

The authorities cited agreed to co-operate with vigor in supporting these proposals, and large orders were at once placed by them with the Air Reduction Co., and the Linde Co., for plant, equipment, cylinders, etc. The Bureau of Mines also co-operated by developing a new type of rectifying and purifying machine. By July, 1918, the production of helium in moderate quantities was accomplished, and, from that time onward, the possibility of securing large supplies of helium was assured.

During the progress of the development and production stages in Canada and in the United States of America, steps were taken by the Admiralty to institute near London, England, an experimental station under the direction of the writer. This station was designed for purifying supplies of low percentage content helium which might come forward from the base of supplies, or which might have become contaminated with air in service at the front.

Investigations were also set in train to develop industrial and scientific uses for helium, and to work out experimental details of the technical use of helium in aircraft. Among others, investigations were begun on the inflammability and explosibility of mixtures of hydrogen and helium, on the use of helium for thermionic amplifying valves, on the suitability of helium for gas filled incandescent lamps and gas arc lamps, on the permeability of balloon fabrics for hydrogen and helium, on large scale charcoal absorption methods of purifying the gas, on the use of helium for high electrical resistances, and progress was made in the installation of equipment for the production of liquid helium for low temperature research. Steps were also taken to examine spectroscopically all samples which came forward with the object of ascertaining whether any indication could be obtained of the existence of any new and hitherto unobserved gaseous elements.

Those who participated in these investigations were Professors Satterly and Burton, and Captain H. A. McTaggart, Mr. R. T. Elworthy, Mr. V. F. Murray, Mr. E. Edwards, Mr. J. T. F. Young, Mr. H. J. C. Ireton and Mr. K. H. Kingdon, all with one exception members of the University of Toronto.

In the early stages of the investigation, valuable help was secured from Lord Shaughnessy and the members of his staff on the Canadian Pacific Railway, from the President and Board of Governors of the University of Toronto, from the Director of the Meteorological Office, Toronto, and from the Directors of the various natural gas producing companies in Canada, in particular from those of the National Natural Gas Co., of Hamilton, and those of the Canadian Western Natural Gas, Heat, Light & Power Co., of Calgary.