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-

terizing the capable indexer and abstractor are discussed, and the institutions are mentioned where - besides the still widespread training on the job - instruction for exercising this profession is offered. The different types of institutions employing indexers and abstractors either as salaried personnel or as free-lancing co-workers are described, including the locally customary salaries and benefits. Recommendations for the equipment to be used in the work are also given. A realistically positive description of the future prospects in this profession conclude the book. An annex lists the relevant professional societies, major conferences and most important directories and serials, while the book is rounded off by an index.

The book is strongly to be recommended for anyone wishing to start working in the indexing and abstracting field or maybe already working there, not only in North America. Management in charge of the employment of indexers and abstractors might also profit from reading this book, which might well correct many a misappraisal of the work of indexers and abstractors. It is also well suited to serve as interesting exercise material for students in attempting to draft a more advanced index.

Robert Fugmann

Dr.R.Fugmann, Alte Poststr. 13, D-65510 Idstein.

RADA, Roy: **From Text to Expertext.** London, etc.: McGraw-Hill Book Co. 1991. 237p., ISBN 0-07-707401-7

(Ed.Note: This is the translation of the review which appeared in Knowl.Org.93-2, p.106-107 in German, thanks to Prof.D.Benediktsson)

There is no longer any shortage of books on hypertext, at least not in Anglo-Saxon territory. In most publications it is not difficult to recognize the information connection either; the talk is ostensibly about the classical topics of information science: knowledge representation, obtaining information through browsing or direct searching, document management, i.e. controlled and standardized availability of "texts" ... Basically the interest in hypertext is mainly explained by the non-linear demonstration of knowledge and information, that is achieved without loosing contact with the linear, textual "ancestry".

The book reviewed here makes this relationship between hypertext and information science explicit. It does not come as a surprise since the author has a reputation within the broader context of information retrieval, including the areas of writing research and expert systems. Rada's work is not so much experimental, but it is rather the interpretation of respective topics in a systematic and clearcut way; a method well reflected in the present book. He does not elaborate on selected experimental research or hypertext progress reports but analyses in a detailed manner the literature of his territory, hypertext (of course only those in English), places it in the context of information science and thereby arranges it in view of an academic construct.

What does the book actually contain? The author divides the text, in quite a traditional and familiar way, into five major parts, followed by a chapter with the conclusions and another providing the answers to those practical exercises the chapters include. (It should be noted that the text of the book is available, on demand and without extra charge, in four hypertext versions: Emacs-INFO, Guide, HyperTies and SuperBook.)

Chapter 1 accomplishes the complex task of presenting the principles of text reading and writing, such as structuring, i.e. in master languages like SGML, on about 20 pages. Though the author did not have much space at his disposal to elaborate on details and thus one can survey only the tips of many different icebergs, it is nevertheless possible to learn about fundamental linguistic text theories like the Kintsch/Van Dijk text model, or general writing theories, e.g. by Hayes et al. and also about master languages as well as text processing software. And one might say this is valid for the whole book through and through. When the task is to reconstruct various aspects of hypertext from the vantage point of information science the author knows how to create his material freely from the unusually wide background knowledge.

The actual hypertext descriptions and representations are arranged as corresponding to the four main aspects in chapter 2-5.

Chapter 2 is about "Small-volume" hypertexts, that also include Microtext-Systems which usually confine hypertext navigation to one single document and its individual components (down to the individual words) which are more or less intensively connected through intra-linking. Consequently chapter 3 treats big-volume hypertexts, and thus the whole field of classical information retrieval (or more precisely relationships between, not inside, documents) is addressed.

Chapter4 considers the growing tendency of collaborative availability of texts and hypertexts, whereas chapter 5 intends to portray the possibilities the interaction of creativeintelligence and hypertext systems might produce. For this reason the author finds no fault in that hypertext is viewed as on the way from text to expertext. (Otherwise the hypertext book of the reviewer offers a nice parallel where, too, the subtitle assigns hypertext a position between "Book and Knowledge Base").

The individual chapters are designed along similar patterns: First there is a brief historical introduction which is followed in each case by the description of the most important principles and completed by potential applications and detailed examples of major systems respectively. Theory and practice will thus be demonstrably linked. It may concern the existing hypertext theory itself which still needs to be improved that the author hardly misses an opportunity to venture into neighbouring areas, like e.g. database theory, information retrieval, thesaurus research, writing research, knowledge representation, expert systems or machine-aided learning. It might lead perhaps too far to ask what target group the author has actually had in mind. For each subject area as well as information retrieval, artificial intelligence, writing research description must remain necessarily general and at the same time represent good analytical standards. But who would seri-