

Korn, 1873 and 1876).† In the twelfth edition (published by Korn in 1880 it was increased to 856. On the supposition that Korn kept his advertisements up to date, von Staudt's book must have appeared after Wenz's *Atlascommentar* of 1877* and before the twelfth edition of Wöckel's *Geometrie der Alten* in 1880. Its probable date is thus a little before 1880."

Judging by typography, the new editions of (G.) and (B.) were published about the same time.

An entry in the "Katalog des mathematischen Lesezimmers der Universität Göttingen"† suggests that there may have been yet a third German edition of (G.) in 1846, since it has "Nürnberg [1846]" after the title. More probably however it is the edition described above as without date, incorrectly catalogued.

MATHEMATICAL PERIODICALS.

Union List of Mathematical Periodicals. By D. E. SMITH and C. E. SEELY. (Bureau of Education, Bulletin 1917, No. 9.) Washington, D. C., 1918. 60 pages. Price 10 cents.

THIS union list is a guide to the location of certain periodicals. The compilers have stated: it was "prepared for the use of research students in mathematics in the universities of the United States. It is not intended to be a complete list of all publications of this kind; indeed, such a catalogue, while very desirable from the bibliographical and historical standpoint, would not ordinarily serve the purposes of the graduate student in mathematics as well as a brief list of this nature. The selection has been made after consultation with a number of professors in those universities that have most to do with directing research work in mathematics in this country, and it represents the periodicals which, in the judgment of these advisers, the students will be most apt to consult in his investigations."

Of about 165 serial publications so selected, somewhat less than one half are wholly mathematical. In connection with

* The number "850" occurs in the title from the fourth (1856) to the eleventh editions inclusive.

† Bearbeitet von K. Hiemenz. Mit einem Vorwort von F. Klein. Leipzig, 1907, p. 92.

the title of each periodical are given: (1) the series and volume numbers, with years and place or places of publication. In case some society or academy is publisher, this is also indicated; (2) an alphabetical list of certain libraries owning one or more of the volumes, and an exact statement of the volumes to be found in such libraries.

The 52 libraries considered are situated in the following 21 states: California, Connecticut, District of Columbia, Idaho, Illinois, Indiana, Iowa, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Texas, Virginia, and Washington.

In the pamphlet are two main divisions headed "Mathematical Periodicals" and "Periodicals Partly Mathematical," and a detailed index. The arrangement of this whole is convenient for ready consultation although an arrangement according to countries (as in Greenstreet's list mentioned below) would have been more compact. There can be no doubt but that the list will be of great service to many students.

Typical of comments, the number of which might be much extended, are the following: Among American periodicals listed *The Mathematical Visitor* (1878-1895), *The Mathematical Review* (1896-1897) and *Bryn Mawr College Monographs, Contributions from the Mathematical and Physical Departments* (1904, 1909) are conspicuous by their absence. While *Journal de Mathématiques élémentaires* (Vuibert) is considered, the much more important *Journal de Mathématiques élémentaires (et spéciales)* (Bourget, de Longchamps, etc., 1877-1901) is not. *Nouvelle Correspondance mathématique* (1875-1880) is listed but the more substantial *Correspondance mathématique et physique* (Quetelet, 1825-1839) as well as the most valuable *Correspondance sur l'Ecole polytechnique* (1804-1816) are not. Since continuations are sometimes indicated, why was it not also noted that *Nouvelle Correspondance mathématique* was continued as *Mathesis*, and *The Analyst* as the *Annals of Mathematics*? There is no reference to the immediate predecessors of *Journal of the Indian Mathematical Club* and of Conti's *Il Bolletino di Matematica* whose early volumes, at least, were published at Bologna and not at "Roma (Rome)." It is surely misleading to refer to the *Ladies' Diary*, 1704-1773, as "reprinted in 1775." Without doubt the editors had in mind Hutton's edition issued in 14 numbers 1771-1775, which

may hardly be accurately termed a "reprint." To be consistently complete in this connection *The Diarian Repository* (1771-1774), and T. Leybourn's Questions from *The Ladies' Diary* (1817), should have been mentioned also. In the light of the quotation made above it is not clear how Dodgson's *Mathematical Repository* (which is not a periodical and has nothing to do with Leybourn's serial, page 21), *The Ladies' Diary*, *The Gentleman's Diary*, and *Gentleman's Mathematical Companion* come to be listed in preference to such publications as *Comptes rendus de l'Association française pour l'Avancement des Sciences*, the *Reports of the Association for the Improvement of Geometrical Teaching*, *Mathematisk Tidskrift*, and *Tidskrift for Matematik*.

Great Britain has already published at least three lists similar to our union list: (1) Royal Society, Subject Index, Pure Mathematics, which devotes 41 pages to indication of the distribution of 701 serials in 23 libraries; (2) Royal Society, Subject Index, Mechanics, indicating in 58 pages the location of 959 serials in 28 libraries; and (3) W. J. Greenstreet's Catalogue of Current Mathematical Journals (40 pages), compiled for the Mathematical Association and listing about 180 periodicals in 49 libraries.

In this country, apart from printed catalogues of special libraries, the mathematician has had at his disposal till now but two lists: (1) H. C. Bolton's "Catalogue of Scientific and Technical Periodicals 1665-1895"* for 130 libraries in different parts of the country; and (2) a general list for 36 libraries in a limited district, namely, A List of Periodicals, Newspapers, Transactions, and other serial publications currently received in the principal libraries of Boston and the vicinity. Boston, Boston Public Library, 1897. 143 pages.†

While grateful for what we have, it is to be hoped that some one will feel disposed soon to publish for America a union list of all serials indexed by the Royal Society Subject Index, Pure Mathematics, and by the *A* volumes of the International Catalogue of Scientific Literature. Such a list would include four or five times as many titles as the union list under review, but, with a scheme of abbreviations similar to that employed in the Royal Society Subject Index, its size need not be more

* Second edition, Washington, 1897. (Smithsonian Miscellaneous Collections, No. 1076.)

† A new edition of this work including three or four times as many titles, and referring to 72 libraries, is now in course of preparation.

than twice as large. Considering the whole range of mathematics it is somewhat unsafe to claim that any large number of these titles is alone "desirable from the bibliographical and historical standpoint."

A similar list for mechanics, aeronautics, geodesy, ballistics, navigation, and astronomy is also a decided desideratum in these days.

R. C. ARCHIBALD.

July, 1918.

NOTES.

AT the annual meeting of the American Mathematical Society, to be held at Chicago on December 27-28, President DICKSON will deliver his retiring address, on "Mathematics in War Perspective." Abstracts and titles of papers intended for presentation at this meeting should be in the hands of the Acting Secretary, Professor E. J. MOULTON, 909 Colfax Street, Evanston, Ill., by December 2. The meeting will be immediately preceded by that of the Mathematical Association of America, and a joint session will be held on December 27.

THE seventy-first meeting of the American association for the advancement of science will be held at Johns Hopkins University, Baltimore, Md., December 27-31. G. D. BIRKHOFF is vice-president, and F. R. MOULTON secretary of Section A.

THE opening (September) number of volume 20 of the *Annals of Mathematics* contains the following papers: "Functions of limited variation and Lebesgue integrals," by G. P. HORTON; "On the Teixeira construction of the unicursal cubic," by N. ALTSHILLER; "The functional equation $f[f(x)] = g(x)$," by G. A. PFEIFFER; "The existence of the functions of the elliptic cylinder," by MARY F. CURTIS; "The gamma function in the integral calculus," by T. H. GRONWALL.

THE closing (October) number of volume 40 of the *American Journal of Mathematics* contains: "Theta modular groups