

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Mechanization in Industry

Volume Author/Editor: Harry Jerome

Volume Publisher: NBER

Volume ISBN: 0-87014-026-4

Volume URL: <http://www.nber.org/books/jero34-1>

Publication Date: 1934

Chapter Title: Appendix D: Selected Bibliography, List of Tables, List of Charts

Chapter Author: Harry Jerome

Chapter URL: <http://www.nber.org/chapters/c5253>

Chapter pages in book: (p. 463 - 472)

## 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.

1. American Engineering Council, *Safety and Production*, (Harper, 1928)
2. American Mining Congress, *1929 Yearbook on Coal Mine Mechanization*, prepared under the direction of G. B. Southward
3. George E. Barnett, *Machinery and Labor* (Harvard University Press, 1926)
4. Elizabeth F. Baker, *Displacement of Men by Machines* (Columbia University Press, 1933)
5. ----- Unemployment and Technical Progress in Commercial Printing, *American Economic Review*, September 1930, pp. 442-66
6. ----- Technological Change in Commercial Printing, *American Economic Review*, December 1932, pp. 669-90
7. Morse A. Cartwright, ed., *Unemployment and Adult Education—a Symposium* (American Association for Adult Education, 60 East 42nd St., New York, 1931)
8. Stuart Chase, *Men and Machines* (Macmillan, 1930)
9. Ewan Clague and W. J. Couper, The Readjustment of Workers Displaced by Plant Shutdowns, *Quarterly Journal of Economics*, February 1931, pp. 309-46
10. *Electrical Merchandising* (McGraw-Hill Publishing Co. Inc., monthly)
11. *Electrical World* (McGraw-Hill Publishing Co. Inc., weekly)
12. Glenn Frank, *Thunder and Dawn* (Macmillan, 1932)
13. William Haber, *Industrial Relations in the Building Industry* (Wertheim fellowship publications III, Harvard University Press, 1930)
14. Donald D. Kennedy, *Overhead Costs and the Shift to Machinery* (Philadelphia, 1928)
15. W. I. King, The Relative Volume of Technological Unemployment, *Proceedings of the American Statistical Association*, March 1933, pp. 33-9
16. Isador Lubin, *The Absorption of the Unemployed by American Industry* (Brookings Institution, 1929).
17. H. F. McCullough and J. W. Paul, *Mechanical Loading for the Coal*

- Mines of the Pittsburgh District* (Carnegie Institute of Technology, Bul. 28, 1926).
18. Robert J. Myers, Occupational Readjustment of Displaced Skilled Workmen, *Journal of Political Economy*, August 1929, pp. 473-89.
  19. National Automobile Chamber of Commerce, *Facts and Figures of the Automobile Industry*, annual
  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
  21. Willard L. Thorp, Horsepower Statistics for Manufacturing, *Journal of the American Statistical Association*, December 1929, pp. 376-88
  22. Charles E. Van Barneveld, *Mechanical Underground Loading in Metal Mines* (Missouri School of Mines and Metallurgy, 1924)
  23. David Weintraub, The Displacement of Workers through Increase in Efficiency and Their Absorption by Industry, 1920-31, *American Statistical Association Journal*, December 1932, pp. 383-400
  24. U. S. Department of Agriculture, *Yearbook of Agriculture, 1932*, Farm Mechanization, pp. 411-55
  25. U. S. Department of Agriculture, Bureau of Public Roads, Department Bul. No. 1348, *An Appraisal of Power Used on Farms in the United States*, by C. D. Kinsman (1926)
  26. - - - - Circular 212, *The Manufacture and Sale of Farm Equipment in 1920*
  27. U. S. Department of Commerce, Bureau of the Census:
    - Census Monograph VIII, *The Growth of Manufactures, 1899 to 1923*, by E. E. Day and Woodlief Thomas (1928)
  28. - - - - *Census of Manufactures* (biennial): 1921, 1923, 1925, 1927, 1929
  29. - - - - *Manufacture and Sale of Farm Equipment* (annual): 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929
  30. U. S. Department of the Interior, Bureau of Mines, Bul. 306, *Mining*

## BIBLIOGRAPHY

465

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

31. U. S. Department of the Interior, Geological Survey, The Development of Horsepower Equipment in the United States, by Carroll R. Daugherty, in *Water-Supply Paper* 579, pp. 7-112 (1928)
32. ----- Bureau of Mines, *Mineral Resources of the United States* (annual)
33. U. S. Department of Labor, *Thirteenth Annual Report of the Commissioner of Labor, 1898, Hand and Machine Labor*: Vol. I, Introduction and Analysis; Vol. II, General Table
34. U. S. Department of Labor, Bureau of Labor Statistics, Bul. 356, *Productivity Costs in the Common Brick Industry*, by William F. Kirk (1924)
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)
38. ----- Bul. 475, *Productivity of Labor in Newspaper Printing*, by S. Kjaer (1929)
39. ----- Bul. 439, *Handbook of Labor Statistics, 1924-26*, Productivity of Labor, pp. 527-58
40. ----- Bul. 491, *Handbook of Labor Statistics* (1929 ed.), Productivity of Labor, pp. 619-48
41. ----- Bul. 541, *Handbook of Labor Statistics* (1931 ed.), Productivity of Labor, pp. 599-623
42. ----- Bul. 550, *Cargo Handling and Longshore Labor Conditions*, by Boris Stern (1932)
43. U. S. Department of Labor, Bureau of Labor Statistics, *Monthly Labor Review*:  
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

50. ----- The Dial Telephone and Unemployment, February 1932, pp. 235-47
51. ----- Displacement of Morse Operators in Commercial Telegraph Offices, March 1932, pp. 501-15,
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
56. ----- Productivity and Labor Displacement in Private-Wire Systems, July 1932, pp. 9-21
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
59. ----- Technological Changes and Employment in the United States Postal Service, October 1932, pp. 745-62
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
62. ----- Labor Productivity and Employment in the Tire Industry, December 1932, pp. 1252-68
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
65. ----- Technological Changes and Employment in the Electric-Lamp Industry, June 1933, pp. 1213-28
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)

## LIST OF TABLES

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

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 De- creased 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 Manufactur- ing 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 Indus- tries, Classified by Size of Establishment: 1929	264
28	Ranking of the Sixteen Industrial Groups in Manufac- turing, 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 469

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



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	309
	Group I Short Series, in Stage of Rapid Increase	
	Group II Long Series, in Stage of Rapid Increase	
4	Growth in the Use of Machines	310
	Group III In Stage of Slackened Increase for Less than Five Years	
	Group IV In Stage of Slackened Increase for at Least Five Years	
5	Growth in the Use of Machines	311
	Group V In Stage of Decline for Less than Eight Years	
	Group VI In Stage of Decline for at Least Eight Years	

