with objectives. In addition, the structure of systems of meetings sponsored by major societies and other organizations ought to be examined with objectives in mind. More carefully documented study of meetings with these matters in mind should prove valuable and the cost of such studies certainly should be returned manifoldly by the reduced expenditures and increased yield of value from meetings.

**RICHARD KENYON, Program Chairman**

State of the Art and the Prospects for Data Gathering, Storage, Transformation, and Retrieval

The field of information transfer is in a phase of transition. In the session, 29 December 1965, on “Data gathering, storage, transformation, and retrieval,” Walter M. Carlson (Department of Defense) presented recent findings that show local and informal transfer (face-to-face and telephone communication, personal and office files, and others) predominate markedly in frequency of use over formal transfer involving national or regional libraries, bibliographic services, document-retrieval systems, and journals. Carl F. J. Overhage (M.I.T.) then outlined the program of research (Information Transfer Experiments) recommended by last summer's Planning Conference to improve informal transfer and introduce into formal transfer some of the convenience and quick responsiveness that have heretofore characterized informal but not formal transfer. The Intrex program calls for a melding of the concepts of library and multiple-access (for example “time-sharing”) computer and, in accordance with Carlson's philosophy, an emphasis on the needs and points of view of the users of information. In the final talk, J. C. R. Licklider (IBM) focused attention upon the prospects for “on-line information networks” in which systems similar to Intrex in various parts of the country (or of the world) will be interconnected through telecommunication channels. He added support for the ideas that the technological bases (storage, transmission, processing, display, and so forth) for such systems are rapidly coming into being and that much of the research and development during the next few years aimed at a "national information system" should be directed toward on-line networks in which "content" as well as document-retrieval (that

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is, "bibliographic-control") information exists, and is used, in computer-processible form. Discussion ranged over a broad field—browsing in a semiautomated information system, "negotiating" retrieval specifications through conversational man-computer interaction; cost of storing the contents of the Berkeley library in computer-processible form; an experimental on-line information network for universities.

J. C. R. Licklider, Program Arranger

Society of Technical Writers and Publishers (T2)

During a panel discussion, "Strengthening the scientist's communicative skills" (30 December 1965), H. C. McDaniel (Westinghouse Electric Corporation, Pittsburgh) noted that the course this country will pursue for the next few years will be determined largely by the rate of technological advancement, and that the private citizen must be kept informed so that he can make intelligent decisions. Scientists possess at least two vocabularies—the common English vocabulary, and the specialized technical and scientific vocabulary. In communicating research results, the audience determines word choice. It is not enough to use only words the reader can understand; these must also be words he cannot misunderstand. Manuscripts should be free of bias, particularly if this relates to conclusions. The more objective the analysis, the more useful the results.

In examining "the valued decision" within the framework of today's complex society, Harold Hornby (Ames Laboratory, National Aeronautics and Space Administrations, Sunnyvale) analyzed factors such as criteria for value judgments, evaluation of alternative approaches, mechanisms for assuring objectivity, and today's planning vis-à-vis tomorrow's anticipated requirements. It was shown how these criteria relate to the universality of science and to the strengthening of the concept of total education.

Improved methods of scientific reporting were considered by Carl M. Johnson (U.S. Navy Electronics Laboratory, San Diego). Noting that much time, effort, and money have gone into the retrieval of scientific literature, Johnson suggested that at least equally important should be improvement of the material being retrieved, so that it can be quickly comprehended by the read-

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Science 151 (3712), 893-894.
DOI: 10.1126/science.151.3712.893