S. Everett in 1919 from Little Kedron Lake, New Brunswick, and concludes that they were formed, not by building up around a central core, but by the breaking-up of a mat of the material and subsequent rounding-off by wave action. He adds: "As this method of the formation of lake balls seems not to have been hitherto recognized, it seems worth while to present the case for it." I do not question the accuracy of this last statement so far as the scientific literature is concerned, but Henry D. Thoreau appears to have reached the same conclusion in 1854. In the chapter of "Walden" entitled "The Ponds," writing of Flint's, or Sandy Pond in Lincoln, Massachusetts, he says:

> There also I have found, in considerable quantities, curious balls, composed apparently of fine grass or roots, of pipewort perhaps, from half an inch to four inches in diameter, and perfectly spherical. These wash back and forth in shallow water on a sandy bottom, and are sometimes cast on the shore. They are either solid grass or have a little sand in the middle. At first you would say that they were formed by the action of the waves like a pebble; yet the smallest are made of equally coarse materials, half an inch long, and they are produced only at one season of the year. Moreover, the waves, I suspect, do not so much construct as wear down a material which has already acquired consistency. They preserve their form when dry for an indefinite period.

The first entry in Thoreau's published journal relating to this subject is under date of October 3, 1852: "Collected a parcel of grass (?) balls, some washed up high and dry—part of the shore-line consists of the same material—from a half-inch to four inches in diameter." The place was Flint's Pond, and the finding of grass balls at the same pond is recorded in the journal on August 19, 1854 ("washed up apparently a month ago"), July 22, 1855 ("within a few days"), and July 24, 1856. The "season" referred to in "Walden," was therefore, evidently summer.

Another view of the formation of grass balls was taken by that close observer of the phenomena of the sea beach of Ipswich, Massachusetts, Dr. Charles W. Townsend, who says in his "Sand Dunes and Salt Marshes" (1913):

> As one walks along the edge of the dunes near the beach in summer or winter, his attention may be attracted by a number of balls which appear to be made up of broken pieces of straw or grass. Some of these are not larger than a tennis-ball, others the size of a cocoanut; some are perfectly spherical and firmly matted; others are loosely formed and often elongated in shape. . . . It is evident from a careful study of these balls *and by actually watching their formation* [the italics are the present writer's] that they are gradually built up in shallow water near the shore by the rolling action of the waves on particles of broken thatch [spartina], sticks, seaweed and grass which have collected in hollows and ripple-marks. A nucleus once started, more and more material is added as the ball rolls about.

I have examined Dr. Townsend's manuscript notes, presented by his son to the Boston Society of Natural History, with the hope of finding exactly what he meant by "actually watching their formation," but was disappointed, for these carefully classified note-sheets seem to contain nothing whatever on the subject of grass balls.

My excuse for making these two quotations from what may be called literary literature is that they are both the considered statements of careful observers, and that such records, published outside of strictly scientific journals and books, are too easily overlooked by specialists. My own experience with grass balls has been limited, but my (ornithological) journal for October 16, 1904, records the finding of two at Ipswich and the facts that they consisted of grass fragments crisscrossed every way "like a handful of jackstraws" and that they remained intact after being brought home in my pocket and subjected to rough usage.

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THE PHENOMENON OF MASKING

THOMPSON[1] has recently criticized the application of the term "masking" to the observed diminution of one sound in the presence of a second sound on the grounds that auditory "masking" is a peripheral phenomenon. The term "masking," he insists, has already been appropriated to describe the case in which the phenomenon is of central origin. However, as early as 1924 Wegel and Lane[2] made a thorough study of what they called auditory masking in an effort to obtain quantitative information regarding the phenomena reported by Mayer in 1876. Thus it happens that the term "masking" has sunk its roots too deeply into the literature on audition to permit convenient banishment. Furthermore, Wegel and Lane more than a decade ago pointed out that auditory masking must be both central and peripheral.

Independent of the problem of the priority of usage, there is the more important problem of convenience and utility. The living organism is so constituted that in any sensory modality the presence of a sufficiently strong stimulus obliterates the response to a simultaneous weaker stimulus. This universal phenomenon needs a name—preferably a word whose meaning in the English language is well established and readily understood. The word "masking" is obviously well

[1] I. M. Thompson, SCIENCE, 82: 221, 1935.
[2] R. L. Wegel and C. E. Lane, *Phys. Rev.*, 23: 266, 1924.

suited as a name for this important fact, whose defining properties are clear and accessible.

Finally, three considerations counsel against the attempt to limit the meaning of masking to a central phenomenon: (1) The term is too widely current to allow such arbitrary restriction to gain acceptance. (2) In most cases of observed masking in the various sense departments we are still ignorant of the physiological mechanisms underlying the phenomenon. (3) In some cases (as in audition) masking has both peripheral[3] and central causes, and it is quite possible that occurrences at intervening synaptic junctions provide additional causal factors.

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A COMPREHENSIVE MORPHOLOGY OF SPHENODON

A SMALL group of New Zealand morphologists, headed by Dr. W. P. Gowland, of the anatomy department of the University of Otago, Dunedin, has undertaken the laudable project of completing, as far as possible, our knowledge of the morphology of Sphenodon.

Interest in this important reptile, now facing rapid extinction, has been so widespread that no one individual is in convenient position to collate the scattered literature and decide, single-handed, what needs most to be done in further research upon this form.

Dr. Gowland will therefore welcome suggestions from zoologists who are better aware of lacunae in their special anatomical and histological fields which investigations on this "living fossil" may fill. It is expected that the necessary specimens will be obtainable through the New Zealand government, which for some time has exercised a rigid protection of the species in an attempt, now apparently vain, to preserve it.

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SCIENTIFIC BOOKS

BIOCHEMISTRY

A Text-Book of Biochemistry. Edited by BENJAMIN HARROW and CARL P. SHERWIN. Published by W. B. Saunders Company, Philadelphia, 1935; 797 pages.

ADVANCED students of biochemistry will welcome this volume. It marks a new departure from the conventional form of text-book in this branch of science in that thirty authors, English and American, have collaborated in its production. Monographic in style, each chapter is a comprehensive review by an investigator actively contributing to the field which he is discussing. The presentation of biochemistry from so many different angles and the emphasis on recent developments is most stimulating to the research worker and graduate student. It is a type of text which may prove less adaptable to the needs of the unoriented beginner, since it does not show the unified development of the science as a whole nor the historical background of the earlier books. The range of subjects is sufficiently broad to permit a selection of suitable material for the usual medical school course which follows no single text.

One is impressed throughout the book with the broad growth and rapid assimilation in the past few years of chemical knowledge in the various biological fields. Three new subjects are introduced in the form of chapters on the living cell, on the biochemistry of bacteria, yeasts and molds, and on immunochemistry. About one third of the volume is devoted to a full description of the organic and physical chemistry of the carbohydrates, fats and nitrogenous compounds, and the balance to their functions and metabolism in the body. The importance of the recently established structural formulae and of new synthetic compounds is well stressed in the chapters on the sterols and related compounds, the vitamins, the animal pigments and the hormones. Although some of the sections seem to be too short to allow an adequate discussion of the material, notably those on nutrition, digestion, mineral metabolism, bone and functions of water, some of the longer chapters, such as the vitamins and carbohydrate metabolism, deserve mention for their clarity and completeness. In most cases the argument is well fortified by citations of original publications, and the bibliography of some 1,500 articles assures its place as a reference book.

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SEED SCIENCE

Seed Science for Japanese Agriculturists, Horticulturists, and Foresters. By MANTARŌ KONDŌ, director of the Ōhara Institute, Kurashiki, Japan. Yōkendō and Co., Tokyo. Vol. I, 1933, 469 pp., 43 illustrations. Yen 4.80. Vol. II, 1934, 835 pp., 358 illustrations. Yen 9.00.

IT may seem presumptuous for one who is ignorant of the significance of a single ideograph to attempt a review of a work in the Japanese language, but the

[3] H. Davis, *Jour. Acoust. Soc. Amer.*, 6: 207, 1935.