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Book Reviews

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NEW NUMBERS, by F. EMERSON ANDREWS. *Harcourt Brace & Co.*, New York. 168 pages. 1935.

New Numbers is a delightfully written treatise on the duo-decimal system of numeration, the title referring to the two "new numbers" which would be added to our present series of nine and zero. It is to be regretted that someone with the talent of this gifted author did not live and write a few hundred years ago, so that a twelve-base system might have been instituted in place of the ten-base system under which we now labor merely because our progenitors happened to have ten fingers (including thumbs) with which to count.

Most readers will be astonished to find that our present system, including the use of the zero sign, was not adopted generally until the fifteenth century (A.D. not B.C.) and that decimals were "invented" only about the end of the sixteenth. It is not that "tens" were not used in counting from time immemorial (see the fifth chapter of *Genesis* for example) but there was no zero sign and ten tens were merely ten tens in words and symbols and not 100. The author states: "This invention of something to represent nothing is a stroke of genius which can scarcely be overpraised." Did I not begin by saying that this book was delightfully written?

There appears to be no doubt, even in the minds of those who object most strenuously to any change, that the author is correct in his statement that a system of numbering using twelve as a base is far superior to one using ten. An obvious reason is that it factors better—that is, that it can be evenly divided by more whole numbers than ten which can be divided only by five and two. Thus fractional parts are reduced and exact values more easily ascertained.

Under the duo-decimal system we count by dozens (or "zens" as the author calls them) and write one dozen as 10, two dozen as 20, one dozen and a half dozen as 16 and one dozen and one as 11. Having been brought up in a land where 12 pence make one shilling and one half of one shilling makes sixpence and a shilling and a half are written as 1/6, I find little difficulty even many years later in assimilating the fact that one half in the proposed notation is .6 and that a quarter is .3, also, for the same reason, that the total of a column of figures has to be divided by twelve, the odd balance written down and the even amount carried forward. The confusing thing at first is to write 10 for twelve (our present 10 and 11 being represented by new symbols) and to calculate it as such even if it be called "zen" as suggested. This, however, would be essential if we are to use the zero as indicating the end of the series. Twelve dozen would be 100, that is zen zens.

To learn the present multiplication table is a prodigious feat of memory. The new table, which is exactly the same length, would be much more simple to learn if you did not know the old.

The only objection is in the actual changing over from one system to another, a difficulty which appears to be well nigh insurmountable. The whole world could perhaps be taught Esperanto, but the old languages would not conflict and would be used during the transition period and probably for hundreds of years after. What, however, would be the result were two conflicting systems

of counting extant at the same time, the names of most of the numbers being the same but the quantities and relative values being different? Even granting that every legislative body in the world should provide that on a certain date the new system should be effective and the old discarded, could such laws be enforced? It would certainly be necessary to know both systems for many years after the change and how terribly confusing it would be, particularly as it would not be worth the effort to change only one phase, but the reform would have to include the changing of all weights and measures of every description. All mathematical tables would have to be entirely rewritten, as would all text books—a tremendous job in itself. What an idea for Washington!

In this country we use the decimal system only for money, and we stick to yards, feet and inches; tons, pounds and ounces; avoirdupois and troy measures and to various others. These units seem to have been evolved as being most convenient for the purposes for which they are used. Why do we sell eggs by the dozen? Try to pack them by tens. In all these measures 12 and 16 predominate. To use 16, as the author points out, would require too many "new numbers" and the necessity of learning the multiplication table up to 16 times 16 and 12 times 12 is bad enough.

The author thinks the change to the duo-decimal system could be made, not tomorrow but some time in the more or less distant future when people have been educated up to its beauties. Perhaps he is right, although you may not agree with him, but in any case as a delightful exposition of a subject which is not well known this book is very well worth the couple of hours it may take to read it, as it has more thrills to one versed in figures and is infinitely better written than most novels. It is simple enough for your children of school age to read with pleasure. He has expended much thought and care in its preparation and the typography is excellent. One Parthian shot—Why does he not number his pages on the duo-decimal system and why the Roman letters for the numbering of his tables? Perhaps the printer objected as the sheets would not fold according to rule duo-decimally.

EDWARD FRASER.

ACCOUNTING, by CHARLES H. PORTER and WYMAN P. FISKE. *Henry Holt and Company*, New York. Cloth, 631 pages. 1935.

From the Massachusetts Institute of Technology comes *Accounting*, one of the best texts on the subject I have read this year. Written primarily for students in engineering to enable them to "acquire the habit of thinking of business transactions in terms of their effects on earnings and financial condition" (p. iii), it nevertheless measures up to the requirements of any major course in accounting, with the exception of auditing procedure, which, of course, is not within the scope of engineering technology. Any intelligent student who masters this book should be quite able to pass a C. P. A. examination in theory and practice.

Part I (4 chapters) is a thoughtful and scholarly discussion of the philosophy of accounts, based on the traditional Sprague equation, with good suggestions as to correct methods of analyzing accounts.

Part II (3 chapters) describes forms of accounting records with some practical hints as to minor errors to be avoided, such as the simple failure to enter the year of a transaction in the ledger account, an omission exasperating to many an

auditor. In reference to closing entries to profit and loss on page 172 it is to be observed that the journal entry does not correspond with the T-account "profit and loss" below. And the journal entries and the resulting T-account on pages 174–5 relating to inventory and purchases are certainly not correct in theory or practice, for the opening inventory and purchases can not be considered as the cost of goods sold (unless they have been entirely consumed), nor can the closing inventory be regarded as income or profit.

Part III (3 chapters) discusses the form and content of financial statements prepared for various purposes. Emphasis is rightly laid upon the conception of fixed assets as really prepaid expense, depreciation recording what has been consumed during the period. This is more fully treated in the next part. Much confusion in the student and public mind would be avoided if this philosophy of depreciation were better understood.

As a matter of practice no accountant, nor corporation officer for that matter, will agree with the sweeping statement that "bond discount should be deducted on the liability side from the bond issue involved" (p. 255). Academically it may be admitted that bond discount is not an asset per se, but such a net figure shown in this manner on a public statement would look odd, to say the least.

En passant, the "horrible example" of a very jumbled financial statement signed by a certified public accountant on page 296 seems like a sly dig at the profession.

Part IV (10 chapters), by far the most important section of the book, deals quite exhaustively with the problems of income and valuation. Theory and practice are in accordance with professional standards and are given with lucidity and philosophic interpretation. While the attempt to give a new definition of net income is more or less academic, the challenge to the widely accepted definitions by the United States supreme court and by Robert H. Montgomery (and incidentally that by the special committee of the American Institute of Accountants on terminology—p. 70) makes a comparison interesting. The authors say:

"Business net income is an increase in net worth (the excess of assets over debt) resulting from any cause other than new investments by proprietary (owner) interests" (p. 328).

At first sight this definition seems conclusive, until one notices that no allowance is made for withdrawals of profits, dividends paid or dividends payable (debt), which must be added to closing net worth to show the total net income for the period. This omission is the more curious because in the definition of business net loss at the end of the same paragraph (p. 329) withdrawals are specifically excepted. The use of the word "business," however, suggests that possibly the definition refers only to net income arising from the operations of the business. In that case it falls to the ground, since net worth as finally determined must take into account non-operating elements. Furthermore, if that is the basis the authors have in mind, then comparison with the accepted standard definitions is futile because both the court and Mr. Montgomery are defining the final net income or gain.

The traditional basis for valuing inventories—the lower of cost or market—comes in for a candid discussion (pp. 370–1) prefaced by the blunt remark: "This basis is a straddle." The authors do not depart from it, but significantly point out that the reason for its universal use is based on financial considerations

rather than accounting principles. If this is inconsistent with the actual cost basis for all other assets insisted upon elsewhere, the authors have ample support from nearly all standard authorities.

Pertinent to the times is a brief paragraph (p. 502) relating to write-ups and write-downs through surplus adjustments made necessary (?) by price changes. To quote:

"This is normally the only practical solution although such changes are in reality merely changes in the counters used in measuring values and might well be accomplished by changing all items of net worth ratably."

Agreed, provided, as I understand it, the authors mean all the items on the balance-sheet and income statement; but if the counters are changed during the period the resulting statements would be about as comprehensible as Einstein's theory of relativity!

Part V (chapter XXI) is a competent treatment of the correct and proper analysis of financial statements, a subject of interest for all readers, professional and not professional.

Problems for discussion and study at the close of each part furnish good if rather limited tests.

W. H. LAWTON.