

Section 3.—Evolution of Power Equipment and Utilization of Power in Industry

There has been a fairly rapid and continuous evolution from man-power to mechanical power in the manufacturing and mining industries in Canada; also there has been a strong movement in mechanical power, particularly during the past thirty or forty years, from steam-engines to electric motors.

The ratio of capacity of electric motors to total power was 80·4 p.c. in 1939, having increased from 60·8 p.c. in 1923 or by over 32 p.c. Between 1923 and 1939 the number of employees in manufacturing industries increased by 30 p.c. but the capacity of all power equipment increased by 136 p.c. and the capacity of electric motors increased by 209 p.c. as against an increase of only 42 p.c. in other classes of power equipment.

This apparent evolution towards electric power is somewhat over emphasized by the practice of installing motors at each machine or group of machines with a greater aggregate capacity than would be required if steam power with belts and shafting were used, but many industries use electric power exclusively and many more use it almost exclusively.

For each of the 658,114 employees in manufacturing industries in Canada in 1939 there were available 6·2 h.p. of electric motors and 1·5 h.p. of other power-producing engines.

The electric energy used by these motors in doing their work was equivalent to that of about 42,000,000 men working 8 hours per day for 300 days per year.

The equipment is not worked to its full capacity and beyond the kilowatt-hour consumption of the electric motors there are no statistics showing the extent of the use.

The details of equipment installed in manufacturing and mining industries in each year 1929 to 1939, inclusive, are shown in Tables 19 and 20.

19.—Percentages of Electric Rating to Total Power Equipment in the Manufacturing and Mining Industries, 1929-39

NOTE.—Figures exclude central electric stations and include idle and reserve equipment. Figures for 1923-28 are given at p. 295 of the 1941 Year Book.

Year	Total Power Equipment Installed h.p.	Electric Power	
		Total Motor Capacity h.p.	Per Cent of Total p.c.
1929.....	4,305,909	3,196,804	74·2
1930.....	4,548,014	3,376,103	74·2
1931.....	4,620,570	3,510,779	76·0
1932.....	4,625,002	3,559,516	77·0
1933.....	4,722,942	3,576,793	75·7
1934.....	4,850,743	3,781,779	78·0
1935.....	5,019,958	3,889,366	77·5
1936.....	5,136,506	4,059,355	78·3
1937.....	5,562,772	4,411,974	79·3
1938.....	5,844,666	4,635,423	79·3
1939.....	6,071,557	4,883,670	80·4

The total increase in power equipment employed in all manufacturing and mining industries between 1923 and 1939, was 3,623,338 h.p.; of this approximately 83 p.c. was in electric motors operated on power purchased from central electric