selshell" is used. Messrs. G. B. Grinnell, E. S. Dana and R. P. Whitfield were the scientists of this expedition.

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SCIENTIFIC BOOKS

La "Thiende" de Simon Stevin. Facsimilé de l'édition originale plantinienne de 1585. Avec une introduction. Par H. BOSMANS, S. J. Édition de la Société des Bibliophiles Anversois, No. 38. Anvers, Marché du Vendredi, 22. 1924. Pp. 42 + 37. 15 Belgian Francs.

THIS facsimile reproduction of the earliest presentation of the theory of decimal fractions will be welcomed by every one interested in the history of mathematics. Copies of the original editions of some of the works of Stevin are very rare. In fact, as Bosmans points out, since the destruction of the Library of Louvain no copies of the Appendice Algébraique de Simon Stevin, 1594, seem to exist. That appendice contained a resolution of numerical equations by approximation, published six years earlier than Vieta's process of approximation, and is regarded by some as the superior of the two. Original copies of Stevin's booklet on decimals, La Thiende, are also very rare. At the time of the destruction of the Library of Louvain, the copy belonging to that library had been loaned to Professor Bosmans in Brussels and was thus saved. Bosmans has been able to learn of only four copies of this now extant. Hence his facsimile edition is a praiseworthy step toward conservation.

Bosmans gives a long historical introduction which in itself is very valuable, for he has for many years made a study of sixteenth and seventeenth century mathematics and especially of the contributions made at that time by mathematicians of Belgium and Holland. In that field he speaks with authority.

The charm of Stevin's treatment of fractions lies in his quaint notation. Though clumsy in practice, it is of interest, because the fundamental idea of an exponential notation (powers of one tenth) are involved in it. Moreover, the same symbols, with a slightly different interpretation, appear in Stevin's algebra.

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Mosses with a Hand Lens. By A. J. GROUT. Third edition. Pp. XV + 339. Published by the author (1 Vine St., New Brighton, N. Y.), 1924.

AS the founder and until recent years editor of the *Bryologist* (the only journal in the English language which is devoted to bryophytes), as one of the organizers and first president of the Sullivant Moss Society, and as the author of several books and numerous papers on the subject, Dr. Grout has contributed more than any one else in this country toward popularizing the study of the mosses. The first edition of "Mosses with a Hand Lens" was published in 1900 as a thin volume of about 75 pages and, save for brief mention of the sphagnums, dealt exclusively with the true mosses. The present edition, more than four times the size of the first, includes not only the sphagnums and the true mosses but the liverworts as well, the author's treatment of this latter group which appeared in the second edition having been revised and amplified by Dr. M. A. Howe. The book comprises descriptions and keys to the mosses and liverworts, based for the most part on characteristics which can readily be made out without the aid of a compound microscope. It is copiously illustrated with no less than 83 plates and approximately 200 text figures. Noteworthy among these are a large number of photographs, for the most part admirably executed. The book is the best non-technical treatise on the bryophytes of this country that has yet appeared, and as such will be welcomed by all who are interested in the study of this rather difficult group of plants.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

WATERPROOFING LABELS FOR WET SPECIMENS

THE impaired value of specimens without the identifying tag is well known to laboratory workers and collectors. In the case of wet specimens especially the fading of the lettering and erosion or tearing of paper labels is serious, but has a remedy which some field and laboratory workers may not yet have found. The remedy is to waterproof the labels. Perhaps the best material is paraffin. It is apparently no more difficult to provide and use paraffin than to provide and use a so-called waterproof ink.

The label may be written with anything sufficiently opaque: lead pencil, red or blue pencil, any kind of ink. Typewritten labels are best. If the labels are written in a block on a rather large sheet, a few shavings of paraffin may be scattered upon it and melted over flame or oven. A pot of melted paraffin will at times have certain advantages. For an occasional label, a small bottle of paraffin in saturated solution may be kept on hand. Xylol is the best solvent tried. After dipping the label and dry-

ing for a few minutes, nearly perfect waterproofing is secured.

The lettering of labels prepared as described is clearer than before treatment, except in the case of lead pencils, and will not run. The paper is stiffer and the whole label will stand wear to a remarkable degree. In the case of labels waterproofed ten years ago, no deterioration can be observed either in alcohol or formaldehyde. The label will not act as a wick if inserted beside the cork.

Celluloid and collodion in quick drying solvents have promise of preserving wet labels, but thus far have not shown themselves as satisfactory or adaptable to usual conditions as paraffin.

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SPECIAL ARTICLES

ON THE CONTENTS OF OXYGEN IN THE OCEAN ON BOTH SIDES OF PANAMA

IN January, 1922, the Danish *Dana* Expedition had an opportunity of making comparison between the oceanographical (physical and biological) conditions on both sides of Panama.[1]

I mention here only a single feature—the vertical distribution of the quantity of oxygen in the sea.

The oxygen content was determined on board the *Dana* by Dr. N. C. Andersen, using the Winkler titration method.[2]

The figure shows the oxygen content at depths from 0 to 1,000 m at two of our stations, one (1,202) on the Caribbean, the other (1,205) on the Pacific side. By way of comparison, I have included a station (172) taken in 1910 from the Danish research steamer *Thor* in the Black Sea.

We see that at the surface the two stations do not differ much, the water in both cases being nearly saturated with oxygen. The similarity, however, goes no farther. The Atlantic (Caribbean) station shows no difference between the surface content and that at 50 m, whereas the oxygen content on the Pacific side has at a depth of 50 m dwindled to only 25 per cent., *i.e.*, even at this slight depth, the water contains only one fourth of the amount of oxygen it *could* contain if saturated therewith. And at a depth of about 150 m, the oxygen content has further diminished to only 10 per cent.

At a depth of 4–500 m we find, for both stations, the minimum value for oxygen content, the quantity

[1] For the hydrographical work of the *Dana* Expedition in the Atlantic and Caribbean, see J. N. Nielsen, "The hydrography of the *Dana* Expedition" (London, *Nature*, 1925).

[2] See "Report on the Danish Oceanographical Expeditions 1908–10 to the Mediterranean and Adjacent Seas," Vol. I, p. 191. Copenhagen, 1912.