

The demand for scientists in colleges and universities, however, is expected to decrease slightly from the 1959 rate of increase of 10.2 per cent to the average of 7.5 per cent a year during the three-year period 1960 to 1962.

Increases are also expected in the employment of both engineers and scientists in industry from an annual rate of 3.9 per cent in 1959 to an average annual rate of 5.4 per cent for engineers and from 3.5 per cent to 4.7 per cent in the case of scientific manpower.

Aside from forecasts of requirements, the Bulletin deals with such subject as difficulties in recruiting professional personnel, sources of hiring, and upgrading of employees to professional status.

The survey covered almost 2,800 employers in industry, government and education. More than 2,600, or about 94 per cent of the establishments covered, submitted returns. Eight engineering groups were covered in this survey: aeronautical, chemical, civil, electrical, geological, mechanical, metallurgical and mining; and seven scientific groups - biologists, chemists, geologists, mathematicians, physicists, forestry and agriculture. Architects were also included in the study.

CANADIAN ROCKET PROGRAMME

A programme jointly sponsored by the Canadian Government and Canadian industry is actively developing a family of three solid-propellant rockets for space research. These will be capable of carrying scientific instruments of from 25 lbs. to 250 lbs. to altitudes of from 100 miles to 600 miles into space. The rockets are described as follows:

- "Black Brant" III - Single stage, 10" diameter
- "Black Brant" IV - Two-stage, 17" diameter - 1st stage; 10" diameter - 2nd stage
- "Black Brant" V - Single stage, 17" diameter.

The Department of Defence Production, Defence Research Board and Bristol Aero-Industries Limited are jointly responsible for the development programme. The Armament Branch of the Department of Defence Production is the project manager for the programme and provides overall control. The Canadian Armament Research and Development Establishment of the Defence Research Board is the design authority and is performing the solid-propellant development required. Bristol Aero-Industries Limited, Winnipeg Division, is the prime contractor and is carrying out the vehicle design and development. Other agencies assisting in the design and development programme are the Defence Research Telecommunications Establishment of the Defence Research Board and the National Research Council.

The rockets will employ the Canadian solid propellants developed at CARDE and will take advantage of the experience at CARDE in developing the "Black Brant" I and "Black Brant" II rockets.

Bristol Aero-Industries Limited has been doing design work on the rockets as a private venture over the past two years, and proposed the development of the rockets to the Government. The proposal was accepted and the contract placed with Bristol Aero-Industries Limited to complete the design and development. The prototype rockets will be launched at the Fort Churchill rocket range sometime in 1962.

It is expected that the rockets will be used by the Defence Research Board, the National Research Council and Canadian universities to carry scientific instruments far out into space. In addition, other countries may adopt the rockets for use in their own space research programmes. In particular, it is hoped that the United States Aeronautics and Space Administration and the United States Military Services may adopt them in line with the Canada - United States Defence Production Sharing Programme.

SEAWAY ANNUAL REPORT

The 1960 annual report of The St. Lawrence Seaway Authority, tabled in the House of Commons on April 18 by the Minister of Transport Mr. Léon Balcer, is the seventh annual report of the Authority and the first one to deal with 12 months of operation and administration of the Seaway system and of the other canals transferred from the Department of Transport to the Authority.

The number of vessel transits through the Montreal - Lake Ontario section of the Seaway, both up-bound and downbound, (with a registered gross tonnage of 25,131,200 tons) was 6,809. Cargo tonnage amounted to 20,310,346 tons, a 1.4 per cent decrease from the 1959 figure.

Overseas vessels made 2,197 transits, carrying 7,942,712 tons of all types of cargo. This represents an increase of 22.2 per cent over ocean shipping for 1959 and accounts for 39.1 per cent of the total tonnage through this section. Inland trade vessels, or lakers, made 3,927 transits, carrying cargoes of 12,337,266 tons, 60.7 per cent of all traffic, but a decrease of 11 per cent from inland shipping through the system for 1959.

BULK CARGO

Shipments of bulk cargo comprised 88.9 per cent of the seasonal total or more than 18,056,000 tons, compared with 18,643,000 tons in 1959. General cargoes, representing the balance of the traffic, reached 2,253,897 tons, an increase of 15.6 per cent over the first Seaway season.

Traffic patterns according to the origin or destination of the voyages show that 30.8 per cent of the total movement was between two Canadian ports, one-third moved between Canadian and United States ports and 36.6 per cent consisted of foreign trade to and from Canada and the United States.

In the Welland Canal there were 7,536 transits in 1960. The registered gross tonnage of all transiting vessels was 35,528,265, an increase of 8.7 per cent compared with the previous year. Cargo tonnage