classification" (2). (Does the definition "classification within classification" agree with the statement suggested by the title that book numbers are "beyond classification" (2) ?)

Book numbers are a constituent part of the equation "call number = collection number + class number + book number" (5) and so help to supply the books of a library with an individualizing and unique address. If the name of the author is made the basis of subarranging the items of a class, the resulting book number is called an alphabetical book number, if documents within a class are subarranged by the year of publication, the book number is called a chronological book number.

The authors favour chronological book numbers and are eager to list their advantages (p.33-35): their unambiguity, simplicity, straightforwardness, universality, mnemonic quality, and their ability to reflect the advancement of learning. Their disadvantages are mentioned, but underestimated. In the reviewer's opinion, however, they are major drawbacks and are likely to discourage most librarians from introducing chronological book numbers. They are mostly not fully developed and are tools of organization and display rather than of retrieval. They suit the arrangement of scientific and technical literature rather than the arrangement of fiction. Two books by the same author on the same subject are separated by chronological arrangement. Chronological book numbers are of no use to the closed access library.

Chapters 5-9 (p.37-89) deal with specific nineteenth- and twentieth-century chronological book numbering systems; they discuss the systems by W.S. Biscoe (1853-1933), James Duff Brown (1862-1914), Ranganathan (1892-1972), Fremont A. Rider (1885-1962), and William Stetson Merrill (1866-1969). Much space is devoted to the classifiers' and cataloguers' biographical backgrounds. Not all characterizations, however, are very sophisticated: Does Brown's pragmatism really ensue "from his lack of a full formal education" (p.47)?

Most assessments are refreshingly downright. Rider's dull system is called a "misbegotten scheme" (p.79) and a healthy scepticism prevails: "librarianship has an almost unblemished record of devising less round wheels than those that were handed down to it by preceding generations" (p.59) But is it fair to say that Stanley Jast's scheme of alphabetical author marks "shows that the British should avoid original thought in this regard" (p.21) and that "the minds at the Library of Congress have never been graced with a towering intelligence" (p.23)? On the other hand, the authors do not hide their sympathy with the "scientific and progressive spirit" (p.41) of nineteenth-century librarians. Biscoe's system is not denied the honour of representing "a pioneering method of the chronological arrangement of books" (p.45). Since Dr. Satija has written several books on Ranganathan, the reader is not surprised at the authors' high praise of Ranganathan's faceted system of book numbers, its facets being language, form (physical body), year of publication, supplements, volumes, copies and criticisms of a work (for a full discussion of Ranganathan's formula, including an analysis of the role played by the accession part of the year number and the evaluation number, cf. p.62-70).

Sometimes the account of book numbering systems is rather longwinded and lengthy. What is, for example, the use of displaying on nine pages (p.50-58) the full table of Brown's numbering system ranging from the year 1450 (aa) to the year 2125 (zz)? Moreover, the essentials of chapters 5-9 have already been told in chapter 3 ("History of book numbers", p.11-32). The rather benevolent evaluation of Biscoe's system on p.41 contradicts the severe criticism of the limit of Biscoe's timetable, namely the year 1999, on p.20: "one wonders whether Biscoe thought the world would end at 2000" (p.20).

The book ends on a useful "Chronology of Book Numbers" (p.93-95) and an exhaustive bibliography (p.97-110) of book numbers. Many European publications and references, especially German ones, however, are missing. Only two addenda are mentioned here: Mälzer, Gottfried: Buchaufstellung und Signaturen. Würzburg: Universitätsbibliothek 1989; and Haller, Klaus: Katalogkunde: Formalkataloge und formale Ordnungsmethoden. München etc.: Saur 1980. p.143-146. The authors do not negate the peripheral state of chronological book numbers - "a mostly ignored rival line to alphabetical book numbers" (Preface) - and they describe their history as a story of little acceptance and even less success: "chronological book numbers remain less popular than alphabetical author tables" (p.36). In view of the negligence of all book numbers - they face "a crisis of definition, of identity, of status, and of survival as an academic subject" (Preface) - the authors recall our attention to the fact that "without the history of book numbers, the history of library classification cannot be told completely" (p.30).

"Beyond Classification" - a welcome contribution to the theory of classification - is not a manual intended for the practitioner; its conceptul and historical value exceeds its practical value. It complements the two major books written on the subject: Lehnus, Donald J.: Book numbers: history, principles and application. Chicago: Amer.Libr.Assoc. 1980 ("an intimate history of book numbers", p.109) and Comaromi, John P.: Book numbers: a historical study and practical guide to their use. Littleton, Colo.: Libraries Unlimited 1981 (gives a detailed acount of LC procedure).

Werner Bies

Dr.W.Bies, Universitätsbibliothek der Freien Universität Berlin, Garystr. 39, D-14195 Berlin.

BERNHARDT, Rolf: **Nummerungssysteme: Grundbegriffe und Einführung, Systemvergleiche, praktische Anwendung, speziell bei EDV-Systemen** (Numbering systems: Basic concepts and introduction, system comparisons, practical application, especially in computer systems) 2nd rev.ed. Ehningen near Böblingen, DE: Expert Verlag 1990. 220p. ISBN 3-8169-0605-2

The management of products and production processes in enterprises is based to an essential degree on the management of technical information. The introduction of CA

technologies as well as frequently reduced life spans of products have led in the past few years to an accelerated growth of data quantities in enterprises. In view of the currently tenseeconomic situation, an efficientdata management and, with it, efficient production is an important prerequisite for the competitiveness of a company on the market.

In company practice, numbering systems are the usual tools for the encoding and retrieval of technological data. Numbering systems, especially those for material things, permit the identification and classification of technical objects such as individual parts and components. Numbering systems aim first and foremost at the re-utilization of technical know-how in the enterprise and affect practically all of its product-oriented activities. The study of the effect of in-company classifications on the overall organism of the enterprise is still in its infancy. However, there are various indications which show that the quality of in-company classifications influences the company's success to a greater extent than had been assumed so far.

The book by Rolf and Werner Bernhardt presented here deals with the fundamentals of numbering techniques. It addresses first of all those persons in an enterprise who are to carry out the introduction of numbering systems on the operating levels or who must decide on such introduction. This close relation to the practice is underlined by the book's being published as part of the publisher's series "Kontakt und Studium" (Contact and study).

In the theoretical part of this volume the authors deal with the prerequisites for the introduction of numbering systems and with the basic functions and the structure of such systems. In the second chapter, in the course of a brief introduction to the subject, Dewey's Decimal Classification is presented. In the light of the ensuing chapters, the parton conceptdefinitions appears to be somewhat problematical. First, the purpose of numbering is brought up once again, upon which attention is called to the synonymous relationship of keys, codes, and numbers, or of "encoding systems", "number systems", and "numbering systems". The ensuing nine definitions pertain in their majority to concepts from materials technology rather than to concepts of numbering techniques. It would have been desirable if this chapter had contained a number of further basic concepts from the field of numbering technology. Maybe this is where we find a cause for the uncertainty, noticeable in the ensuing chapters, in the terminology applied.

First, the authors consider the organizational aspects of numbering in the enterprise. Questions of the need for information as well as the position in the company structure of sections entrusted with numbering tasks are brought up. The subject of computerization is only briefly mentioned here, but the authors revert to it in other chapters of the book. The statements made on the relations between the computer and numbering seem to be somewhat general in nature and moreover do not always reflect the current state of the art.

The numbering-theoretical part is marked by a division of the various kinds of numbers into three categories. The authors distinguish between

- codes for information purposes,
- codes for identification purposes
- codes for classification purposes.

By "codes for information purposes" the authors mean e.g., measuring units, abbreviations, or brief texts. Attention is centered in the following on the fields of identification and classification. The possibilities of combining identifying and classifying parts of numbers are shown by means of the example of associative and parallel number systems. Quite generally, the link between identification and classification is repeatedly, both directly and indirectly, made a topic of this book.

In the chapter *Codes for Classification Purposes*, attention is paid to the classification principles for single parts and components. In addition this chapter contains statements on the application fields, the objectives and the possible selection criteria of technological numbering systems. Statements are made as well on the complexity of technical numbering systems to be striven for, with the authors indicating a preference for number systems with as low a number of digits as possible. While the problems of classificatory nature occurring in deeply structured classifications are hinted at, the authors regard the problems as being seated rather in the notational field. Thus, the "computer-oriented encoding" of Hunerth and Werner is cited in connection with the various variants of writing and recollection errors in the use of numbers. The use of test numbers is to help solve the number problems occurring. Various possibilities of generating test numbers are presented in the book.

The theoretical part is supplemented by two case examples from the practice and explanatory diagrams. Particularly these latter make the book interesting for users in industrial practice. Regrettably, however, the theoretical part does not always seem transparent. The book would undoubtedly profit by a more systematic presentration of the subjects discusssed and a more uniform terminology, perhaps in a subsequent edition. Despite its strenghts and weaknesses, however, the book is particularly valuable inasmuch as it is at the moment practically the only book on numbering technology on the book market.

In conclusion it deserves to be pointed out that the review cited on the back of the book does not pertain to Bernhardt's "Numbering Systems" but to "CAD/CAM-Technology, -Methodology and Practice" by the same two authors.

Bernd Düsterbeck

Mmr.B.Düsterbeck, Eifflerstr. 3, D-22769 Hamburg, Germany

CUNNINGHAM, Ann Marie; WICKS, Wendy: **Guide to Careers in Abstracting and Indexing.** Philadelphia, PA: National Federation of Abstracting and Information Services 1992. 115p., ISBN 0-942308-38-7

Following a brief introduction into the history of indexing and abstracting, the nature and usefulness of abstracts and indexes are explained. The qualifications and traits charac-