

HEALTH AND MEDICINE ON DISPLAY

Supplemental Illustrations and Exposition Maps

THIRTY ADDITIONAL ILLUSTRATIONS have been included and are meant to read in conjunction with the main text with its fifty-eight images. These supplemental illustrations, like those in the book, show how people dealt with anxieties about exposition safety and the threats of disease as well as how a range of different exhibitors attempted to use new media forms to show what was modern in health and medicine to the public.

| 1 |

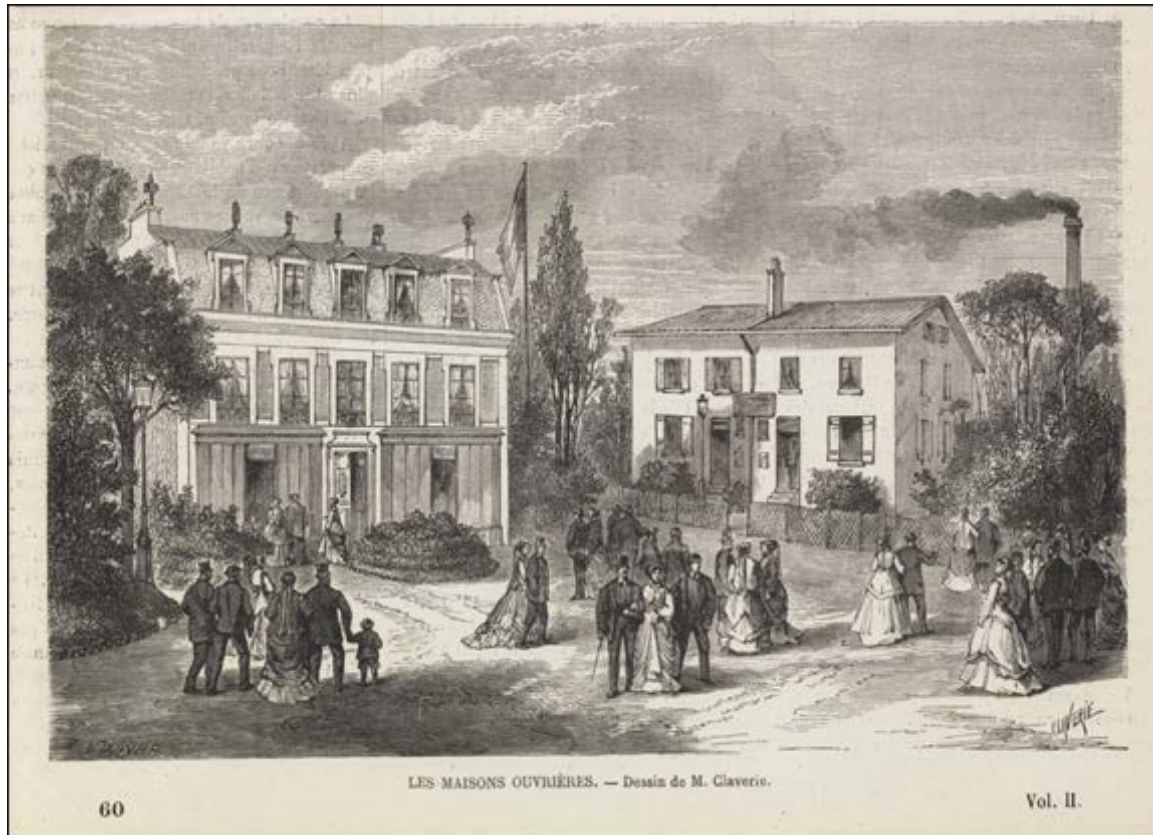
EXPOSITION INFRASTRUCTURE AND EXHIBITION DISPLAY AN INTRODUCTION



| 1.a |

French expositions provided important precedents for expositions in the United States. At the 1867 Paris Exposition Universelle, the public was intrigued by anatomical exhibits, including the innovative and award-winning specimen models of Ludovicus Brunetti from Padua. Brunetti's displays were singled out for their new preserving methods, the precise detail of kidney, arteries, and the digestive mucous membrane, and the specimens' lack of offensive smell.

1.a "Pices anatomiques de M. Brunetti (Grand prix), dessin de M. Wolff," in *L'Exposition Universelle de 1867 illustre*, vol. 2, 68. Research Library, 83-B4755, The Getty Research Institute, Los Angeles California.



| 1.b |

Social economy exhibits (which were to become increasingly important for health exposition exhibitors) were an important new feature of the 1867 Paris Exposition, where they represented advances in workers' housing, clothing, and instruction rather than just the productions of modern industry. The exposition's full-scale architectural models of sanitary workers' housing were an effort to promote the relocation of workers displaced by recent urban reconstruction plans, and were personally sponsored by Emperor Napoleon III.

1.b "Les maisons ouvrires. Dessin de M. Clavier," wood engraving, *L'Exposition Universelle de 1867 illustre*, vol. 2, 467. Research Library, 83-B4755, The Getty Research Institute, Los Angeles, California.

**JUDGING THE PROGRESS OF SANITARY SCIENCE
THE 1876 PHILADELPHIA CENTENNIAL EXHIBITION**



| 2.a

Food-borne illnesses and digestion disorders were a feature of all expositions, but at the 1876 Centennial Exhibition they accounted for more than half of the 3,199 medical treatments for exposition visitors, who experienced diarrhea, dysentery, indigestion, cramps, constipation, and acute gastroenteritis. Caricatures of the exotic foods available at the Centennial Exhibition's restaurants as generally overpriced, unpalatable, and unhealthy spoke to the lack of sanitary supervision of these facilities (though introduced in later expositions).

2.a Walter F. Brown, "Our Artist's Dream of the Centennial Restaurants, July 1, 1876," wood engraving, Harpers Weekly Magazine, supplement, July 1, 1876, 1. Centennial Collection, scrapbook, vol. 1, Print and Picture Collection, The Free Library of Philadelphia.



| 2.b |

The U.S. Army Medical Department was an innovator at the 1876 exposition with its distinctive architectural-model post hospital. This full-size-replica twenty-four-bed regulation hospital demonstrated optimal design features in its plumbing and ventilation, and provided a site for important exhibits of the Army Medical Museum and Surgeon General's Library.

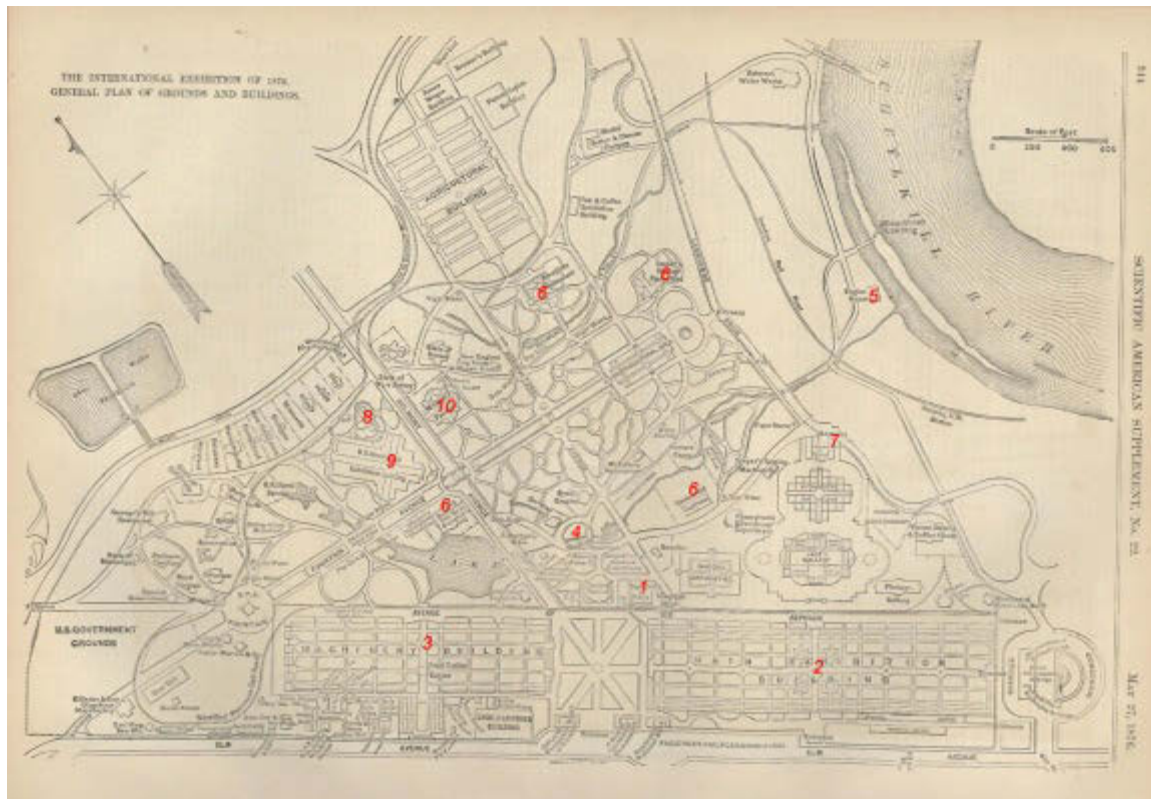
2.b "Hospital of Medical Department U.S.A., Seen from the Southeast, No. 2," albumen print, 20.2 x 25.5 cm. Otis Historical Archives, album "Hospital of the Medical Department United States Army Photographs International Exposition, 1876," National Museum of Health and Medicine, Washington, DC.



| 2.c |

The outdoor exhibit of the U.S. Army Medical Department included hospital tents and vehicles used during the Civil War. Among these were a two-wheeled medical transport cart (first on left) for supplies, and a reconstructed medicine wagon of the T. Morris Perot & Co. (third from left) that held bottles on springs, making them unbreakable, and an amputating table beneath the wagon supported by iron rods and rollers.

2.c "Hospital of Medical Department U.S.A, Ambulances, Medicine Wagons and Carts, No. 10," albumen print, 20.2 x 25.5 cm. Otis Historical Archives, album "Hospital of the Medical Department United States Army Photographs International Exposition, 1876," National Museum of Health and Medicine, Washington, DC.



“The International Exhibition of 1876. General Plan of Grounds and Building,” Scientific American Supplement, No. 22, May 27, 1876, p. 344.

The 1876 Philadelphia Centennial Exhibition included the following sites, which are discussed in detail in the main text:

1. Department of Public Comfort
2. Main Exhibition Building
3. Machinery Building
4. Medical Department Hospital
5. Pumping Station (Worthington Co.) Schuylkill River
6. Restaurants
7. Stand Pipe for Water
8. U.S. Army Medical Department Hospital
9. U.S. Government Building
10. Women’s Building

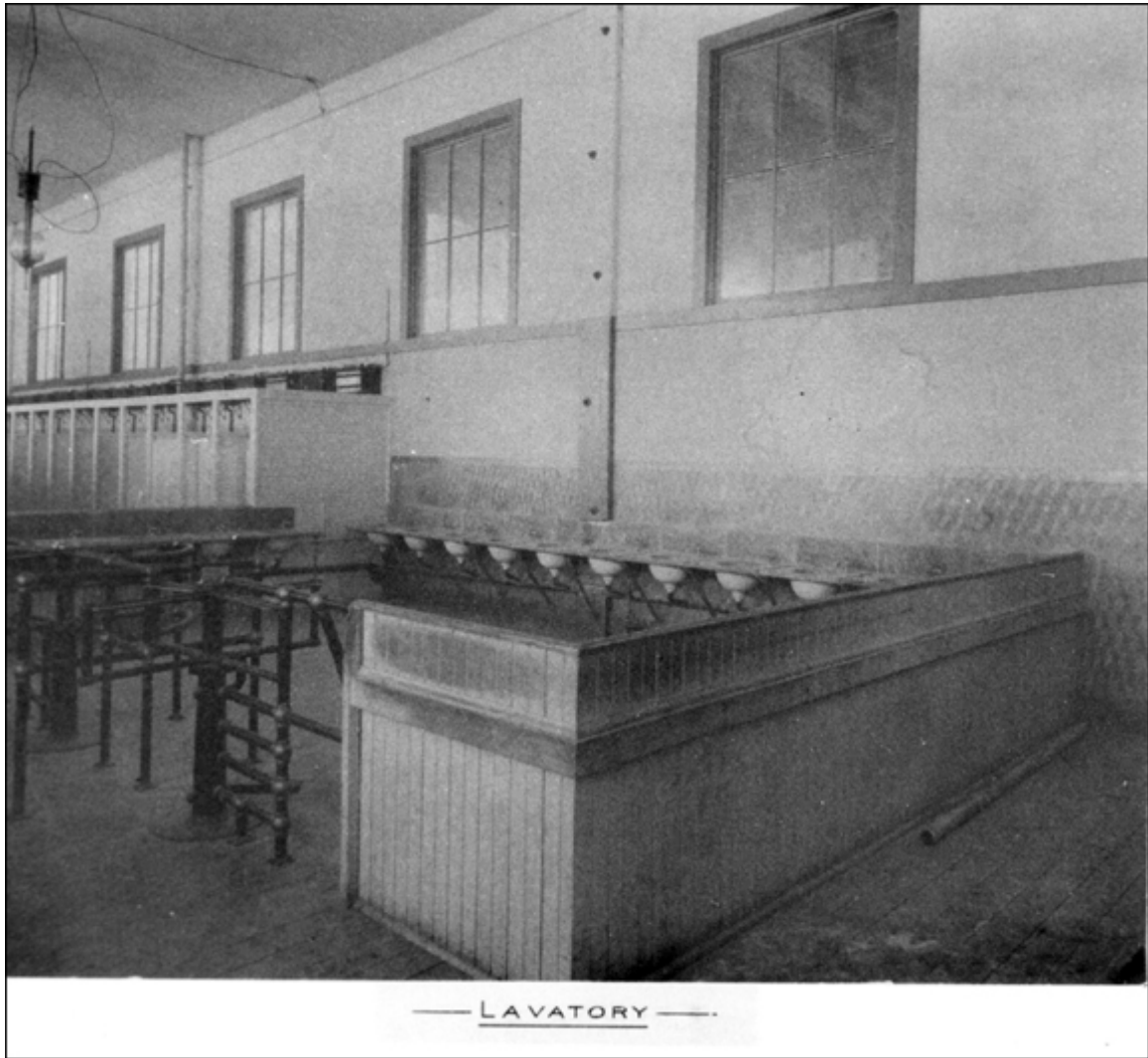
PREVENTING FEAR AND PANIC
THE 1893 CHICAGO WORLD'S COLUMBIAN EXPOSITION



| 3.a |

Garbage disposal, sewage removal, and water purification were issues for all expositions. For the World's Columbian Exposition's 713 acres, laboratory facilities of the exposition's Sewage Cleansing Works, under the expert direction of Allen Hazen from the Massachusetts Lawrence Experiment Station, monitored the chemically processed and treated waste water before its release back into Lake Michigan.

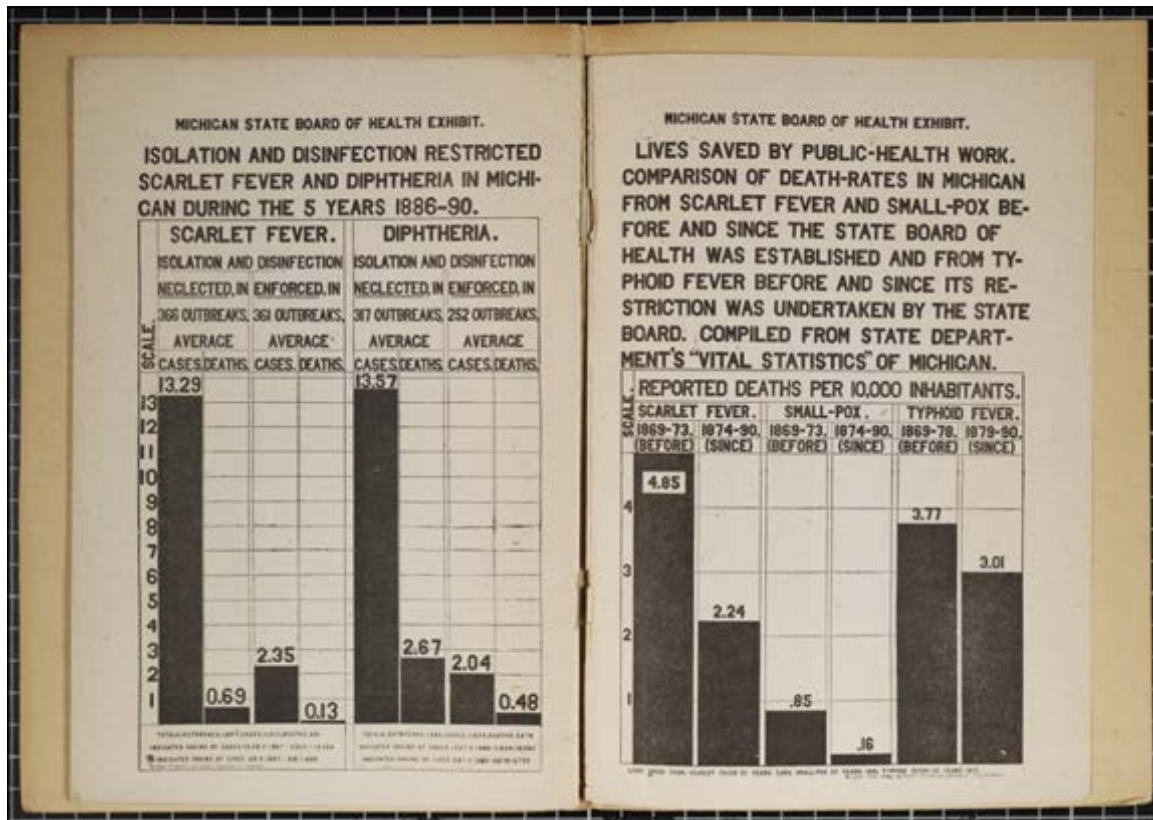
3.a "Laboratory in Sewage-Cleansing Works," halftone reproduction, in Rossiter Johnson, ed., *A History of the World's Columbian Exposition Held in Chicago in 1893* (New York: D. Appleton, 1897–1898), vol. 1, 194. Harry Ransom Humanities Research Center, University of Texas at Austin.



| 3.b |

Accessible lavatories and water closets were an issue for exposition visitors. Of the 3,116 such facilities at the Chicago Exposition, only one-third were provided free, and criticism was raised of their conditions and remote access. The Clow Sanitary Co. owned the majority of these facilities, and as a commercial concession grossed some \$300,000 from its charge of \$5 per customer.

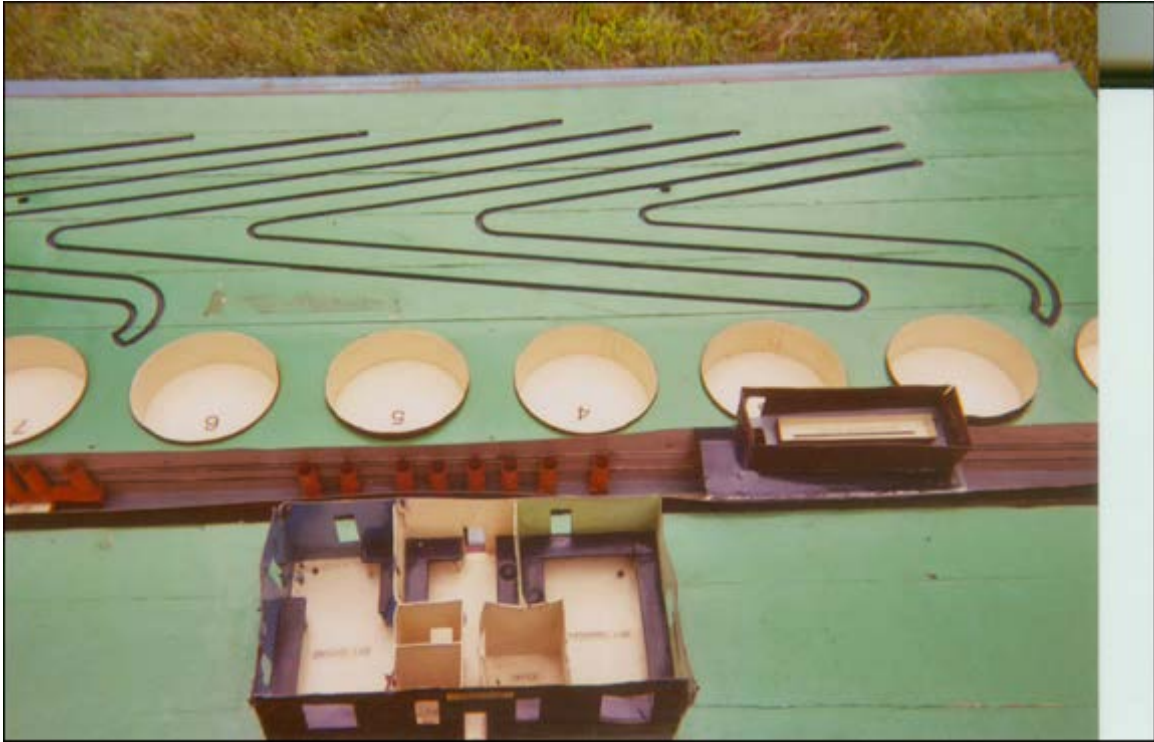
3.b C. D. Arnold, photographer, "Lavatory," albumen print, in Daniel Burnham, ed., *The Final Official Report of the Director of Works of the World's Columbian Exposition*, vol. 2, 84. Ryerson and Burnham Libraries, courtesy of the Art Institute of Chicago.



| 3.c |

Striking visual formats for exposition exhibits were increasingly used by health exhibitors, including those in the 1893 Chicago Exposition's Bureau of Hygiene and Sanitation. Graphs of the Michigan Board of Health, adapted from its annual reports, represented important data on vital statistics in simple, clear, and concise visual form that appealed to the sensibilities of nineteenth-century audiences, who increasingly trusted quantified health data.

3.c "Lives Saved by Public-Health Work. Comparison of Death-Rates in Michigan from Scarlet Fever and Small-pox before and since the State Board of Health Was Established and from Typhoid Fever before and since Its Restriction Was Undertaken by the State Board. Compiled from State Department's 'Vital Statistics' of Michigan." Michigan State Board of Health, *Relative to the Michigan State Board of Health Exhibit at the World's Columbian Exposition at Chicago in 1893* (Lansing: Robert Smith, 1893). Dibner Library of the History of Science and Technology, courtesy of Smithsonian Institution Libraries, Washington, DC.



| 3.d |

Large topographical models were an exposition drawing card, including that of the Massachusetts Lawrence Experiment Station that was part of their large display at the 1893 Chicago Exposition. The wooden model represented the process of water purification from the Merrimack River (in blue, top) as it was fed into filtering beds through eight trenches shown in curved loops cut into the wooden surface (top section). After passing through the layers of special sand, the water was pumped into the ten circular filter tanks (middle section) for testing. Operations and experiments were conducted in the two buildings shown in the bottom section.

3.d "Massachusetts Board of Health's Lawrence Experiment Station," model, colored wood, 8 feet. Author's photograph, collection of Senator William H. Wall Experimental Station, Massachusetts Department of Environmental Protection, Lawrence, Massachusetts.



| 3.e |

Full-scale architectural models of workers' housing had been featured in French expositions, and there was more than one at the 1893 Chicago exposition. The substantial two-story model workingman's home that was part of New York State's exhibit represented a rentable accommodation for a workingman at \$120 a year, complete with bathroom and other sanitary features. The exhibit also housed a resident family of six for a month as a demonstration food experiment in household economics, to test the cost of feeding a family for 54¢ a day.

3.e "Workingman's Model Home," halftone reproduction, in New York Board of Managers, *World's Columbian Exposition, Report of the Board of General Manager of the Exhibit of the State of New York at the World's Columbian Exposition: Transmitted to the Legislature April 18, 1894* (Albany: J. B. Lyon, 1894), 396. Dibner Library of the History of Science and Technology, courtesy of Smithsonian Institution Libraries, Washington, DC.



| 3.f |

The U.S. Army Medical Department once again used a model hospital for its 1893 exhibit, which was designed by the leading expert in the field, Dr. John Shaw Billings. Facing Lake Michigan, the building contained extensive exhibits of the Army's medical work, including its new research in wound ballistics and bacteriology in its fully equipped model clinical laboratory.

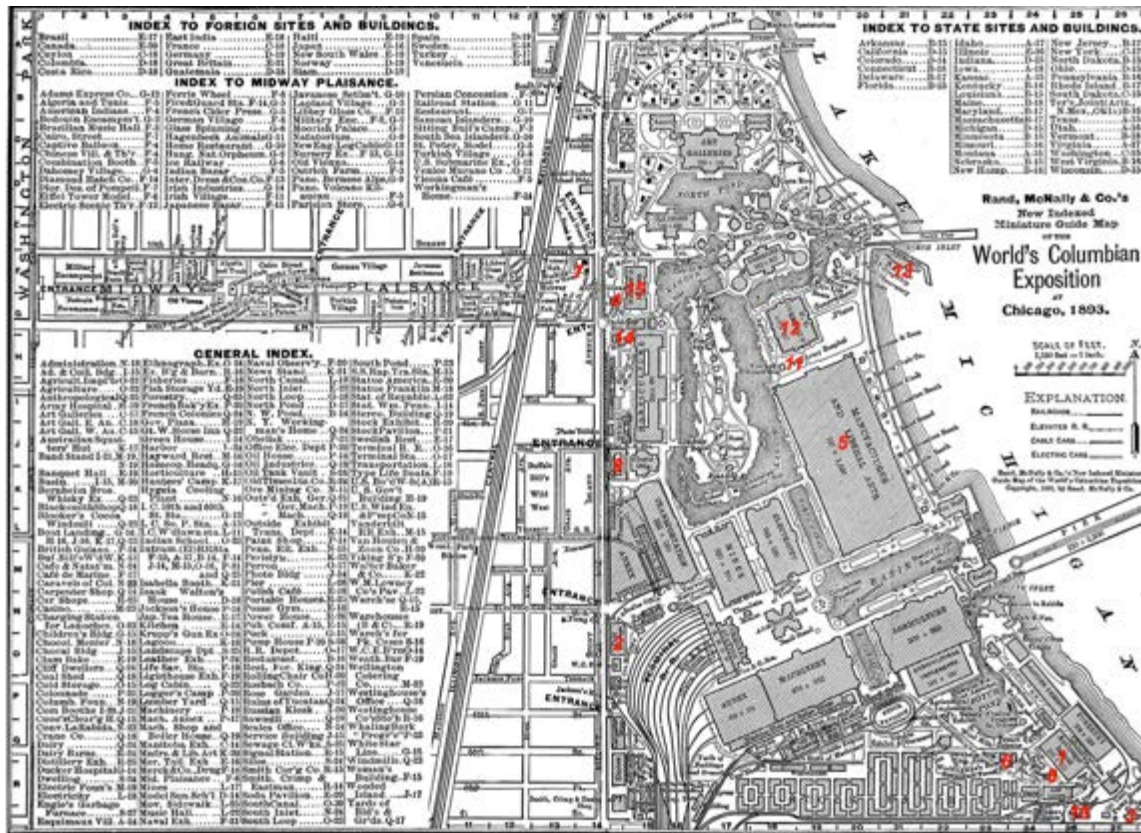
3.f Negative by Government Board's Committee on Photography, gelatin print. Record Group 111, RB-3430, box 24, Still Pictures Branch, National Archives and Records Administration.



| 3.g |

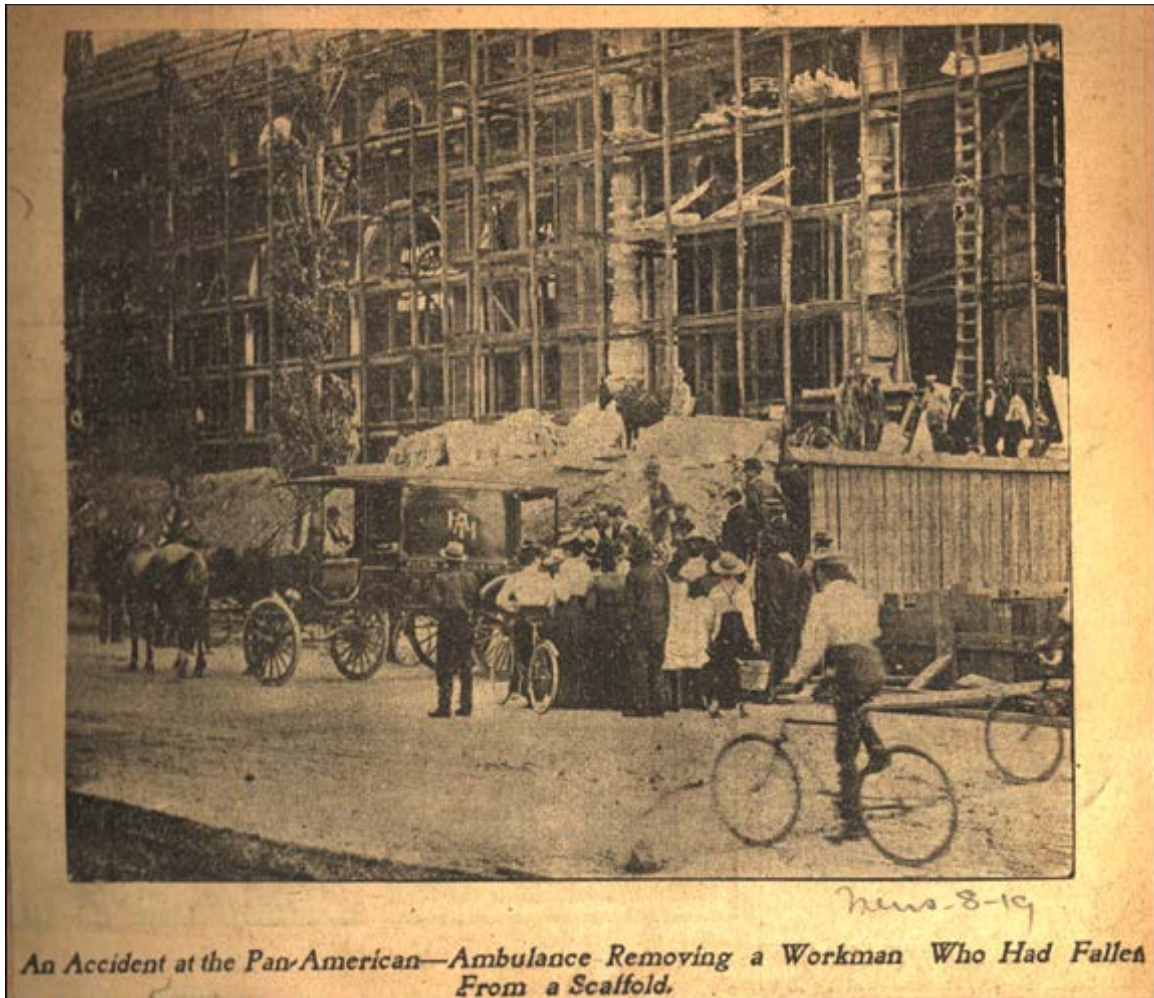
The U.S. Army Medical Department's model hospital seems dwarfed against the eastern entrance of the massive 1893 Chicago Exposition's Liberal Arts Building. The extensive military encampment in front of the hospital was in addition to the elaborate field hospital and first aid and transport demonstrations by eight members of the Army's Hospital Corps.

3.g Negative by Government Board's Committee on Photography, gelatin print. Record Group 111, RB-3969, box 24, Still Pictures Branch, National Archives and Records Administration.



Rand, McNally & Co.'s New Indexed Miniature Guide Map of the World's Columbian Exposition at Chicago, 1893.

OCCUPYING A VAST CAMP
THE 1901 BUFFALO PAN-AMERICAN EXPOSITION



| 4.a |

Injuries to construction workers escalated with the building of more elaborate exposition sites. At the 1901 Pan-American Exposition in Buffalo, despite the attention paid to sanitary conditions for visitors, construction workers were still susceptible to injuries; there were at least seven reported fatalities. Occasionally these accidents were reported in the local press, including one of an exposition worker's fall from a scaffold on August 1900.

4.a "An Accident at the Pan-American—Ambulance Removing a Workman Who Had Fallen from a Scaffold," halftone, *Buffalo News*, August 19, 1900. Special Collections, Pan-American Exposition Scrapbooks, by permission of The Buffalo & Erie County Public Library, Buffalo, New York.



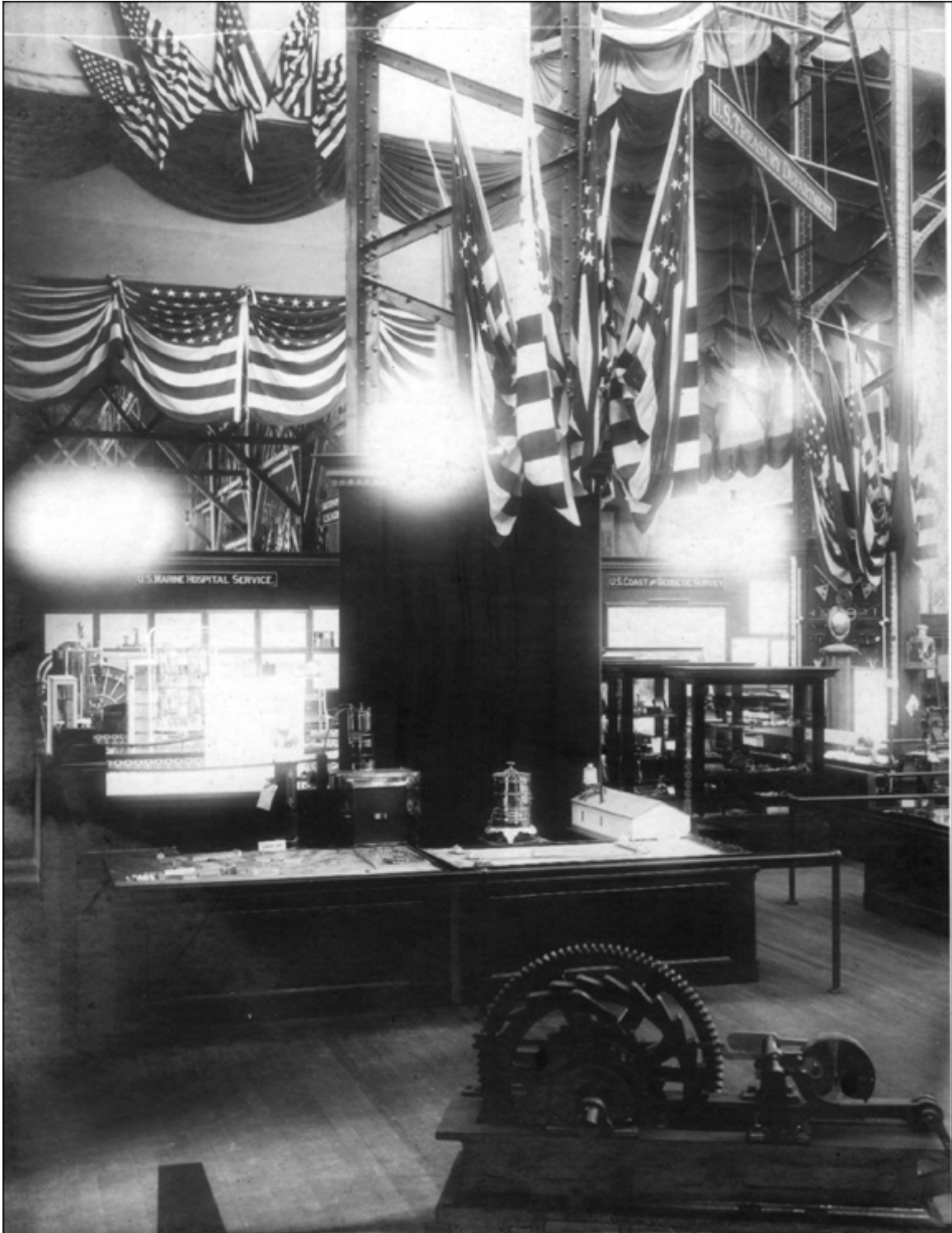
View of Field Kitchen, Ration Tent, Ambulance and
Company street, etc.

Photograph taken from the walk along the Canal and
looking toward the Government Building.

| 4.b |

The popular brigade field hospital of the U.S. Army Medical Department at the 1901 Buffalo exposition was intended to rehabilitate the public image of the Army's medical service after the Spanish-American War. Located immediately south of the arcade connecting the Fisheries Building and the Government Building, the extensive outdoor displays and demonstrations included a dispensary, surgery, new regulation sanitary sleeping tents, and field kitchen with water filtration and sterilization facilities.

4.b "View of Field Kitchen, Ration Tent, Ambulance and Company Street, etc.,"
bromide print, 19 x 24 cm. Otis Historical Archives, CP2449, National Museum of
Health and Medicine, Washington, DC.



| 4.c |

Government medical department exhibitors commonly recycled expensive exhibit materials. For the 1901 Buffalo exposition, the U.S. Marine Hospital

Service featured two large topographical models that it had displayed previously: one of the yellow fever station Quarantine Detention Camp, Fort Perry, Florida (center, right), and one of the U.S. Quarantine Station at Reedy Island on the Delaware River (middle, left). A new cross-section model (right) represented the Reedy Island building that housed the Kinyoun-Francis vacuum disinfecting tank and sterilizing apparatus, used for cleaning clothing in quarantine work; the apparatus itself stood nearby.

4.c Bromide print, 24 x 18.2 cm. Record Group 90, G53-20, Still Pictures Branch, National Archives and Records Administration.



| 4.d |

Commercially made wax head manikins were commissioned from the Eden Musée by the U.S. Navy for its elaborate, highly realistic hemicyclorama at the 1901 exposition. The process used in producing the sixteen heads involved making body sections in papier-mâché from plaster molds taken from real-life

4.d "Making Cast in Wax from Plaster Mold," *Boston Sunday Journal*, April 12, 1903. Library Collection, LPE Scrapbooks, vol. 128, p. 16, Missouri Historical Society.



**MAKING A SOLEMN PROTEST
SITE AND SERVICES AT THE 1904 LOUISIANA PURCHASE
EXPOSITION**



As part of the innovative Model Street exhibit at the 1904 Louisiana Purchase Exposition, the two-story Emergency Hospital had a residential rather than institutional appearance. First-floor offices included those for the exposition's Medical Director, staff, and nurse superintendent; there were also a diet kitchen, drug room, two wards (27 by 47 feet each) of twelve beds and six wicker couches, a room for isolation cases, and one for sunstroke treatments. Operating facilities were located unobtrusively in the one-story rear building within a 16-by-20-foot

room, with an additional dressing room and sterilizing room, all fitted with equipment donated by the St. Louis firm of Blee-Moore & Co.

5.a "Emergency Hospital," halftone reproduction, in J. W. Buel ed., *Louisiana and the Fair. An Exposition of the World, Its People and Their Achievements*, vol. 8 (New Orleans: World's Progress Publishing Co. 1905), 3283.



| 5.b |

The lengthy period required for exposition construction necessarily involved the provision of some workers' housing in order to maximize the pace of operations. For the 1904 exposition, some temporary barracks were intended to provide housing for laborers and mechanics, but those provided by the Park Boarding and Commissary Company were not completed until February 1903.

5.b "Workman's Hall," bromide print, 19.5 x 24.5 cm. LPE Photographic Construction Albums, vol. 4, no. 327, Photographs and Prints Collection, Missouri Historical Society.



Medical scrutiny of the 1904 exposition's commercial "Infant Incubator" exhibit was prompted by complaints from the Humane Society, after a number of deaths of premature infants. The large building of the Imperial Concession Company, located on the Pike, provided free emergency treatment for infants, twelve incubators for public display, and care by a staff of fourteen nurses. Eventually, Dr. John Zahorsky, a St. Louis pediatric specialist, was placed in charge, and conditions improved dramatically.

5.c "The Daily Bath," bromide print, 19.5 x 24.5 cm. LPE Photographic Construction Albums, vol. 10, Photographs and Prints Collection, Missouri Historical Society.

City of St. Louis

Health Department

Sanitary Division

A CIRCULAR ON THE

Means of Preventing, Avoiding and Suppressing Communicable Disease

EMBODYING THE

Provisions and Requirements of Law

Respecting the Duties of Physicians When in Attendance
Upon a Case or Cases of Communicable Disease

AND THE

Provisions of City Ordinances in Relation to the Duties of
the Principals or Teachers of any Private or Public School

PREPARED AND ISSUED FOR

PUBLIC DISTRIBUTION AND INFORMATION

—BY—

MAX. C. STARKLOFF, M. D.,
HEALTH COMMISSIONER.

FEBRUARY 11, 1901

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1901

Containing contagious disease was a recurring issue for both exposition organizers and municipal officials, one that required cooperation and planning. Max C. Starkloff, M.D., the St. Louis Health Department Commissioner, had promoted the efficacy of smallpox prevention with vaccination, isolation, and disinfection in a series of popular health manuals and annual vaccination programs, but was abruptly replaced in 1903.

5.d Max C. Starkloff, M.D., Health Commissioner, *A Circular on the Means of Preventing, Avoiding, and Suppressing Communicable Disease Embodying the Revisions and Requirement of Law* (St. Louis: City of St. Louis Health Department, 1901). Library Collection, Missouri Historical Society.



| 6.a |

Exposition officials often assumed multiple responsibilities for work that arose during the planning and operations of the event. The highly experienced Howard J. Rogers assumed more than his share as the leading official for two important departments at the 1904 exposition, Education and Social Economy, as well as the key organizer of the extensive Congress of Arts and Science.

6.a C. Hundt, "Mr. Hundt's Impression of Mr. Howard J. Rogers," drawing, *St. Louis Post Dispatch*, March 27, 1904. LPE Scrapbooks, vol. 5, p. 32, Special Collections, St. Louis Public Library.



6.b

Tenement housing and health had been highly profiled in exposition exhibits by the Charity Organization Society in 1899, and later in the 1900 Paris and 1901 Buffalo expositions. For the Louisiana Purchase Exposition, many of the same materials were updated and redrawn for the New York City Tenement House Commission's exhibit. These would have included a selection of maps on disease and poverty cleverly adapted from existing New York City real estate maps in different sizes and mounted on cloth, with printed codes at the corners to indicate the relevant health statistics represented by colored dots.

6.b "Map Showing Tuberculosis, Typhoid, Scarlet Fever and Diphtheria," disease map detail, 103 x 115 cm. NYHS Library Map Collection, L7.3.2, Collection of the New York Historical Society.



The driving force behind the 1904 exposition's public health exhibits was the colorful and innovative Dr. John Hurty, secretary of the Indiana State Health Department. Hurty had gained the attention of his state legislature in February 1901 by forcibly demonstrating the precarious ventilation conditions in their own chambers and its potential impact on the health of the legislators.

6.c Frank Bowers, "Dr. Hurty Catches Microbes in the Legislative Chamber," drawing, *Indianapolis News*, February 26, 1901. Special Collections, Ruth Lilly Medical Library, Indiana University School of Medicine.



Statistical use of health information to explain the cause and nature of disease was an increasingly important exhibit tool for municipal and state health agencies. Justus Ohage, M.D., City Health Commissioner for St. Paul, had been instrumental in that city's strong public health program and was in charge of making calculations and preparing health data on St. Paul for exhibiting at the 1904 exposition.

6.d "Terry," "Just Tips the Mark, the Saint—"There, Doctor, You Can Measure for Yourself," cartoon line drawing. LPE Scrapbooks, vol. 55, Library Collection, Missouri Historical Society.

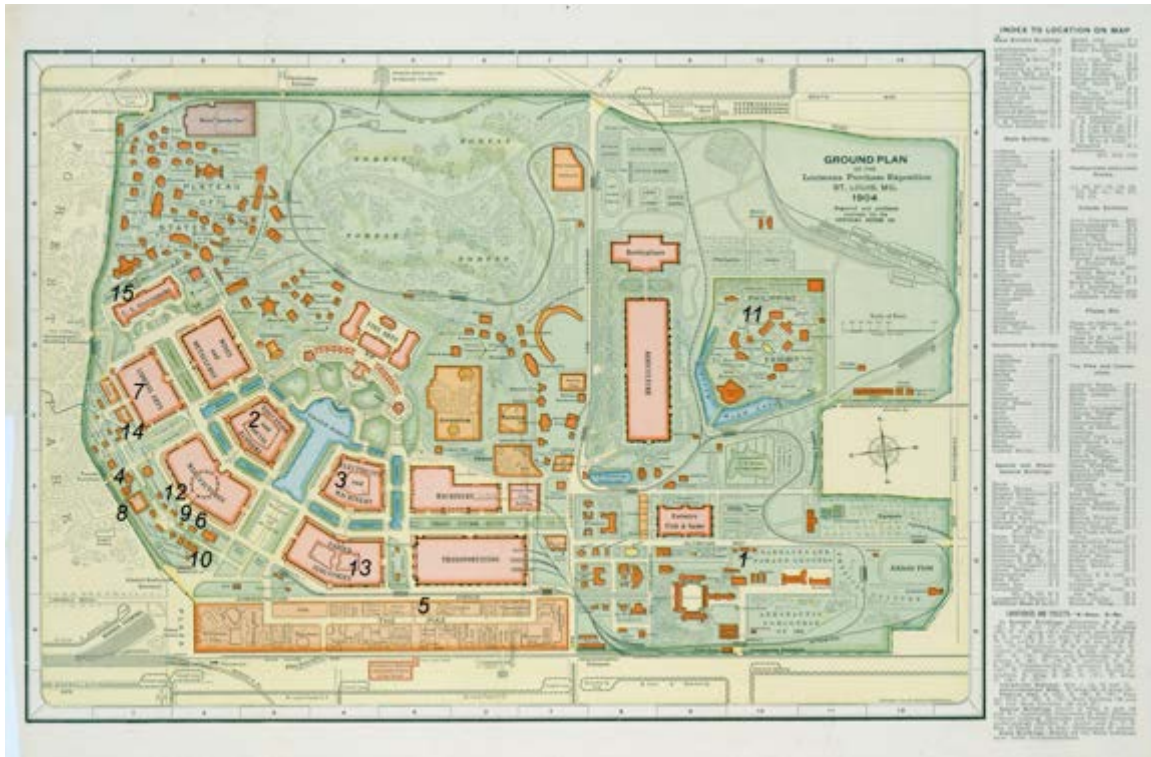


| 6.e |

To encourage collective exhibit-making, a new compact "unit system" of exhibit structures was introduced for the 1904 exposition with upright glass cabinets, swinging frames, and artifact shelves. The unusually comprehensive exhibit of state charitable institutions by the Pennsylvania Exposition Commission included

summary reports and photographs of its one hundred hospitals, representing forty cities and towns.

6.e "Pennsylvania Public Institutions Exhibit," halftone, 12.5 x 18.5 cm, in James H. Lambert, *The Story of Pennsylvania at the World's Fair, vol. 2* (Philadelphia: Pennsylvania Commission, 1905), 330. Dibner Library of the History of Science and Technology, courtesy of Smithsonian Institution Libraries, Washington, DC.



Ground Plan of the Louisiana Purchase Exposition St. Louis. Engraved and published expressly for the Official Guide Co., courtesy of the Missouri History Museum.

<https://www.youtube.com/watch?v=Ttn4dxZ4kho>

|6.f|

New exhibit technologies that enhanced the reality experiences of visitors such as full-scale ship reconstructions, cycloramas, and films were the signature of the U.S. Navy Exposition exhibits since the 1890s. For the 1904 Exposition, Navy organizers, engaged the American Mutoscope and Biograph Co. to produce twenty-seven biographs or films for screening in a specially designed viewing room. Among these was the film *Man Overboard*, also known as *Man Overboard! Indiana*, showing a gunners mate falling overboard, his rescue by Navy blue-

jackets in a manned life-boat, and his safe return the USS Indiana on November 11, 1903. 6.f Billy Bitzer and Wallace McCutcheon. Man Overboard, film, FLA4715(print), Paper Film Collection, Film Division, Library of Congress.

Description by Julie K. Brown from Health and Medicine on Display (MIT Press, 2009).