Digital Image, 2011, The Ida M. Tarbell Collection, 1890-1944, Allegheny College Pelletier Library.

CHAPTER XV

CRITICAL BIBLIOGRAPHY

PHYSICAL SURVIVALS

The physical evolution from 1878 to 1898 of the ~~various~~ originals or industries considered in this volume can be traced in/models in the various museums of Science and Industry created in this country in recent years. The first of these founded in 1924 is the New York Museum of Science and Industry. Its permanent exhibits cover the development of the food, clothing and shelter industries, of all forms of transportation, of the applications of electricity to communication, lighting and power. Amohg its important originals belonging to the period of this book are the Hammond typewriter (1881); the Parson steam turbine (1884); a Hoe single large cylinder printing press (1886); the Welsbach Incandescent Mantle (1886); the Duryea automobile (1898).

An interesting model is that of the first permanent central station in the world for the generation of electricity, the Pearl Street (New York City) Station, built by Thomas Edison and opened on September 4, 1882.

The Franklin Institute of Philadelphia is strong in the art and science of printing. It has originals of the Linotype Intertype of 1884 and the Monotype of 1890, also a color press of that year. But no industry is foreign to the Franklin Institute.

The latest of the great city museums is that of Chicago founded in 1829 by Julius Rosenwald. Additions have been made to the original endowment until the Chicago Museum of

Science and Industry represents an investment of at least $10,000,000. It is strong in coal and metal mining processes showing originals of early coal cutters and punchers, a diamond drill for sampling ore (about 1880); also safety lamps. The Chicago Museum like the New York Museum presents many of the models in motion.

A fine intention of this institution is to show the effect on social and cultural life of the successive improvements in industries as well as the radical changes brought about by new inventions. One easily understood example is the social and humanitarian result of the introduction of the elevator.

The Edison Institute at Dearborn, Michigan, a section of Henry Ford's ambitious effort to collect originals of all utensils, tools, machines, shelter, vehicles, which have figured in American life at successive periods offers the most complete collection on electricity in existence.

"We now have in our possession," writes the director of the Institute, "practically all the evidences of development made in the electric light industry dating from the creation of the electric lamp by Edison in October, 1879. All his original models of mimeograph, telephone, quadruplex telegraph, talking machine, etc., have been placed in the reconstructed Menlo Park Laboratory, now a part of Greenfield Village."

Digital Image, 2011, The Ida M. Tarbell Collection, 1890-1944, Allegheny College Pelletier Library.

The Smithsonian Institution of Washington, D. C. has many important originals or models of inventions dating from 1878 - 1898. Most important of these are the steam and gasoline powered experimental models of Dr. Samuel Pierpont Langley which actually flew under their own power, the first on May 6, 1898. The Langley collection includes the specimens of kites, boomerangs, airfoils, testing devices, etc., used in his aeronautical researches.

The Smithsonian shows the man-carrying glider built and flown by Otto Lilienthal in 1894 as well as models of Octave Chanute's glider of 1896; the original automobiles of Duryea, Haynes, Olds and Winton; the calculating machines of Felt, Burroughs and Baldwin; Elihu Thompson's first three-phase dynamo and his first apparatus for electric welding, also a large collection of the patent office models of important inventions including the gasoline engine, the telephone, the typewriter.

The first scientific effort to tell the whole story of a particular industry in machines, pictures, records and product was that of the American Steel and Wire Company in its Industrial Museum of Steel and Wire at Worcester, Mass. It covers wire and nails from the earlest time. The development in the period of this volume is amply illustrated by originals. They include ~~industry including~~ a piece of the first wire rod rolled in 1888 by the Joliet Steel Company; a wire frame first installed in

Digital Image, 2011, The Ida M. Tarbell Collection, 1890-1944, Allegheny College Pelletier Library.

1845 and used until 1910; first wire nail machine built in America and still in use; complete collection of various types of hand wrought and iron nails; specimens of barbed wire fencing with documents illustrating the patent war over barbs which began in the '70's and went on through the '80's.

The State of Pennsylvania dedicated in 1934 at Titusville, Pennsylvania a Museum and Park in honor of the man who drilled the first oil well - E. L. Drake. This Drake Museum is located at the site of the first well; in it will be found the drilling tools used and a replica of the well itself; models tracing the progess in the producing and transportation of oil; also an interesting collection of lamps.

A library is attached to the Museum containing in addition to printed sources on the history of petroleum many original documents relating to the personnel and the financing of oil companies.

Public interest in the physical survivals of whatever concerns an industry has led many corporations in recent years to preserve on their premises the originals of buildings and machines which illustrate important steps in their growth. Thus at Schenectady, New York, the General Electric preserves as the heart of its great plant the original building in which Thomas Edison set up his machine shop in 1884. In front of the turbine shop of the plant is the first five thousand kilowatt steam turbine. It was built for Samuel Insull when five hundred kilowatts was the largest yet made.

Digital Image, 2011, The Ida M. Tarbell Collection, 1890-1944, Allegheny College Pelletier Library.

Digital Image, 2011, The Ida M. Tarbell Collection, 1890-1944, Allegheny College Pelletier Library.

The Westinghouse Electric and Manufacturing Company of East Pittsburgh, Pennsylvania, preserves George Westinghouse's first machine shop built on a farm in Turtle Creek Valley in 1881. Among the most significant originals of George Westinghouse's work preserved at this plant are his transformers making possible the use of the alternating current (1885); his induction motor (1888); the alternating current meter (1888); the rotary converter (1892); the stopper lamp which made it possible for him to light the Chicago Fair of 1893.

The Westinghouse Air Brake Company of Wilmerding, Pennsylvania maintains a museum in which they preserve the originals of Westinghouse safety inventions including the air brake, draft gear and signaling equipment.

The attention industry pays now to safety devices and education has led to the establishment in New York City of a Museum of Safety in which many originals are exhibited.

The celebration of mile posts in the history of industrial corporations has resulted in several important expositions and pageants in which originals or models of successive steps in machines and equipment have been gathered with the result that the more important have been kept together in a plant museum . The most complete of such celebrations was the Centenary Pageant in locomotive development held in 1927 by the Baltimore & Ohio Railroad. It covered in detail the roads one hundred years of continuous operation and progress.

Models or originals of locomotives beginning with that of Isaac Newton in 1680 and ending with the most powerful type in use in 1927 were shown at the "Fair of the Iron Horse" as it was called.

The exhibit of particular interest to the period of this volume was "Mogul 600" which took first prize at the Centennial Celebration in 1876 and the first railroad electric locomotive which the Baltimore & Ohio put into operation in 1894. These as well as the full collection of originals and models are on exhibition in the railroads Hall of Transportation on the site of the the Fair of the Iron Horse in a Baltimore, Maryland suburb.

Digital Image, 2011, The Ida M. Tarbell Collection, 1890-1944, Allegheny College Pelletier Library.

SECONDARY SOURCES

General:

The best general discussion of the era between 1878 and 1898 is David A. Well's Recent Economic Changes. Although published in 1889 its analyses and judgments apply as well to 1898. The comments on the effects of the machinery and of the tariff are particularly illuminating. Bogart and Thompson's The Industrial State in the Centennial History of Illinois (1920) is invaluable.

Trusts:

The most convenient volume for studying the multiplication of combinations is The Truth about the Trusts by John Moody (1904). The book contains a list of all trusts - industrial, franchise, transportation and miscellaneous, arranged in order of incorporation with statistics as to number of plants controlled and total capitalization. A full description of the make up of each combination listed is given, so far as facts were available at the time. An interesting bibliography is included. Trusts, Pools and Corporations by William Z. Ripley (1905) is an admirably edited collection of scholarly papers on special combinations, salt, whiskey, wire nails, tin plate. The volume includes discussions of legislation and of the effect of regulation together with a fine survey and criticism of trust literature.

Digital Image, 2011, The Ida M. Tarbell Collection, 1890-1944, Allegheny College Pelletier Library.

Other books of interest are S.C.T.Dodd's Combinations, their Uses and Abuses (1900) G. H. Montague's Trusts of Today (1904) Henry R. Sager's Recent Trust Decisions. (1911) H. D. Lloyd's, Wealth Against Commonwealth. (1894)

Transportation:

Transportation is served as well by Ripley as Trusts in a volume of selected studies on Railway Problems. (1907) Several decisions of the Interstate Commerce Commission are discussed, together with the decisions of the United States Supreme Court in case of appeal. Ripley also has a volume on Rates and Regulations and another on Finance and Regulation. Taken together they are the most important secondary material on the subject of transportation. The History of the Northern Pacific Railroad by E. V. Smalley (1883); of the Union Pacific by H. K. White (1895); of the Pennsylvania by W. B. Wilson (1899); the recent (1928) Story of the Baltimore & Ohio by Edward Hungerford give detailed accounts of the growth of these roads, their struggles, their triumphs and their personnel.

Water Transportation:

Water transportation is most adequately covered by an occasional alaborate study in the quarterly Journal of Economics, the Journal of Political Economy or the Annals of the

Digital Image, 2011. The Ida M. Tarbell Collection, 1890-1944, Allegheny College Pelletier Library.

Academy of Political Science. H. G. Moulton's, Waterways vs. Railways (1912) handles the contest between the two agencies. Charles Edward Russell's, A-Raftin' on the Mississippi (1928) is a vivid and picturesque story of transportation on the Mississippi in our period.

Tariff:

The most useful work for an understanding the nature of the tariff struggle at the opening of our period is David A. Wells' Our Burden and Our Struggle (1864). A scientific and scholarly discussion of the tariff is Dr. F. W. Taussig's History of the Present Tariff (1860-1883), and Tariff History of the United States told in a series of essays brings the story up to 1883. Arthur T. Hadley and Richard T. Ely discuss the Tariff in their respective volumes on Economics. A pamphlet which had large influence in the '80's and '90's was Henry George's, Protection vs. Free Trade (1881). E. L. Godkins' Problems of Modern Democracy (1896) contains a finely argued essay, Some Poltical and Social Aspects of the Tariff.

Immigration:

Books of value on the facts and problems of immigration are Richmond Mayo-Smith's, Emmigration and Immigration (1890); John R. Commons, Races and Immigration in America (1920) and the two volume summary of the report of the Dillingham

Digital Image, 2011, The Ida M. Tarbell Collection, 1890-1944, Allegheny College Pelletier Library.

Immigration Commission made in 1911. This summary was made by two members of the staff of the Commission, J. R. Jenks and W. J. Lauck (1912) The best secondary sources on Chinese Immigration are Mary R. Coolidge's, Chinese Immigration (1909), Isaac H. Bromley's, Chinese Massacre at Rock Springs, Wyoming (1886), Alex H. Meneely Anti-Chinese Movement in the Northwest (1922) contains a complete bibliography of periodical articles.

Labor:

At the head of the labor literature useful for this period is John R. Commons', History of Labor in the United States (1918) covering organization, the eight hour movement, labor legislation, labor and the courts. Commons and Andrews', Principles of Labor Legislation is a convenient and reliable survey (1920). Other books not to be overlooked are R. T. Ely's, The Labor Movement In America (1886); William Kirk's, The Knights of Labor and the American Federation of Labor (1906); Studies in American Trade Unionism by Hollender & Barnett (1901); John P. Altgeld's, The Eight Hour Movement (1890); American Federation of Labor Eight Hour Series, four volumes. On the labor struggles of the '80's and '90's there is a voluminous official and periodical and pamphlet literature. Of important secondary sources the most reliable treatments are found in Commons, Bogart & Thompson, Industrial State (1920), Rhodes, United States History from Hayes to McKinley, 1877 to 1896; C. D. Wright's, Industrial Evolution of

Digital Image, 2011, The Ida M. Tarbell Collection, 1890-1944, Allegheny College Pelletier Library.

the United States, (1901) and Waldo R. Browne's, Altgeld of Illinois (1924); Brand Whitlock's, Forty Years of It (1925); Carroll D. Wright's, Industrial Evolution of the United States (1901) and his Battles of Labor, (1906)

Agricultures

The actual progress of agriculture from 1878-1898 is most satisfactorily traced in the reports of the Department of Agriculture, the annual digests in Appleton's Annual Cyclopaedia, and in the reports of the Industrial Commission and in the Census Reports for 1880, 1890 and 1900. The industries built on farm products such as milling, butter, cheese, glucose, oleomargarine, has each its special bibliography.

Populism:

The chief source aside from the voluminous discussion in contemporary periodical literature are Solon J. Buck's, The Agarian Crusade (1920); John D. Hicks', The Populist Revolt (1931); F. W. Taussig, The Silver Situation in the United States (1900); W. J. Lauck's, Causes of the Panic of 1893 (1907)

Manufacturing:

Chauncey Depew's, One Hundred Years of American Commerce (1895) is made up of papers by leaders in the particular

Digital Image, 2011, The Ida M. Tarbell Collection, 1890-1944, Allegheny College Pelletier Library.

industry such as John E. Searles on Sugar, Chas. A. Pillbury on Flour and Grist Mill Products, Emerson McMillin on Water. E. L. Bogart's, Economic History of the United States (1921); H. W. Faulkner's, American Economic History (1924) trace with ample illustrations and statistics the movement of manufacturing to the west and South. Kaempffert's, Popular History of American Inventions (1924) shows the effect on manufacturing of invention.

Irrigation:

Two secondary volumes on irrigation which have practically the value of official documents - their author being active in irrigation movements - are Irrigation in the United States by R. J. Hinton (1891) and William E. Smythe's Conquest of Arid America (1905)

Digital Image, 2011, The Ida M. Tarbell Collection, 1890-1944, Allegheny College Pelletier Library.

SUPPLEMENTARY BIBLIOGRAPHIES

The critical bibliographies in three volumes of this series of books can be advantageously used in connection with the ones here offered. They are Allan Nevins', The Emergence of Modern America, 1865-1878, Arthur M. Schlesinger's, The Rise of the City covering the period of this book, 1878-1898 and Harold Underwood Faulkens', The Secret of Social Justice, 1878 to 1914.

Digital Image, 2011, The Ida M. Tarbell Collection, 1890-1944, Allegheny College Pelletier Library.