

PRIVATE INDUSTRIAL RESEARCH

Industrial research programmes costing \$149,144,079 were undertaken by 455 firms in Canada during 1957, according to a recent survey by the Dominion Bureau of Statistics, and indications are that similar expenditures by these firms will exceed \$160,000,000 this year.

Of the total sum spent in 1957, \$87,498,276 was derived from private enterprise, and the balance of \$61,645,803 was composed of \$49,564,516 paid by the Government on prime contracts for research development and \$12,081,287 for research-development paid as part of procurement contracts.

Excluding the amount paid by the Government for prime contracts on research-development, these firms spent \$99,579,563 on research, approximately 50 per cent more than the \$66,000,000 spent by 377 firms in 1955 shown in the first Bureau survey of research-development expenditures which covered almost 2,500 firms. Data on government research-development prime contracts were not collected in the 1955 survey. Both surveys covered firms with 100 or more employees.

Of total research expenditures, 65 per cent was spent in the engineering fields; chemistry and physics made up 20 per cent and the balance was spread among metallurgy, geology, geophysics and other earth sciences, medicine, and agriculture. As in 1955, total research-development expenditures were highest in the transportation equipment, electrical apparatus and supplies, and chemical products industries. Transportation equipment, which includes aircraft manufacture, accounted for about \$73,000,000, or almost half of the total for all industries.

Capital investment in research-development facilities during 1957 increased \$12,782,707 and this sum was more than 20 per cent of the total value of all research facilities existing at the end of 1955 when they totalled \$59,000,000. Reporting organizations spent \$125,533,888 for research within their own companies; \$3,782,341 with other firms in Canada; and \$19,827,850 outside of the country.

The direct cost of research in 1957 equalled 0.92 per cent of sales by all groups reporting and this was almost double the 0.5 per cent established in 1955. The highest percentage of 4.47 was recorded by the transportation equipment group followed by electrical apparatus and supplies with 1.56 per cent, and chemical products with 1.26 per cent.

The equivalent of 4,448 professionally trained scientists and engineers were employed in research-development by the reporting companies in 1957. Of these, 3,433 held bachelor's degrees, 429 master's degrees and 586 doctor's degrees. The majority were located in the transportation equipment,

electrical apparatus and supplies, and the chemical products industries. There were 7,263 supporting personnel, of whom 3,737 were research-development technicians, and 802 were skilled craftsmen.

* * * *

MODERN CONVENIENCES INCREASE

Proportions of Canadian households equipped with electrical and other modern conveniences increased again in 1958, according to advance figures from the Dominion Bureau of Statistics' annual survey of household facilities and equipment released recently. The printed report on the survey, with details by provinces, will be available in early February. The survey shows that all but about 4 per cent of all households were served with electricity and all but a small number had radios. More than four-fifths had washing machines and mechanical refrigeration, and close to four-fifths had telephones.

Heading the list in the rate of increase over 1957 were television receivers with sets now in use close to 70 per cent of the estimated 4,173,000 households, versus 63 per cent in 1957. Some 96 per cent of households had radios in both years and nearly 79 per cent had telephones versus 76 per cent in 1957. More than 96 per cent of households were served with electricity as compared with just under that figure in the preceding year.

Furnaces were used for heating some 61 per cent of households in 1958, up from 59 per cent in 1957, those using other types of equipment falling to 39 per cent from 41 per cent. More households used oil and gas for heating purposes but fewer used coal and coke. Making up the proportion with furnaces, 34 per cent of total households used oil in 1958 (32 per cent in 1957), 13 per cent coal or coke (16 per cent), 10 per cent used gas (7 per cent), and 4 per cent used wood (unchanged from 1957).

Electricity was used for cooking purposes in close to 50 per cent of Canadian households in 1958, up about 1 per cent from 1957. Fewer households used wood and coal for this purpose (22 per cent versus 25 per cent), but more used gas (22 per cent versus 20 per cent).

Mechanical refrigerators were used in more than 86 per cent of households as compared with 83 per cent in the preceding year, and some 8 per cent had home freezers versus 7 per cent. Some 87 per cent of households had washing machines versus 86 per cent, 61 per cent had vacuum cleaners versus 58 per cent, and 68 per cent had sewing machines versus 67 per cent.

Sixty-three per cent of households had automobiles as compared with 60 per cent in the preceding year, of which 57 per cent had one automobile versus 55 per cent, and 7 per cent had two or more versus 6 per cent.