

Baltimore, N.B., through an experimental retort of the standard size at the Pumpherston oil works at Midcalder. It has given some valuable information as to the value of these shales in crude oil and sulphate of ammonia and has furnished a basis for future operations. Though the shale sent was not from one of the richest beds as regards oil and ammonia, the results obtained on the commercial scale were most satisfactory, as can be seen from the report of the company.

The details of this report need not here be inserted. It will be sufficient to say that the average yield of crude oil from the 45 tons was practically 40 gallons per ton, and of sulphate of ammonia 77 pounds. It will thus be seen that in both these substances this shale far surpassed the ordinary Scotch shale now used.

After returning from Scotland an examination was made of the New Brunswick and Nova Scotia shales, and some 15 samples were taken from the outcrops in Albert and Westmorland counties, representing four localities. These were tested in a newly fitted plant erected in the laboratory of the college of the city of New York by Dr. Baskerville, and the results obtained were even more surprising than those obtained in Scotland. The results of the analysis may here be given, and as compared with the best of the Scotch shales should challenge attention at once.

Thus in the analyses of oil-shales from Baltimore, Albert county, the proportion of crude oil obtained in the laboratory in New York varied from 39 imp. gallons to 54 gallons to the ton, the last equal to 65 wine gallons, while the sulphate of ammonia varied from 75 lbs. to 110 lbs. to the ton. These yields are, in so far as known, unprecedented in any of the Scotch shales with the exception of the Torbane mineral for crude oil; while samples from the oil-shales of Taylorville on Memramcook river gave 37 imp. gals. crude, with 110 lbs. of sulphate of ammonia to 48 imp. gals. (58 U.S. gals.) and 98 lbs. of sulphate of ammonia, also a surprising record.

The analyses of several beds of Scotch oil-shales may here be given for the purposes of comparison. Thus at the Broxburn works, one of the most modern and successful in the whole district, the yield of crude oil and sulphate of ammonia varies in a marked degree at different points, the crude output ranging from 20 to 33 gallons, with an average probably of about 25 gallons per ton, while the yield of sulphate of ammonia is from 34 to 36 pounds. Selected samples of the Broxburn shales have, however, yielded 40 gallons crude to the ton, and in one case as much as 65 gallons, while the yield of sulphate of ammonia in parts of the field is not more than 20 to 25 pounds.

At the Pumpherston works, another of the great companies engaged in the oil industry, the remarkable fact is presented of a group of five seams of oil-shale, situated about 800 feet below what is known as the Burdie-house limestone, which is usually regarded as marking the base of the shale series. The products of these five seams illustrate well the theory that the lower the position of the beds in the geological section, the lower is the yield of oil from the shale, and the higher the yield of sulphate of ammonia. Thus the average yield of crude oil from these Pumpherston seams is about 20 gallons, while the yield of sulphate of ammonia is from 60 to 70 lbs. per ton, which is the highest yield of this substance recorded from any portion of the Scotch shale field.

The marked superiority of much of the New Brunswick oil-shale over that mined in Scotland, both in yields of crude oil and of sulphate of ammonia, can, therefore, be regarded as well established, and the development of a large and important industry as regards the manufacture, not only of oils of all grades, but of various by-products, including sulphate of ammonia, paraffin, &c., equalling in extent, under proper management, the great works now existing in Scotland, should be well within the bounds of possibility.

In connection with this portion of the scheme, the long series of costly experiments which have attended the establishment of the oil-shale industry in that country, prior to its being placed on a paying basis, would be avoided. The Canadian industry