

expanded. Telegraph channel mileage increased by 21% to 610,724 and telephone channel mileage rose by 38% to 142,303.

The joint Canadian National-Canadian Pacific microwave facilities for the CBC television network were extended from Quebec City to Jonquiere and Rimouski during the year. Preliminary surveys were conducted for the extension of this network to Three Rivers, Que. Work was also started on the construction of Canadian National's microwave relay facilities for television and general communications between Sydney, N.S. and St. John's, Nfld.

"Telex" service, inaugurated jointly by Canadian National and Canadian Pacific in 1956 between Canada and overseas countries, was expanded during 1957 to provide service between eleven Canadian cities. At year end, installations were being made in ten additional cities. "Telex" service, providing instantaneous two-way written communication between subscribers' offices, has been highly successful, and the biggest problem has been to obtain equipment fast enough to meet the demand.

Canadian National's message relay operations were further improved during the year with the installation of modern torn-tape facilities at Moncton, Winnipeg and Vancouver. In addition, a semi-automatic switching system is being installed at the relay centre in Montreal.

Work Methods

Further advances were made during the year in the planned application of integrated data processing principles to the mass handling of railway information. This program is designed to increase the effectiveness of the CNR's recording and accounting operations, to provide improved control data, and to reduce clerical costs.

As part of this program, Canadian National brought its new Computer Centre in Montreal into operation during the year, and this centre is being utilized to process a large part of the railway payroll. The centre houses a medium-scale magnetic-drum computer which, with the help of smaller machines, is currently performing the enormously detailed calculations incidental to payroll operations and is producing completed cheques at the rate of 1,500 per hour.

Electronic data processing techniques are also being applied to the field of recording and tracing the movements of freight cars.

The introduction of data processing machines is an important phase of a general approach to the improvement of methods of performing work, whether of a clerical or production nature. The streamlining of office routines and procedures, the reorganization of work groups in repair shops, and improvements in materials handling techniques are representative of other efforts that are being made in this direction.

Research and Experimentation

Canadian National continued to place emphasis on research and experimentation during 1957. To keep the railway in step with the changing needs of the travelling and shipping public, studies were made of new equipment, materials and processes effecting virtually every phase of railway activity.

Technical research resulted in improvements in a wide variety of railway equipment, including rail fastenings, locomotive wheels and passenger car upholstery. In addition, a continuing program of laboratory testing led to new specifications for the purchase of items such as oil filters, rolling stock components and hotel furnishings.