dering thereon as theoretical physics, astrophysics and geophysics. The editor-in-chief is O. Neugebauer, of Göttingen, who is well known as a mathematical historian, and the publisher is Julius Springer, Berlin.

Judging from the first five numbers, which cover 384 pages, the reviews are unusually reliable and the publication promises to be very useful to those who try to keep in touch with the latest developments in the fields concerned. While it covers to a large extent the same field as has been covered acceptably for more than half a century by the "Jahrbuch über die Fortschritte der Mathematik" its more prompt and more frequent appearance tend to make it a welcome supplement thereto. It seems to have exercised already a wholesome influence on this annual since the parts of the latter have recently appeared much more promptly than theretofore.

In addition to these two reviews, which are published in Germany, the mathematical public has had the advantage since 1893 of another very useful periodical devoted to reports on recent publications in its field and appearing in various countries. This periodical is published under the auspices of the Mathematical Society of Amsterdam and appears under the title *Revue Semestrielle des Publications Mathématiques*. A very useful supplement to this periodical appears in the form of supplementary volumes each covering a period of five years. The main novel feature of the new periodical noted above is therefore the rendering of prompter service to the mathematical student of to-day.

G. A. MILLER

UNIVERSITY OF ILLINOIS

ON THE IMPROVEMENT OF THE DICTIONARY

DICTIONARIES and all other word-tabulations are valuable in proportion to their comprehensiveness and to their ease of use. Assume that we have a comprehensive table. How much it is used will depend mainly on how much trouble its use involves, or how fatiguing are the operations of the human eye and hand. When I contemplate the fact that a certain German-English dictionary has no less than 15 two-column pages of words beginning with "sch" I am tempted to forego the pleasure of adding to my knowledge the English equivalent of some word in this group.

In looking up such a word as "schmieden" the attention is first focused upon the initial letter and the pages are turned to "s." Time and effort can here be saved if the edges of the pages are so cut that the whole alphabet is seen at a glance with the letters running vertically downward from A to Z along the right-hand edge. The thumb may be placed on "s" and the book opened at nearly the right page. Turning a few pages brings one to "sch." Here the real trouble begins. The mental attention is no longer focused upon "sch" but upon "mieden." The eye strives to find these letters. However instead of making them prominent and as easy to find as the first letter of a word the printer has artfully concealed them behind "sch." The eye must search through 15 pages looking always for the fourth letter of the word, then for the fifth letter, etc. There are no heavy face type, no italics, no capitals to aid in this search. It is veritably a game of hide and seek, and after a dozen such attempts the mind is fatigued, some of the words are not found, and the dictionary is thrown down in irritation. How much more convenient it would be with the elimination of all syllables or even all letters common to the series, after they have once been given. Such is the present day practice in tables of numbers. Common figures are eliminated. The following tables show: 1, an old number table; 2, the typical present day arrangement; 3, the usual way of listing words; 4, the proposed system.

Table 1		Table 2		Table 3	Table 4
N	log N	N	log N	Usual system	Proposed system
150	17609	151	17609		
151	17898	2	898	schmelz	schMELZ
152	18184	3	18184	schmelzarbeit	ARBEIT
153	18469	4	469	schmelzbar	BAR
154	18752	4	752	schmelzhafen	HAFEN
155	19033	5	19033	schmelzwerk	WERK
156	19312	6	312	schmer	schMER
157	19590	7	590	schmergel	GEL
158	19866	8	866	schmerhaft	HAFT
159	20140	9	20140	schmerz	Z
160	20411	160	411	schmetterling	schMETTERLING
				schmettern	N
				schmetterschlag	SCHLAG
				schmidt	schMIDT
				schmied	schMIED
				schmiedbar	BAR
				schmiedbarkeit	BARKEIT
				schmiede	E
				schmiedearbeit	schmiedeARBEIT
				schmiedeeisen	EISEN
				schmiedeeisern	EISERN
				schmiedefeuer	FEUER
				schmiedeherd	HERD
				schmiedeisen	schmiedEISEN
				schmiedeisern	EISERN
				schmieden	EN
				schmiegen	schMIEGEN
				schmiegsam	SAM

I think, so far as is possible, that it is better to introduce whole new syllables rather than each new letter by capitals, *e.g.*, by schMIDT, schMIED, rather than schmIDT, schmiED, because the latter seems to distort the apparent pronunciation of the words. Speed and facility in the use of number tables have been enormously enhanced by the modern arrangement, and I believe the same advantages will be gained by modernizing the old "Wörterbuch." In regard to cost, I have the opinion of an experienced professional book-printer that the cost of typesetting will be less for the proposed system. Many printers

maintain the practice of capitalizing the initial letter of all German nouns. This could not be done in a table such as Table 4, but the nouns and their genders may be indicated by the italicized letters *m, f,* or *n* immediately following.

"Sch" is not the only offending prefix. The same book has 7 pages of words beginning in "ab," 4 pages "auf," 7 pages "be," 2 pages "durch," 4 pages "ein," 1 page "gesch," 3 pages "uber," 6 pages "un," 10 pages "ver," 3 pages "vor," etc. This is not a defect peculiar to this book, nor to the German language which Mark Twain reviled so heartily in his story of the "Hottentotenmutterattentäterbeutelrattenlattengitterwetterkotter." On the other hand all dictionaries including those of English words suffer the same shortcoming. So far as is possible let common words and syllables be omitted, and the distinguishing letters be printed in bold face or capitals, and reading such books will become a pleasure. Thus the chief obstacle to foreign language reading will disappear, wasted mental effort and eye-strain will be reduced, and the publishers will gratify their ambition to make two dictionaries flourish where one languished before.

NELSON W. TAYLOR

UNIVERSITY OF MINNESOTA

TERRACES IN THE CONNECTICUT VALLEY

THE terraces of the Connecticut Valley in the region of Springfield and Hartford, studied at various times by Dana, Emerson, Alden and Fairchild and more recently investigated by the writer,[1] continue to offer new material for discussion. The writer considered these features to be prevailingly horizontal and chiefly of lacustrine origin, only minor individuals being overlain by fluviatile deposits with profiles inclined down-valley. Recently the writer, assisted by R. M. Logie, ran a level line with plane-table and stadia rod on the terrace at approximately 60 feet, extending with a few gaps through a distance of 22 miles along the eastern side of the river between Glastonbury, Connecticut, and the Massachusetts state line. This terrace was found to be essentially horizontal, with a maximum relief of 18 feet, the highest parts being arranged opposite the mouths of two tributary streams in such a way as to suggest local fans built above the general surface of the terrace.

Prior to this time Messrs. Hitchcock and Wood, of the American Geographical Society, at the suggestion of Professor Douglas Johnson,[2] ran a more extensive series of Wye-level lines on several conspicuous terraces on both sides of the river between Windsor, Connecticut, and the Massachusetts line, and on extensive terraces in the Quinnipiac Valley. Profiles constructed from these level lines show the terrace tops to be broadly irregular with inclinations generally down-valley. Some of the profiles have distinct breaks at the levels at which the writer has described terrace surfaces; in a number of others the down-valley slope continues unbroken through these levels. These profiles appear to the writer to indicate fluviatile deposition under the control of several base-levels and the writer considers that the terraces they represent consist of fluviatile material overlying lake deposits, while admitting that the fluviatile material is more widespread than he had formerly believed.

During a recent two-day field conference with the writer Professor Johnson pointed out, on some of the broad lower terraces east of the river, shallow curved channels lying generally against eroded faces of the next higher terraces. These resemble the channels found on many flood-plains and appear to indicate that the surfaces of the terraces on which they occur have been fashioned by streams and that the faces, previously interpreted by the writer as constructional, are chiefly erosional, whatever their original character may have been. The channels were not recognized as systematic features by the writer until Professor Johnson called attention to them.

Sections exposed in sand and gravel pits in these broad lower terraces exhibit current-bedding. Some sections show varved clays and silts. A few exposures show sections of what the writer has described as foreset beds exposed through thicknesses of a few feet, with their bases concealed. Consideration of sections such as these raises a question as to the difference to be expected between deposits made by shallow aggrading streams, and deposits made in narrow lakes strongly affected by currents. Perhaps the only positive criterion for stream deposits in such a comparison is the presence of buried channels visible in exposed sections. One such channel, a few feet in diameter, is exposed in section in the lowest terrace east of the Connecticut River, two miles north of East Windsor Hill, Connecticut. But since deposits built up above the surface levels of lakes by streams that succeed them might be expected to include filled channels, the lower as well as the upper parts of the sections should be examined for these features.

In this connection Professor Johnson has suggested that my published statement that deltaic foresets are the predominant type of stratification in the terrace of Connecticut is misleading. Even the sections showing foresets 15 feet or more in thickness have current-bedded topsets. The writer has included in the

[1] "The Glacial Geology of Connecticut," *Conn. Geol. Survey Bull.* 47, 1930.

[2] Acknowledgment is made for permission to quote the results of this levelling, made as part of a general study of coastal terraces by Professor Johnson under the joint auspices of the American Geographical Society, the Carnegie Institution and Columbia University.