

Satterly, E. F. Burton, H. F. Dawes, Captain H. A. McTaggart, and from Mr. John Patterson of the Meteorological Office, Toronto, and Mr. R. T. Elworthy of the Mines Branch, Ottawa.

In the course of these investigations, which were carried out with the co-operation of L'Air Liquide Co., it was found that large supplies of helium were available in Canada which could be produced at a cost of about one shilling per cubic foot.

In the preliminary work of development, an experimental station was established at Hamilton, Ontario, to treat the natural gases of Western Ontario. This phase of the work was placed in charge of Professor Satterly, and with him were associated Mr. John Patterson, Professors E. F. Burton and H. F. Dawes and Mr. Lang. In treating the gas considerable difficulty was experienced at first in getting rid of the heavier hydro-carbons but by making suitable modifications in, and additions to the ordinary type of L'Air Liquide oxygen rectifying column, the problem of separating out the helium which was present in the gas to the extent of only 0.33% was solved. In February, 1918, it was found possible to raise the percentage of helium in the gas by passing it through the rectifying column once only. As the gas obtained in this way consisted of nitrogen and helium with a small percentage of methane, the problem of obtaining helium with a high degree of purity was a comparatively simple one.

In one particular set of experiments on this final rectification, helium of 87% purity was obtained. For the actual running of the station and for the technical modifications in, and additions to the rectifying column, Mr. John Patterson was largely responsible. The experimental station was removed in the autumn of 1918 to western Canada, and placed in charge of Mr. Patterson. At this station a new type of rectification equipment was installed. No serious experimental difficulties were experienced and the investigation is now well advanced on the road to production on a moderate scale. The helium content of the richest gases in western Canada was found to be about 0.36%.

In the summer of 1917, when the U.S.A. had decided to enter the war on the side of the Allies, and after the investigations referred to above were well under way, proposals were made to the Navy and Army and to the National Research Council of the U.S.A. to co-operate by developing the supplies of helium available in the United States. These were made on behalf of the Admiralty, through the Board of Invention and Research by Sir Ernest Rutherford and a special Commission, consisting of Commander Bridge, R.N., Lieut. -Commander Lowcock and Professor John Satterly.