APPENDIX D

SELECTED BIBLIOGRAPHY

This appendix contains only those references which are cited by serial number in the text and table footnotes. Additional references are given in the text footnotes and also in Appendix B.

2. American Mining Congress, *1929 Yearbook on Coal Mine Mechanization*, prepared under the direction of G. B. Southward
17. H. F. McCullough and J. W. Paul, *Mechanical Loading for the Coal* 463
MECHANIZATION IN INDUSTRY

Mines of the Pittsburgh District (Carnegie Institute of Technology, Bul. 28, 1926).


20. National Bureau of Economic Research, unpublished information obtained by surveys briefly described in Ch. I.
   a. Labor-saving changes, methods of handling materials, and number of hand and machine workers by processes—interviews with industrial executives and inspections of construction and factory operations, chiefly in 1925.
   b. Annual sales of labor-saving machines, histories of their development, obstacles to their more complete use, marketing methods and type of labor used in producing machines—interviews with manufacturers of machines (chiefly in 1926) and correspondence (1924–33).
   c. Changes in output per hour of labor and concurrent changes in equipment and methods—interviews and examination of factory records in 1927, 1928 and 1929.
   d. Most important labor-saving changes made in factories and their effects on the quantity and type of labor required—correspondence with factory executives, chiefly in 1928.


Methods and Practice in the Michigan Copper Mines, by W. R. Crane (1929)


32. Bureau of Mines, Mineral Resources of the United States (annual)


35. Bul. 412, Wages, Hours and Productivity in the Pottery Industry, 1925

36. Bul. 441, Productivity of Labor in the Glass Industry, by Boris Stern (1927)

37. Bul. 474, Productivity of Labor in Merchant Blast Furnaces (1928)


42. Bul. 559, Cargo Handling and Longshore Labor Conditions, by Boris Stern (1932)


Productivity of Labor in 11 Manufacturing Industries, March 1930, pp. 501-17

44. Effects of Technological Changes upon Employment in the Amusement Industry, August 1931, pp. 261-7

45. Mechanization of Agriculture as a Factor in Labor Displacement, October 1931, pp. 749-83

46. Effects of Technological Changes upon Employment in Motion-Picture Theaters of Washington, D. C., November 1931, pp. 1005-18

47. Technological Changes in the Cigar Industry and Their Effects on Labor, December 1931, pp. 1275-81

48. Productivity of Labor in Street and Road Building and in Ditch Digging, December 1931, pp. 1265-74

49. Productivity of Labor in the Sheet Department of the Iron and Steel Industry, January 1932, pp. 19-26
MECHANIZATION IN INDUSTRY

50. The Dial Telephone and Unemployment, February 1932, pp. 235-47
52. Effects on Employment of the Printer Telegraph for Handling News, April 1932, pp. 753-8
53. Displacement of Labor by Installation of Automatic Grade-Crossing Devices, by Clyde M. Huber, April 1932, pp. 759-69
54. Displacement of Morse Telegraphers in Railroad Systems, May 1932, pp. 1017-28
55. Productivity and Displacement of Labor in Ticker Telegraph Work, June 1932, pp. 1269-77
57. Productivity and Displacement in Electric Light and Power Industry, August 1932, pp. 249-59
58. Labor Productivity and Displacement in the Leather Industry, September 1932, pp. 473-88
60. Labor Productivity and Displacement in the Slaughtering and Meat-Packing Industry, November 1932, pp. 1018-25
61. Digest of Material on Technological Changes, Productivity of Labor, and Labor Displacement, November 1932, pp. 1031-57
63. Employment in Relation to Mechanization in the Bituminous Coal Industry, February 1933, pp. 256-78
64. Progress and Limitations of Farm Mechanization in the United States, March 1933, pp. 511-8
66. U. S. War Department, Port Series (a series of volumes describing the ports of the United States and their equipment, issued in 1922 and the following years)
1 Scope of Survey and Sources of Information, by Industries 12
2 Hypothetical Calculation to Illustrate Meanings of Labor Saving 33
3 Installations of Labor-saving Equipment in Foundries 68
4 Changes in Capacity of Mechanical Equipment: Pulp and Paper 90
5 Equipment in the Window-Glass Industry: 1903–1929 100
6 Changes in Proportion of Power Farm Equipment Sold 124
7 Value of Selected Types of Office Equipment Produced: 1925, 1927, 1929 172
8 Value of Selected Types of Machinery Produced 177
9 Percentage Distribution of Machine and Hand Workers, in Processing and Materials Handling, in Plants Selected to Represent Diverse Types of Manufacturing 183
10 Degree of Mechanization in Interprocess Transportation of Brick 188
11 Electric Trucks and Tractors in Use, 1920 and 1928: by Industries 198
12 Electric Trucks and Tractors in Use, 1920 and 1928: by Types 200
13 Value of Selected Types of Handling Equipment Produced 201
14 Proportion of Manufacturing Establishments Reporting Power, and Average Horsepower per Establishment 215

467
LIST OF TABLES

15 Increase in Rated Horsepower Capacity in Manufacturing 217
16 Percentage Increases in Horsepower per Wage Earner Manufacturing Industries: 1899–1929 219
17 Frequency Distributions of Ninety-nine Industries, by Horsepower per Wage Earner, Census Periods: 1899–1929 221
18 Estimated Rated Capacity of Power Equipment in Selected Industries: 1899–1929 223
19 Horsepower per Worker in Selected Industries: 1909–1929 225
20 Ratio of Wages Paid to Value Added by Manufacture: 1869–1929 227
21 Growth of the Machine-producing Industries 232
22 Industries in which the Number of Establishments Decreased 200 or More: 1919–1929 241
23 Illustrations of Tendencies in Capacity of Individual Equipment Units 245
24 Increasing Use of Electric Power in Manufacturing 251
25 Horsepower per Wage Earner in Thirteen Manufacturing Industrial Groups: 1919, 1925 and 1929 257
26 Horsepower per Wage Earner in Manufacturing by States: 1929 260
27 Horsepower per Wage Earner in Manufacturing Industries, Classified by Size of Establishment: 1929 264
28 Ranking of the Sixteen Industrial Groups in Manufacturing, by Two Measures of Mechanization: 1925 269
29 Proportion of Hand and Machine Workers in Selected Industries; Based on Sample Inspections in 1925 275
30 Degree of Mechanization, by Processes 277
31 Estimate of the Typical Distribution of the Price of a Machine Sold to User for $1,000 298
32 Year-to-Year Fluctuations in Volume of Sales of Selected Types of Machine 301
33 Digest of Duration of Four Stages in the Introduction of Twenty-three Types of Machine 313
LIST OF TABLES
34 Reported Labor Savings, Classified by Number of Men Saved per Plant 374
35 Reported Labor Savings, Classified by Number of Men Saved per Individual Change 376

APPENDIX A MACHINE SALES AND OTHER MEASURES OF MECHANIZATION,
   BY YEARS
36 Iron and Steel: 1911–1931 419
37 Commercial Printing: 1913–1928 421
38 Selected Manufacturing Equipment: 1914–1929 422
39 Domestic Sales of Selected Types of Farm Equipment:
   1920–1929 426
40 Coal Mining: 1914–1929 428
41 Selected Non-manufacturing Equipment: 1914–1929 429
42 Equipment for the Commercial Preparation of Food
   and Drink: 1914–1929 431
43 Number of Electric Household Appliances Sold, by Se-
   lected Types: 1923–1930 432
44 Number of Users of Electric Household Appliances,
   by Selected Types: 1924–1930 432
45 Percentage of Wired Homes Equipped with Specified
   Electric Appliances: 1924–1930 433
46 Handling Equipment, Mobile Types: 1914–1929 433
47 Handling Equipment, Fixed and Semimobile Types:
   1920–1929 435

APPENDIX B ESTIMATES OF THE EXTENT OF USE
IN THE UNITED STATES OF SELECTED LABOR-SAVING DEVICES
48 Agriculture
   I. General Purpose equipment 437
   II. Soil Preparation and Grain Harvesting 439
   III. Row Crops 440
   IV. Stock and Dairy Farming 441
49 Excavating and Highway Construction 442
50 Selected Household Appliances 443
LIST OF TABLES

51 Percentage of Rural and Urban Homes Equipped with Specified Labor-Saving Devices 445
52 Handling Equipment
   I. Mobile Types 446
   II. Fixed and Semimobile Types 447
53 Coal Mining 448
54 Other Non-manufacturing Industries 449
55 Manufacturing Industries 451
LIST OF CHARTS

1 Comparison of Relative Annual Wages and Relative Horsepower per Wage Earner in Selected Manufacturing Industries, 1927  
   263
2 Fluctuations in the Machine-tool Industry, 1901–1930  
   303
3 Growth in the Use of Machines  
   Group I Short Series, in Stage of Rapid Increase  
   Group II Long Series, in Stage of Rapid Increase  
   309
4 Growth in the Use of Machines  
   Group III In Stage of Slackened Increase for Less than Five Years  
   Group IV In Stage of Slackened Increase for at Least Five Years  
   310
5 Growth in the Use of Machines  
   Group V In Stage of Decline for Less than Eight Years  
   Group VI In Stage of Decline for at Least Eight Years  
   311