

SCIENCE, TECHNOLOGY, and the LIBRARY OF CONGRESS

By Dwight E. Gray

The walrus' catalog of "many things" as reported by Lewis Carroll comprised a form of footwear, a mode of transportation, a resin-turpentine mixture, a thick-leaved member of the mustard family, a rank of male royalty, an aspect of oceanic temperature, and a possible anatomical aberration of swine. Although the "many things" dealt with by the Science and Technology Division of the Library of Congress are mostly different from those enunciated by Carroll's walrus, they are fully as varied and vastly more numerous. They have included, for example, aerospace and the Antarctic, permafrost and plastics, diodes and Diesel engines, magnetism and marine borers, lasers and Loran, photointerpretation and physiology, bioregeneration and blood flow, isotopes and infrared, catamarans and cloud seeding, and many others.

Science came to the Library of Congress 150 years ago when the institution was only fifteen years old. It was then that Congress purchased Thomas Jefferson's personal library, some 500 volumes of which were in natural philosophy, agriculture, chemistry, zoology, and the technical arts.



The basic US copyright laws, enacted in 1865 and 1870, provided for deposit of all copyrighted publications in the Library of Congress; since that time these items quantitatively have constituted a major portion of the Library's acquisitions in all fields. A "quantum jump" in the science holdings occurred in the mid-1860's when the Smithsonian Institution's collection of some 40 000 volumes was placed in the Library of Congress. Increasingly important additions through the years resulted from the growing number of the Government's own publications and from the Library's expanding international exchanges which now number upwards of 25 000. Acquisitions from all of these sources, augmented by extensive purchases, comprise the Library's present holdings in science and technology of more than two million books, over 20 000 journals and other serial titles, and the nation's most widely representative collection of technical reports. The roughly three-quarters of a million items in the last-named category include the official service collection of some 30 000 reports of the World War II Office of Scientific Research and Development, substantially the entire unclassified technical report output of the Atomic Energy Commission, the Department of Defense, and the National Aeronautics and Space Administration, and thousands of reports from other government agencies and private organizations that have scientific and technical programs.

The Science and Technology Division was organized in its present form in 1958. Its ancestral units in the Library included an Aeronautics Section that was established following receipt in 1929 of a Guggenheim grant for a Chair of Aeronautics,

This brief historical summary of the development of science-related activities in the Library of Congress was written by the physicist who heads the Library's Science and Technology Division. Dr. Gray has served as the coordinating editor responsible for the preparation of both editions of the *American Institute of Physics Handbook*.

a Technical Information Division which evolved from a project established in 1947 by the Office of Naval Research to provide the Department of Defense with bibliographic services on the technical report literature, and a Science Division initiated in 1949 to improve the Library's holdings in science and to expand the services offered on them.¹

One of seventeen divisions in the Library's Reference Department, the Science and Technology Division has primary responsibility within the Library for making acquisition and evaluation recommendations with regard to the scientific collections and for providing a variety of reference and bibliographic services on these collections. Substantially, every professional staff member is involved in some degree in acquisition recommendations. Certain aspects of the evaluation of the collections concern particularly the incumbents of three PhD-level, science-specialist positions—one each in the physical, engineering, and biological sciences. Another major responsibility of these specialists is to assist the Library's Legislative Reference Service in handling Congressional inquiries involving substantive scientific and technical information. In addition, as time permits, the specialists prepare literature surveys and analyses of segments of the Library's scientific and technical holdings.

The ideal bibliographer or reference librarian for this Division's work would possess a combination of extensive scientific training and experience, a similarly broad background in bibliographic work, fluency in all languages in which scientific material is published, and the ability to write

clear, concise English prose. Such biblio-scientific paragons being unavailable—perhaps even non-existent—the Division attempts to obtain this combination of talents in the staff as a whole. Currently, the approximately 40 professionals in the Division hold a total of 9 doctoral and 23 masters' degrees—largely in the physical and biological sciences. Some 18 scientific and technical disciplines are represented in the professional staff's background; the group's composite technical reading and translating capability encompasses approximately 20 foreign languages.

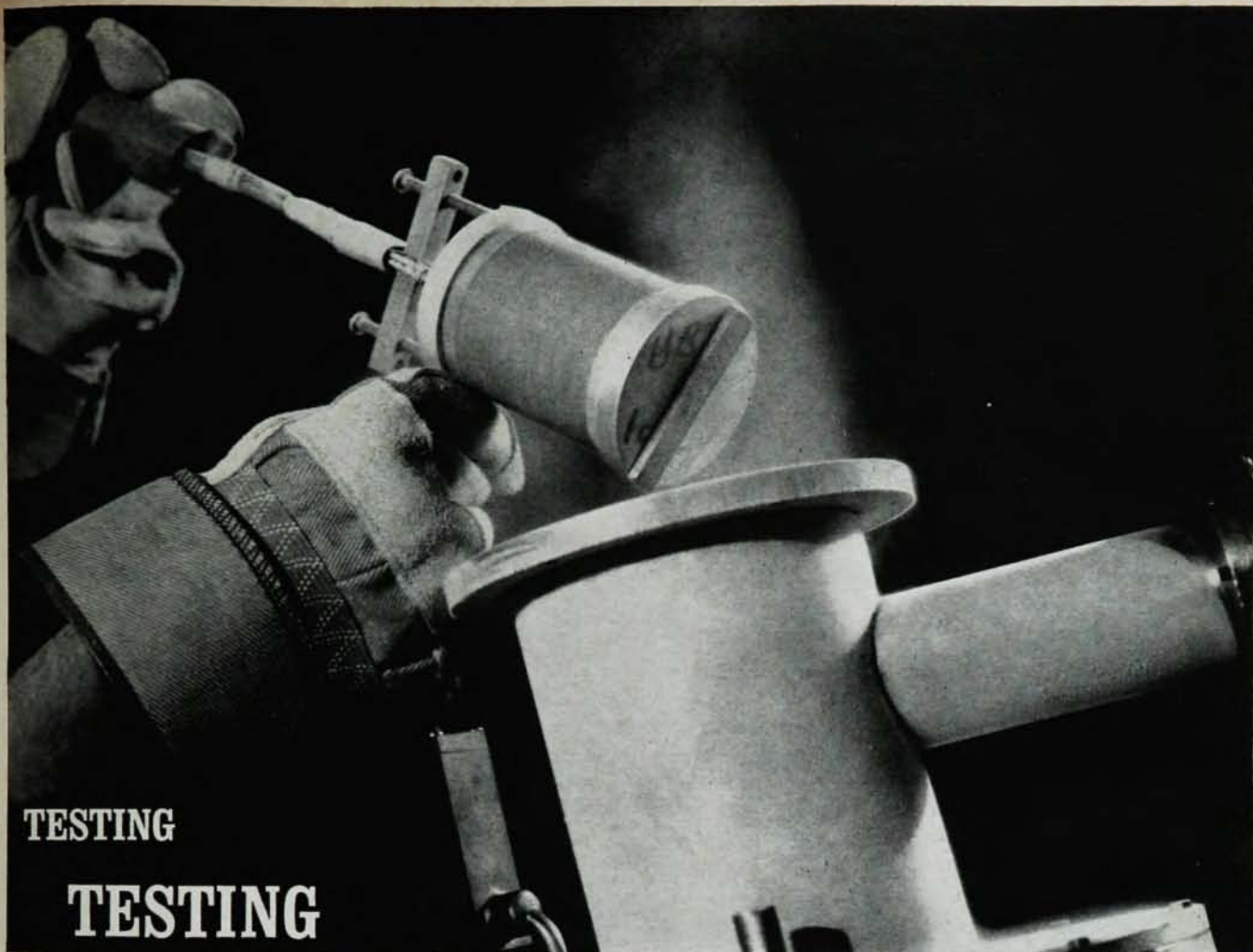
Considered very broadly, the multitude of scientific information efforts in the United States today falls into two basic categories: (1) activities that employ well-established techniques to provide scientists, engineers, and others with information services they know they want; and (2) efforts directed toward developing techniques that hopefully will both improve the quality and promptness of conventional services and provide some beneficial new ones. Any particular scientific information program may include elements of both types, but ordinarily one or the other will be predominant. It seems clear that conventional forms of "packaging" scientific information and long-tested routines for handling it still have much to offer and will continue to be important for some time to come. (To date, this author has heard no one sing the praises of curling up in front of a roaring fire on a cold winter evening with a plate of apples and a good digital computer.) But too conservative an attitude toward the more well-established operations can seriously delay long-range advancement if there is prejudice against the "new" simply because it is new and if there is reluctance to incorporate fresh and different developments into the program's routines as they come along and prove their worth. On the other hand, progress is equally periled when workers are dedicated to the proposition that "whatever is, is wrong", or if there is undue display of what may be called the missionary zealot syndrome—that is, the state of mind that insists not only that the naked natives must wear pants but that they must don the particular missionary's favorite brand of pants.



The Division's general reference services include those services one would expect from any major research library with extensive collections in science and technology. The principal effort, in terms of staff time, goes into answering inquiries received by telephone, by letter, and in person. The section of the Division that replies to these reference inquiries also operates the Library's Science Reading Room. A number of overlapping "publics" are served—Congressional constituents, the scientific community, government agencies, and the general citizenry. Two examples will illustrate the range of scientific complexity represented by the more than 16 000 reference inquiries answered last year. More or less at one extreme, a requester wanted information on how to remove tattoos; he was sent four substantive references, the title of an appropriate indexing service, and information on how to go about locating dermatologists in his area. At approximately the other end of the scientific-stature spectrum was an inquiry requesting information on the work function and different crystallographic directions of graphite; here the requester was given a partially annotated list of pertinent references to seven monographs and one journal.

The Division carries on some fifteen or twenty special projects that are supported by funds transferred from other federal agencies. In each case, the bibliographic product is "custom built" to specifications provided by the sponsor. Typical of a number of continuing efforts of this kind is a bibliography on cold-region research which the Division has been preparing for more than fifteen years; the sponsoring agency is the Cold Region Research and Engineering Laboratory of the Army Materiel Command. In this effort, the search covers foreign and English language material—in both published and in technical report form. Citations and informative abstracts are prepared and are issued, first as catalog cards, and later in the form of 1000-item, indexed cumulations. Seventeen of the latter volumes have been published to date.

In no two cases are sponsor specifications identical; each product consists, however, of some combination of citations, abstracts, and indexes (US or foreign, published or technical report literature), issued as typed lists, catalog cards, abstract bulletins, and/or book cumulations. Most of the publications prepared in these projects are made



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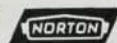


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generally available in one form or another by the Library of Congress, the sponsoring agency, or the Clearinghouse for Federal Scientific and Technical Information. The same is true for Division-initiated bibliographies and listings.³

Two other divisions of the Reference Department are entirely concerned with specialized aspects of science and technology—the National Referral Center for Science and Technology (NRCST) and the Aerospace Technology Division (ATD).

The NRCST, established in the Library in 1962 and supported by the National Science Foundation, is engaged in making an inventory of significant information resources in science and technology, in compiling and publishing directories of these resources, and in providing a reference service on this information. In the context of this activity, an "information resource" is defined very broadly to include any organization, group, service, library, center, or even individual from which or from whom authoritative technical information is available. About 5000 such resources have been identified to date. In its reference service, the Center does not provide substantive answers to questions; instead, it serves as a kind of technical information equivalent of the telephone directory's "yellow pages", directing inquirers where to go for reliable, expert information on particular topics. The NRCST and the Science and Technology Division work closely together, the latter serving as one of the principal "information resources" in the former's inventory. The first NRCST compilation, "A Directory of Information Resources in the U.S.: Physical Sciences, Biological Sciences, Engineering", was published in January 1965.⁴

The Aerospace Technology Division is supported by the Department of Defense and is the organizational descendant of an Air Research Unit established in 1948. It specializes in Sino-Soviet Bloc research and development in the aerospace sciences and technologies, as reflected in the foreign published literature. The ATD staff reviews and abstracts the pertinent Russian and Chinese monographic and periodical literature in the Library's collections. Its output includes journal articles, bibliographies, reports, studies, and glossaries. All of its products are made available to the Department of Defense and its contractors through the Defense Documentation Center, and to the general public through the Department of Commerce Clearinghouse mentioned earlier.

Brief earlier mention was made of the Legislative Reference Service—the department of the Li-

brary of Congress in which the services rendered to members and committees of Congress are officially centralized. A Science Policy Research Division, established within that department last year, serves the Congress in the area of scientific and technological developments that affect public policy.

Two questions often are asked—frequently in tones of some bewilderment—by individuals who hear for the first time of the programs of the Library's Science and Technology Division. One is, "Why is the Library of Congress so extensively concerned with science and technology?"; the other, "Why would anyone think of going to the Library of Congress for these services—especially those offered in the special projects?" Perhaps a brief reply to these queries can provide an appropriate conclusion to this discussion.

The obvious fundamental response to the first question is simply that, since science and technology are generally looked upon as respectable and worthwhile areas of human knowledge, they clearly are within the scope of proper interest of any major, nonspecialized research and reference library. Beyond this basic reason, however, two others are pertinent to both questions. First is the fact noted earlier that the Library's scientific and technological collections of books, journals, and technical reports are vast and are organized for service. Second, the professional staff engaged in providing service on these holdings combines broad scientific knowledge with extensive bibliographic know-how. Neither attribute is sufficient by itself; together, however, they make possible the intelligent exploitation of the Library's scientific collections through programs of the kinds that have been described in this paper.

References

1. Dwight E. Gray, "Library of Congress Science Division", *Physics Today*, January 1951, p. 28.
2. A descriptive brochure on the Technical Literature Searching Service can be obtained from either the Science and Technology Division, Library of Congress, Washington, D.C. 20540, or the Clearinghouse for Federal Scientific and Technical Information, 5285 Port Royal Road, Springfield, Va. 22151.
3. A list, "Publications of the Science and Technology Division", can be obtained from the Division on request.
4. The Directory is available from the Superintendent of Documents, US Government Printing Office (\$2.25). A brochure on this program is available from the Center, Library of Congress, Washington, D.C. 20540; see also J. F. Stearns, "National Referral Center's First Year", *Special Libraries*, 551, 20-23, (1964).