Symposium on Techniques and Problems in Retrieval of Numerical Data. Introductory Remarks†

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This symposium on the retrieval of numerical data was organized to acquaint chemists, physicists, and information scientists with the complex problems that exist in this area and with the various techniques and solutions designed to remedy the current situation.

Thousands of numerical data are being compiled daily and stored in many places, but only a small fraction can be found easily. As many as 150 nonbibliographic data bases have been identified containing scientific and technological data as well as social, business, and economic data. An added complication is that most chemists, physicists, and engineers would like to have some degree of confidence in the data they find. In other words, there is a demand for verified and validated data.

The need for better organization, accessibility, and utilization of numerical or nonbibliographic data bases has been recognized by the information community. Individual papers as well as nearly complete journal issues[1] and thorough reviews[2] have been devoted to this subject. The educational activity continues to mount, as exemplified by seminars[3] offered by online consultants and recent symposia[4-6] presented at various national meetings. Thus, there is no lack of evidence of the growing interest in this field and of the urgency to solve common problems.

The collection of symposium papers in this issue consists of contributions from different sources: a reviewer, a National Bureau of Standards' data base designer, a thermodynamic data base designer, an industrial user of data, a National Academy of Sciences' representative, and a data compiler.

Thus, different aspects of the current state of the art in numerical data retrieval are presented. The first paper reviews and analyzes programs aimed at developing methodologies for indexing numerical data. It also gives important long-range recommendations addressed to primary and secondary service publishers, government agencies, and national and international organizations. The second paper provides a description of the design and utilization of a chemical data system, emphasizing the versatility of data retrieval and analysis by the use of various modules. The third paper identifies important elements and parameters in the design of a thermodynamic data file. The choice of properties to be stored, the processes of evaluation and selection of data, and the proper use of relationships and correlations between properties are stressed. The fourth paper relates the actual experience of an industrial information scientist who cites techniques for physical property data retrieval and examples of commercially accessible online systems and of online user aids. The fifth paper provides an overview of chemical data activities, government-sponsored and industrial, U.S. and foreign, from the vantage point of the Numerical Data Advisory Board. Valuable considerations for the data provider are summarized and a strong plea is advanced for more evaluation, education, coordination, cooperation, and standardization. Typical questions posed by a numerical data compiler with respect to his duties, obligations, and responsibilities are discussed in the last paper. The author's concerns are primarily directed toward selection, usefulness, validity, and reliability of data.

The ideas reported at the symposium on more efficient ways of retrieving numerical data are offered in these papers in the hope that their dissemination will contribute to the scientific community's understanding of data-accessing problems and will enable individuals to obtain more easily the data they need.

† Presented before the Division of Chemical Information, 178th National Meeting of the American Chemical Society, Washington, D.C., Sept 12, 1979.

REFERENCES AND NOTES

(1) Eight papers on the topic "Data Capture and Transfer: The New Frontier", *Bull. Am. Soc. Inf. Sci.* **1**(7), 8-18, 33-37 (1975).
(2) J. A. Luedke, Jr., G. J. Kovacs, and J. B. Fried, "Numeric Data Bases and Systems", *Annu. Rev. Inf. Sci. Technol.* **12**, 119-181 (1977).
(3) "Introduction to Non-Bibliographic Online Database Services", Seminar by Cuadra Associates, Inc., Santa Monica, Calif.
(4) "Nonbibliographic Data Bases", Association of Information and Dissemination Centers (ASIDIC) Fall Meeting, Boston, Mass., Sept 17-18, 1979.
(5) Symposium on "Non-Bibliographic Database Usage", Online '79 Conference & Exposition, Atlanta, Ga., Nov 7-9, 1979.
(6) Symposium on "Designing and Using Numeric Databases", National Online Information Meeting, New York, March 25-27, 1980.

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