920 he has been associate professor of plant

nutrition at this institution, and since 1925 he has been chemist in the California Agricultural Experiment Station.

Professor Hoagland has contributed numerous scientific papers especially in the fields of mineral nutrition of plants, soil acidity and soil and plant interrelationships. In the field of the mineral nutrition of plants he has done much to elucidate the process of the absorption of salts by the plant and to explain some of the anomalies appearing in this important plant physiological process. In studying the mineral nutrition of plants, it is of course important to control the environment. Professor Hoagland has devised an apparatus by which the conditions of light, temperature, humidity and culture solution may be controlled to such a degree that the growth of plants in duplicate experiments is identical as measured by yield, number of tillers, height of tops and other external features.

In view of the very great services of Professor Hoagland to plant physiology, the committee is very glad to make the first award of the Stephen Hales prize to him. The members of the committee are A. L. Bakke, C. R. Ball and J. B. Overton, *chairman*.

S. V. EATON,
President
H. R. KRAYBILL,
Secretary-treasurer

SCIENTIFIC APPARATUS AND LABORATORY METHODS

THE COLORIMETRIC DETERMINATION OF SOIL REACTION

WHILE electrometric methods are now generally applied in the determination of the reaction of soil suspensions, the different electrodes do not always agree in their indications, and for this and other reasons it may be desired to obtain results by a colorimetric method. In order to observe slight differences in tint of indicators, it is essential that a clear water extract of the soil be obtained. Various means to this end have been employed, such as filtration on conical or Buchner funnel with paper repeatedly extracted until the apparent reaction of pure water is not affected by contact with it, dialysis, centrifuging, etc. Some of these procedures are objectionable on account of the time required, others because it is difficult to protect the extract from contamination. It has been found that clear water extracts can be obtained from many soils without the use of any filter medium other than the soil itself, in a reasonable length of time and without great risk of contamination, by means of very simple apparatus. The method may not succeed with soils which tend to run together and lose their crumb structure when wetted, or with samples that have been ground, but in any case it is easy to determine the possibility of obtaining a clear extract in this way.

A percolating tube is made from a thin Pyrex test-tube, about 17 mm internal diameter, by drawing out the lower end to a cone about 5 cm long and 2 mm wide at the narrowest point. It is cut at this point and the thin tip heated to thicken and contract to about 1 mm inside diameter at the tip. About 25 g of the finely granular air dry or slightly moist soil is charged into this percolator, gently shaken down and about the same amount of water poured on top. With most soils the water will penetrate the soil without much difficulty, and after a few drops have run from the tip, the percolate will be clear. The clear extract is received in the test-tube which is to be used for the color comparison, marked at 10 ml with a wax pencil, and suitably supported. The conical bottom of the percolator fits into the mouth of this test-tube and excludes air. As soon as sufficient extract has been collected, the indicator is added and the color compared with buffer mixtures in similar tubes. As water extracts of most soils are practically unbuffered, it is essential for accuracy to use isohydric indicator solutions and other precautions described by Fawcett and Acree[1] in a recent paper. Several duplicate samples of soil should be percolated at the same time in order to have sufficient extract for the repeated tests which may be necessary to determine the reaction with precision.

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A METHOD FOR DETERMINING HARDINESS IN PLANTS

METHODS of measuring the hardiness of plants by correlation with chemical and physical properties have been the subject of great interest and investigation in the past few years. A new method based upon the degree of exosmosis of electrolytes from tissue after freezing has been worked out in a preliminary way, and determinations of exosmosis have been made at weekly intervals throughout the autumn on alfalfa roots from varieties of known hardiness. The amount of outward diffusion into distilled water is determined by conductivity measurements, which indicate a pro-

[1] Edna H. Fawcett and S. F. Acree, "The Problem of Dilution in Colorimetric H-ion Measurements. 1. Isohydric Indicator Methods for Accurate Determination of pH in Very Dilute Solutions," *Journal of Bacteriology*, vol. 17, no. 3: 163–204.