

"The helium content of the Alberta natural gas burned in this city is about 1 per cent. As the gas burned here averages 5,000,000 to 6,000,000 cubic feet in the summer time up to 35,000,000 cubic feet per day in the winter, it can be seen easily what an enormous volume of the valuable helium has hitherto been wasted. In combination with the chemical elements in the ordinary gas, the helium is consumed in the burning process, but after separation through the process perfected by Professor McLennan, it is absolutely non-inflammable.

Light as Hydrogen

"In addition to this invaluable property, helium is the next lightest gas in specific gravity to hydrogen known to science. Its lifting power is approximately the same as hydrogen. Balloons or other receptacles filled with the gas are unaffected by a direct flame, such as a bursting shell directly in the middle of the gas bag. How enormously valuable this is for war purposes is obvious at a glance. Had this gas been available for use on the western front during the last year of fighting, the lives of hundreds of airmen using the observation balloons for directing artillery fire would have been saved. Not only this, but the methods of using the balloons would have been enormously extended through their safety from inflammable bullets fired from the guns of German aviators. Also the use of the gas in the British dirigible balloons, while not increasing their lifting power or radius of operation, would have rendered them so safe as regards the use of gasoline propelling motors that great improvements could have been made in the power plant of such dirigible balloons.

"The government experimenters at the plant in East Calgary now have on hand a considerable supply of the gas cylinders used for the storage of hydrogen gas for shipment in which to put the helium gas. The gas, just as hydrogen or any other gas, can be stored in the cylinders under great pressure, but, unlike other gases, with perfect safety, and is thus available for shipment anywhere.

"It must be understood, however, that the plant in East Calgary is merely for experimental purpose, regardless of its scale and expense.

"This is because the natural gas used in this city is only a part of the whole production of the Bow Island and other fields which the Canadian Western Natural Gas, Light, Heat and Power Co. is now engaged in exploring in Southern Alberta. The location of the main helium producing plant will probably be just on the other side of the city of Lethbridge, in order that all the gas coming from the field may be put through the helium separation process, and the valuable inflammable gas obtained before the natural gas is allowed to go on to the various cities and towns for consumption.

Produced by Secret Process.

"The process of separating the unburnable helium from the natural gas not only increases the efficiency of the natural gas for farming purposes, but also puts the natural gas back into the mains under a still higher pressure, as it is necessary to subject the original gas to an extremely high pressure at a certain temperature in order to separate the helium.

"The exact method of producing the helium is a jealously guarded government secret and the complicated and strange-appearing machinery conveys nothing to the mind of the uninitiated. The condensers and compressors and various sorts of other apparatus are all operated by electricity, the switch room being in a separate compartment to avoid the possibility of ignition of the original gas by an electric spark. The engineers in charge have practically eaten and slept on the job while completing their work.

"The United States government some time ago established a similar helium gas production plant in the Texas fields for the product of helium from natural gas. Up-to-date, however, the production capacity of the United States plant has been only about 47,000 cubic feet daily. The main production plant in Canada, planned to be established at some point just beyond Lethbridge, will far exceed this production when it gets into operation.

"Professor McLennan paid his first visit to Calgary some two years ago in the course of his search for a gas from which helium could be separated. On that occasion, he told various persons that he had found what he was looking for, but did not give details. It was a long, hard job to get the British government interested, but the work was finally accomplished through the British Admiralty. President Eugene Coste, who, as an expert gas engineer, is an enthusiast on the possibilities of gas, bent all his efforts to interesting the government and Hon. Clifford Sifton took the subject up personally. The upshot was the decision of the government to devote \$500,000 to experiments in Canada for the production of helium gas.

"Unfortunately, however, the government proceeded first to make experiments with gas in Ontario and considerable time was lost before it was ascertained that the helium was not present in the Ontario natural gas in sufficient quantities to make it commercially available. Following the original advice of Professor McLennan, the experiments were then begun in Calgary with the Alberta natural gas, the local gas company placing its premises at the disposal of the government. The result was complete success.

May Mean Air Conquest

"While Professor McLennan himself is cautious in speaking of the possibilities of helium in the aerial navigation field, writers on the progress of aeronautics speak of it with the greatest enthusiasm. It is pointed out, for instance, that the German Zeppelin raiders were largely handicapped in their deadly purposes because of the inflammable nature of the hydrogen gas used to inflate the individual envelopes in the aluminum structure of the big airships. This was demonstrated on various occasions when British airmen exploded the big gas airships with inflammable bullets. Had the Huns possessed a non-inflammable gas with which to inflate their Zeppelin gasbags, their raids would have had much deadlier possibilities.

"It is equally obvious that a non-inflammable gas would add greatly to the safety of airmen using dirigible balloons or heavier than air airships to cross the Atlantic ocean as is now proposed. In fact, the possibilities of the new non-inflammable gas are endless in the future conquering of the air."

A. A. E. WILL STAY OUT OF CANADA

At the fifth annual convention of the American Association of Engineers, held last month in Chicago, Fraser S. Keith, secretary of the Engineering Institute of Canada, addressed the association on "The Rehabilitation of the Institute," and the work it is now doing. After his address the following resolution was unanimously adopted:—

"Whereas the very full statement of Fraser S. Keith, secretary of the Engineering Institute of Canada, indicated that the lines of endeavor of the institute are identical with those of the American Association of Engineers, be it resolved: That no chapter of the association be established in Canada; and, be it further resolved, that the directors of the association negotiate with the institute to the end that harmonious action be had on matters of common interest."

Following are the officers elected by the association for the ensuing year: President, F. H. Newell; first vice-president, W. W. DeBerard; second vice-president, T. A. Evans; secretary, C. E. Drayer; directors, W. W. K. Sparrow, Chicago; P. E. Harroan, San Francisco; R. Burnham, Chicago; F. D. Richards, Cleveland; A. A. Matthews, Tyler, Tex.; E. F. Collins, St. Louis; director to fill vacancy, C. H. Crawford.

The new filtration plant which has been installed at Oshawa, Ont., by the John ver Mehr Engineering Co., of Toronto, is now being tested and it is expected that it will likely be in operation at an early date. This company is also installing a small plant at Rockland, Ont.