COLLECTION OVERVIEW

TECHNOLOGY

I. SCOPE

This overview focuses on the Library of Congress holdings in the broad field of technology. It covers general technology (LC Class T), civil engineering (LC Class TA), hydraulic engineering, ocean engineering (LC Class TC), environmental technology, sanitary engineering (LC Class TD), highway engineering (LC Class TE), railroad engineering and operation (LC Class TF), bridge engineering (LC Class TG), building construction (LC Class TH), mechanical engineering and machinery (LC Class TJ), electrical engineering, electronics, nuclear engineering (LC Class TK), Motor vehicles, aeronautics, astronautics (LC Class TL), Mining engineering, metallurgy (LC Class TN), chemical technology (LC Class TP), photography (LC Class TR), manufactures (LC Class TS), handicrafts (LC Class TT) and associated materials classed in bibliography, indexes, and abstracting services (LC Class Z).

II. SIZE

The Library's holdings in technology are extensive and number over 1 million volumes from 618,297 titles. This does not include technology-related materials in geography and oceanography (LC Class G), architecture (LC Class N), medicine (LC Class R), agriculture (LC Class S), military science (LC Class U), naval science (LC Class V) or the collection of some 6 million domestic and foreign technical reports and standards, or materials held in the Library's special collections.

III. GENERAL RESEARCH STRENGTHS

The Library's holdings in applied science and technology are extremely strong and represent the sum of the nation's technological accomplishments since its inception. The collections are encyclopedic. They trace the development of American industry, manufacture, and commerce and chronicle the ingenuity, creativity, and inventiveness of its citizens. Current areas of particular strength include engineering materials; surveying; structural engineering analysis and design; applied optics and lasers; hydraulic engineering; coastal engineering; environmental technology and sanitary engineering; water and wastewater treatment; solid waste management; air pollution; railroad and bridge engineering; building construction; mines, mining, and mineral resources; ore deposits; metallurgy; coal, petroleum, and natural gas resources; chemical technology and chemical engineering; manufacture and use of chemicals; food processing and manufacture, low temperature engineering, oils, fats, and waxes, polymer and polymer manufacture; and most areas of photography.

IV. AREAS OF DISTINCTION

For many areas of these subclasses the great strength of the collection is in its long unbroken runs of domestic and foreign serials, society publications, conference proceedings, and monographs often dating back to the previous century

Holdings of 19th-century technological journals are particularly remarkable. There are long runs of such important titles as *Iron Age, Scientific American*, the *Franklin Institute Journal*, the *London Journal of the Arts, English Mechanic*. The Library's holdings of materials on exhibitions and world's fairs are admirable in quantity and variety. Long runs of journals in many areas are common and include the *United States Patent Office Official Gazette*, *American Railroad Journal, Railroad Gazette, American Machinist, Electrical World, Flight, Aeroplane, Coal Age*, and *Chemical Age*. Books such as *Death Rode the Rails: American Railroad Accidents and Safety, 1828-1965* (Baltimore, Johns Hopkins University Press, 2006), *The Parking Garage: Design and Evolution of a Modern Urban Form* (Washington, Urban Land Institute, 2007), and *One Time Fits All: The Campaign for Global Uniformity* (Stanford, Stanford University Press, 2007) were written using the Library's technology collections which are superb in 19th and 20th century technology. Communication technology, transportation technology, machine tools, mass production, and building of the nation's infrastructure are chronicled in the journals, conference proceedings, transactions, and other publications of the American Society for Testing and Materials, the Bell Laboratories, the American Society of Mechanical Engineers, the Institute of Electrical and Electronics Engineers, Institution of Electrical Engineers, the American Society of Civil Engineers, National Advisory Committee for Aeronautics, and the National Aeronautics and Space Administration.

As mentioned previously, the Library's holding in aeronautics and astronautics are arguable the strongest of any library in the world and are described in *Aeronautical and Astronautical Resources of the Library of Congress: A Comprehensive Guide* (Washington, Library of Congress, 2007. 463 p.). Here you'll find references to the German/Japanese aeronautical documents, the editorial morgue of the French aeronautical journal "*L'Aerophile*," and a section on aeronautics and astronautics by country and region. Len Bruno's *The Tradition of Technology: Landmarks of Western Technology in the Collections of the Library of Congress* (Washington, Library of Congress, 1995) highlights unknown classics as well as seminal works in technology from Greco-Roman times to the twentieth century. The history of technology is the history of the invention of tools and techniques and examples of science-driven technology and technology-pushed science abound in the collections of the Library of Congress.

T. R. Reid's *The Chip: How two Americans Invented the Microchip and Launched a Revolution* (New York, Random House, c2001) was written in the Science Reading Room using the Library's collections, The works of Tesla, Henry, Faraday, Morse, and Edison, the multi-volume *History of Engineering and Science in the Bell System*, the papers of American technologists, inventors and engineers, Lee DeForest, Andrew Ellicott, Montgomery C. Meigs, George Washington Goethals, John A. B. Dahlgren, John Ericsson, Frederic E Ives, Mahlon Loomis, and many others, provide a

cornucopia of sources for the scientist, historian, and author.

As previously mentioned, the Library's collections of the records of government-sponsored research, development, and invention is enormous and well-documented in its collections of technical reports, standards, and gray literature. It holds documents issued during and immediately following World War II by the Office of Scientific Research and Development (OSRD) and other government bodies, an extensive collection of foreign technical reports, federal and military standards as well as international standards. The OSRD, which superseded the work of the National Defense Research Committee (NDRC), whose documents are also in the Library, coordinated scientific research for military purposes during the war was run by Vannevar Bush, whose papers are held in the Library's Manuscript Division. Since the research was widely varied and included projects devoted to new and more accurate bombs, radar, early-warning systems, more versatile vehicles, and gave rise to the The Manhattan Project, it is an important component of the history of technology.

V. ELECTRONIC RESOURCES

Electronic resources are an integral part of the technology collections at the Library of Congress. Many of these resources have been incorporated into the online catalog, while others are accessed through the Electronic Resources component of the Library's web site. Programs such as *Find It! Open URL Resolver* continue to work toward a seamless interface between records for electronic and print collections by improving linkages between bibliographic citations and full text accessible to Library staff and patrons. *Open URL* also links to a variety of Web services, including tables of contents, abstracts, the Library's print holdings, Web search engines, and citation management software. Technology-related materials of all types, including electronic resources, can also be identified through Library of Congress finding aids and bibliographic guides, which themselves are collected on the Science Reference Section web pages

Digital formats have increasingly blurred the line among databases of abstracts, citations and full-text materials, so that a given database may provide what is essentially an electronic journal for one title, while providing a citation with no text for another journal. Differences in periods of coverage also contribute to making a precise assessment of the number and nature of available electronic resources somewhat difficult. Reliably strong sources for electronic materials in the area of technology include the subscription databases *Applied Science and Technology Full Text, Conference Papers Index, CSA Technology Research Database, Digital Dissertations, ECO: Electronic Collections Online, EI Compendex (Engineering Index), INSPEC, Knovel Library, National Technical Information Service, Papers First, Proceedings First, Proquest Databases, Readers' Guide Retrospective,* and *Web of Science*.

Freely available electronic resources collected by the Library, that often have materials of interest in the area of the technology include *Canada Institute for Scientific and Technical Information (CISTI), Cold Regions Bibliographies, Corps of Engineers Library Information Online, Department of Transportation Digital Special Collections, Directory of Published Proceedings, Energy Citations Database, IEEE Conference Search, NACA Technical Reports Server, NASA Technical Reports*

Server, National Academies Press, NIST Scientific and Technical Databases, Office of Technology Assessment Archive, SCIRUS, Thomas Register, and STINET MultiSearch. Freely available resources such as these sometimes demonstrate that the overlap between web sites and online databases can again blur distinctions. Part of the process of collection development and maintenance is to properly link these resources together, and to take into account the issues related to the capture and archiving of web sites.

VI. WEAKNESSES/EXCLUSIONS

The Library makes no attempt to collect patents and trademarks; it defers to the U.S. Patent and Trademark Office. The Library collects information about patents and the patenting process, e.g., long runs of the *U.S. Patents Quarterly*, the *Official Gazette*, and *Specifications and Drawings*. Patent and trademark journals from Canada, Great Britain , France, Italy, Germany, Australia, New Zealand, and the USSR/Russia were collected through the 1980s.

Technology place a special emphasis on currency of information. This is often hard to achieve in an institution the size of the Library of Congress. The problem is compounded by the failure of some publishers to deposit electronic resources and print materials in a timely manner, if at all. The Library's inability to effectively claim missing issues exacerbates the problem. Some e-journal and born digital materials are collected at a lower level than their print counterparts, because the current Copyright law does not address the deposit of electronic materials. Also some of the mechanics associated with the acquisition, storage, and display of digital materials have not yet been resolved. As e-journals, e-prints, podcasts, webcasts, and new technologies for creating science materials proliferate and the Copyright law includes these materials as depository items, they will be collected at the same rate as their print counterparts.