

1. Library quarters needed by a particular teachers' college.

Gives basis for determining the need and nature of the building.

2. The organization for planning the library quarters.

Gives alternate suggestions regarding the nature of the planning committee; its function and organization.

3. Probable "load" on the library.

Gives basis for determining the effect of numbers and maturity-level of users on library load; effect of nature of instruction on college library load; effect of library service program on library load; and effect of centralization of library administration on library load.

4. Specific services of library.

Gives checklist of services as a basis for

determining requirements and special features.

5. Specific quarters needed in new library.

Gives checklist of detailed requirements regarding quarters.

6. Site and general architecture of building.

Gives checklist to solve questions involved in site and quarters.

One may hope that the appearance of this publication will in itself provide the impetus needed for the start in planning library building programs in teachers' colleges where they are needed, and certainly the work of any building committee will be greatly facilitated by the use of the checklist.—*George C. Allez, director, Library School, University of Wisconsin, Madison, Wis.*

Subject Headings in Physics

Subject Headings in Physics. Melvin J. Voigt. Chicago, American Library Association, 1944. XII, 151p.

At a time when discontinuance of subject entries in favor of bibliographies is in the air, particular interest attaches to the appearance of this volume. Must it not be construed as a token that subject entries have proved of real service to physicists, at least at the University of Michigan, where this list was developed? There is certainly general warrant in experience for this position. Every productive scientist finds himself frequently in a situation where the most intimate familiarity with his own field does not avail; possibly the abler he is, the more likely the occurrence. Some experimental or mathematical detail, either so radically new or so incidental as to be foreign to his experience and yet essential to his progress, must be cleared up before he can go on. The secret of his success is in no small part an imagination which is quick at sensing and converting to his own uses techniques and lines of approach developed in some widely different field. He may be able to turn for advice to some specialist in this new area, but again the library may be his nearest and best friend. His question then is: What have we at hand sufficient to cope with this situation? He wants to look at the subject cards, rarely to look at a complete bibliography, much of which would be too spe-

cialized for his purpose or not immediately accessible, or perhaps not up to date enough, and which in any case would entail further search of author cards. The case of tables of numerical values of functions for computational purposes illustrates nicely the distinction in use of subject cards and bibliographies. Occasionally the question comes: Is there any existing table which meets this requirement? Then the best bibliography is none too good. Ordinarily, however, any one of several tables will suffice, and subject cards indicate most directly the choice one has. Moreover, it is likewise true in any library that not only these experts in some one more or less narrow province but also persons who have not yet reached full competence in any field must be served, and unless these persons are to be too dependent upon their superiors for advice as to what to read, their surest guide, even with a well-classed, open-shelf collection, is the subject catalog.

Granted that subjects are important, it still remains to provide proper heads if they are to give good service. On this ground the list in hand should be warmly welcomed by all the many catalogers who are under the necessity of handling physics titles without adequate knowledge of the science. An extensive preface emphasizes that, if catalogs are to command the confidence of physicists, there is need both for more intelligent use

of the Library of Congress list and for modifying and supplementing that list. The new headings themselves adhere rather conservatively to the standard list, but each subject is followed by a definition, carefully chosen and duly accredited, a well-drawn distinction between this and another similar head in case such a thing exists, and an illustrative title particularly chosen to contribute further information if it is desired. Many "see" and "see also" references not in the Library of Congress list are a further aid in ensuring that the proper entry is found. Incidentally, may one insert the personal conviction that subject cards serve their full purpose only as they contain full information? They are the one place in a scientific catalog where full information is essential—without, of course, bibliographic frills there or elsewhere.

Only one minor slip has been noted—the association of *Achromatism* with *Mirrors*—aside from the practice taken over from the Library of Congress list of making a "see also" reference under one term to a coordinate term, equivalent sometimes in the mind of a physicist to "*Books, see also Newspapers.*" Such references are of doubtful help to a cataloger and are definitely unsuitable for the catalog.

The most radical change adopted in Mr. Voigt's list is made at a point where reform was most sorely needed, namely, in the case of *Spectrum analysis*. In the new Library of Congress list this one term still carries the whole burden for two totally distinct subjects, each with a very extensive literature: (1) QD 95, chemical identification of substances by means of their emission or absorption spectra, (2) QC 451-467, examination of the minutiae of individual spectra from which the details of structure of the corresponding atom or molecule may be inferred. For the latter, physicists have for seventy-five years used the term *Spectroscopy*. The Oxford dictionary quotation under this word is from Sir William Huggins, 1870, to the effect that the science of spectroscopy was new-born in 1861, a reasonable date since it certainly reached adult status in the 1880's with Rowland and Balmer. Mr. Voigt has not only recognized the term but has expanded it by several additional subordinate heads, perhaps more than any but libraries specializing in spectroscopy would require.

Some other long-accepted terms have fared not quite so well. *Thermionics* is a sharply defined line of research which had reached important proportions in 1909 when this name for it was proposed by one of the major contributors to its history, and on it rested during World War I the development of the hot-cathode vacuum tube which makes our present radio sets possible. Mr. Voigt uses only a "see" reference which merges it with other distinctly different types of electron emission, but this is definitely better than putting it without any reference under *Electric discharges*, since electron emission of itself does not at all constitute a discharge.

Statistically surveyed, there appear to be about forty new heads adopted, disregarding modifications of Library of Congress heads. Of these, the reviewer deems well over half justified in almost any situation; some are as vital as the recognition of *Surface tension* as the major phenomenon of which *Capillarity* is only one manifestation. At the same time there is noted the absence of only very few useful terms (e.g., *Dimensional analysis, Turbulence*).

Mr. Voigt has faced the question of repetitive terms in the Library of Congress list, though perhaps not altogether consistently. *Oscillations* has been referred from in favor of *Vibrations*, but *Electric waves* and *Electric radiation*, two indisputably unseparate aspects of the same phenomenon, still both stand. *Air*, which pertains to the local samples studied in chemistry and physiology, is used; but *Atmosphere*, the term associated with the gaseous envelope of the earth in the large, the properties of which are studied in physics, has been dropped, by intent if one may judge by references at other points.

From the point of view of a specialized library, a bolder attempt to hew out independently an ideal list, leaving the individual library free to make its own compromises with the Library of Congress list, would have been more exhilarating. One concedes, however, that such a list would have been less generally useful, also that a list may truly approach the ideal only as it is shaped by the needs of its own situation. As it stands, Mr. Voigt's list is an effective encouragement to the ambitious to proceed further in the spirit of the preface. There are old terms belonging to the era of natural

philosophy, which, even for old books, students of today would like to see brought into line with modern terminology. There is the question of inverted headings, which in a specialized catalog are more convenient if made directly, partly because that is the way users think and partly because it facilitates subdivision if this becomes necessary. A special hobby of the reviewer is the avoidance of headings that end with "of." *Light-Wave theory* is no less comprehensible than *Physics-History*, and this device consistently followed at least has the merit of eliminating one filing complication. Mr. Voigt has eliminated a few hyphens where this was justified, with the same end in view.

It is also to be noted that this list is strictly confined to the subject matter of physics; it

does not include the mathematical techniques and disciplines nor the topics in cognate and ancillary sciences which must be part of a physics library and which it is most important to have well represented in the catalog. The question of form division is also passed by. How, for instance, does Mr. Voigt segregate the general works, which are textbooks sought by undergraduates, from treatises and compendia used by research men? In these respects the list does not constitute a self-contained tool. It is, however, a very commendable first move in the right direction, and it is to be hoped it may stir the Library of Congress to give to its physics headings the consideration it has recently been giving to its mathematics headings.—*Margaret C. Shields, Princeton University Library.*

New Microfilm Resources

Union List of Microfilms, Supplement II. Philadelphia Bibliographical Center and Union Library Catalog. 1943. xi, 282, [2]p. 8½ × 11 inches. Mimeographed.

Because of the present war conditions many cooperative library projects have folded up or have been temporarily shelved. Not so with the *Union List of Microfilms*. In spite of the absence of one third of the committee responsible for producing the volume the work has gone on. Attending difficulties have been overcome, and the second supplement has made its appearance. In fact, coming with the supplement is the notice that the editorial work for Supplement III will begin Sept. 15, 1944.

The serial numbering of the entries is continued from *Supplement I*. *Supplement II* adds 3687 new items. The scheme of arrangement remains quite the same as in the original publication and the first supplement, e.g., one alphabet with many helpful cross references. Though some entries are necessarily lacking in some of the desired information, they in general consist of the author, title, imprint, collation (and-or number of frames; for extensive works number of reels), location of original form which film was made, and whether master negative or positive. The compilation was made from information given on cards sent in by the cooperat-

ing libraries. Ordinarily one would not expect quite as much film to be produced as this supplement indicates. However, the editors think some of it is film completed earlier rather than new film produced since the first supplement.

Union lists like the above are becoming more and more numerous in the various fields of knowledge. They are beginning to fulfill a need of cooperation, the various ideas on which we are learning about through the writings of Robert B. Downs and Fremont Rider, to mention two librarians specifically. The effort to make known the resources of one library to another, one region to another, and even one country to another, goes on apace with the publication of many tools similar to the *Union List of Microfilms*. With the publication of each such tool we make a definite bit of progress in the field of cooperation. From the original *Union List of Microfilms* and its supplements a growing field of resources on film is becoming available for interlibrary loan and permanent acquisition by those libraries needing the material. With growth and possible perfection its value will become increasingly great.

All librarians have become acutely aware of the problem of maintaining files of European publications during this war period.