

of the gas in the Hogshooter field in 1912 fell off at the rate of a pound a day, and only recently the volume of gas yielded by the Copan field, in the same estate, dropped in a single year from 300,000,000 feet per day to 100,000,000 feet per day. In Louisiana a similar decline is noted. In a well of the Midway field in California the 16-inch casing tapped a gas sand at a depth of 540 feet; the flow was 50,000,000 cubic feet per day for a few days and then practically ceased.

The experience, in short, has been that no gas field is inexhaustible, but that each has a life extending over a comparatively few years. Consequently, the supply of gas in any district which is fortunate enough to possess one should be carefully husbanded.

The decline in the yield of the gas fields of the United States has been greatly accelerated by the enormous waste which was allowed to take place in the earlier years when the gas appeared to be so abundant that it was difficult to persuade people that it would not last forever. Dr. Orton states that in the early days of the Ohio gas fields the operators tried to believe that the gas was being formed within the earth as fast as it was being allowed to escape, or comforted themselves with the aphorism that "Nature would not go back on us." The supplies, however, fell off there as elsewhere.

Dr. I. C. White in his address before the great Conference on Conservation, held in Washington in 1908, made the following statement with reference to the waste which was taking place in the United States at that time: "The blazing zone of destruction extends in a broad band from the lakes to the Gulf and westward to the Pacific, embracing in its flaming pathway the most precious fuel possessions of a continent. No one can even approximate the extent of this waste. From personal knowledge of the conditions which exist in every oil and gas field, I am sure the quantity will amount to not less than 1,000,000,000 cubic feet daily, and it may be much more. The heating value of a billion cubic feet of natural gas is roughly equivalent to that of 1,000,000 bushels of coal. What an appalling record to transmit to posterity!"

Mr. David T. Day, of the United States Geological Survey, estimates that at that time in the United States about one-half of all the natural gas which was produced by the gas wells was wasted.

Mr. McDowell states that the daily waste of gas in Oklahoma by escape into the air is at present equivalent to the destruction of at least 10,000 tons of coal daily, and that 80 per cent. of this loss is preventable.

Now in the United States when the horse (or a considerable part of him) has been stolen, the stable door is being shut. Legislation has been passed and so effectively enforced in Indiana, Ohio and Pennsylvania that the waste of natural gas in these states has practically ceased. The laws of Indiana, Ohio, Pennsylvania and West Virginia call for the proper capping of every well when not in use. In other states of the Union, however, where preventive legislation does not exist, the waste is still enormous. It is estimated by the Director of the United States Bureau of Mines that the aggregate waste in the United States at the present time exceeds a value of \$50,000,000 per annum, of which 80 per cent. might be readily saved.

The Canadian Situation.—Natural gas first appears in the statistics of the mineral products of Canada in the year 1892, when the total output had a value of \$150,000. In 1913 this had risen to \$3,360,000. This comes from

the provinces of Ontario, New Brunswick, Saskatchewan and Alberta.

The most highly productive area at the present time is the extreme southerly portion of Ontario, in a strip of territory along the shore of Lake Erie, the total product here having a value of rather over \$2,000,000, of which about two-thirds comes from Kent County.

The discovery of natural gas in New Brunswick is of much more recent date and the output has risen rapidly in the last few years, having a value in 1913 of \$174,006. The field is situated in Albert County and supplies gas to the cities of Moncton and Hillsborough.

In Saskatchewan and Alberta gas has been found in places over a wide stretch of country along the line of the Canadian Pacific Railway from Medicine Hat to Calgary and thence to the north as far as Pelican Portage, about half way between Edmonton and Lake Athabasca.

While the gas is known to have a wide distribution, the gas which has been used so far has been obtained from two fields known respectively as the Medicine Hat and the Bow Island gas fields. From the former gas is taken to Medicine Hat and from the latter the gas is piped to Lethbridge and Calgary, 160 miles distant, supplying also intermediate points along the route. The total product of Alberta in the year 1913 had a value of rather over one million dollars.

There is, however, every prospect that new productive gas fields will in the future be opened up in other parts of the provinces of Saskatchewan and Alberta as well as elsewhere in the Dominion. And having in mind the experience of the United States, definite steps should at once be taken to prevent all waste. It is to be noted that the gas field in Essex County, Ontario, formerly highly productive, has now ceased to yield, and that a falling off in the supply of gas is already seen in certain other Canadian fields.

The most striking case of the waste of natural gas in the Dominion is the great column of gas which has been escaping from the bore hole put down by the Government near Pelican Portage, Alberta, in 1897. The records show that in this well at 820 feet "a tremendous flow was struck, the roaring of which could be heard at a distance of three miles or more." This gas has been burning like an immense torch almost continuously for the past 17 years.

The district in which this gas is escaping is at present somewhat remote from settlement, but it is a district which is nearer to Edmonton than Calgary is to the great gas wells which supply it, and yet this gas, representing a great accumulation of the finest fuel, which might have formed the basis of important industries in Edmonton, has been for all these years running to waste.

In endeavoring to arrive at some estimate of the waste of gas which has taken place at this well, Mr. W. J. Dick, Mining Engineer of the Commission on Conservation, communicated with Mr. Louis G. Huntley, of Pittsburgh, Pa., the engineer who examined the well for the city of Edmonton in 1913. Mr. Huntley writes as follows:

"When the writer visited this locality in 1912, he estimated the flow of the old government well at something less than a million cubic feet per day. In 1913 Mr. Williams, of the Pelican Oil and Gas Co., reported to his stockholders that the well pressure was 225 lbs. per square inch with a flow of about 840,000 cubic feet per day. The writer again visited the well in 1913 in connection with the report for the city of Edmonton, and while more gas