

Bitumen.	12.42
Water (mechanically mixed).	5.85
Siliceous sands.	81.73

'A cubic foot of the bituminous sand rock weighs, according to Mr. Hoffman, 117.5 pound. This figure multiplied by the percentage of bitumen 12.42 gives 14.59 lbs. as the amount of bitumen present in a cubic foot, or $14.59/63.7 = 22.9$ per cent in bulk. Taking the thickness at 151 feet, and assuming the distribution as given above at 1,000 square miles, the bituminous sands in sight amount to 28.40 cubic miles. Of this mass, if the preceding analysis is taken as an average, although it is probably rather high, 22.9 per cent in bulk, or 6.50 cubic miles is bitumen. The amount of petroleum which must have been issued from the underlying limestones to produce 6.50 cubic miles, or by weight approximately 4,700,000,000 tons of bitumen, cannot now be estimated, as the conditions of oxidation and the original composition of the oil is unknown. It must, however, have been many times greater than the present supply of bitumen.

'The commercial value of the tar sands themselves as exposed at the surface, is at present uncertain, but the abundance of the material, and the high percentage of bitumen which it contains, makes it probable that it may, in the future, be profitably utilized for various purposes, when this region is reached by railways. Among the uses to which it is adapted may be mentioned roofing, paving, insulating electric wires, and it might also be mixed with the lignite which occurs in the neighbourhood and pressed into briquettes for fuel.

'The tar sands evidence an upwelling of petroleum to the surface unequalled elsewhere in the world.

'Indications of the presence of oil in the district is not confined to the tar sands, as on Peace river and the Lesser Slave lake inspissated bitumen was found in a number of places lining cracks in nodules, and at Tar island in Peace river, small quantities of tar are brought to the surface by a spring. Tar springs are also reported from several other points, but their existence lacks verification. North of this district tar occurs at intervals in the Devonian limestones exposed along the valleys of Slave river and the Mackenzie, all the way to the Arctic ocean.'

Mr. Stewart produced samples of tar sands collected by himself.

NATURAL GAS.

On the way between Athabaska Landing and Grand Rapids, at a place known as Pelican Rapids, Mr. Stewart saw the gas well that Mr. Van Hamerstein spoke of in his evidence. The well was burning when Mr. Stewart was there in June, and the roar of it could be heard for probably half a mile. Flame was issuing from it, and there was an enormous escape of gas, though not nearly so strong, Mr. Stewart was told, as it had been some years ago. Mr. Stewart expressed the opinion that it would be well spent money to have that gas hole plugged. He had no doubt it could be done. When the government undertook to bore for oil in that district one attempt was made near Edmonton, and they went down somewhere in the neighbourhood of 3,000 feet, when the casing became wedged or something of that kind, and they could not proceed further. Later, another attempt was made at Athabaska Landing. They went down about the same depth and met with the same difficulty. The object of boring in those places was to reach the tar sands, which come to the surface as you get far down the Athabaska river. They calculated they could reach them at a depth of about 2,000 feet at Athabaska or Edmonton. At Pelican Rapids, being further down, some 120 miles below Athabaska Landing, at a depth of some 837 feet, the last 87 feet being through tar sands, the gas was struck which prevented further sinking.

MEANS OF COMMUNICATION.

The present route of communication is via Edmonton. Mr. Stewart, on his trip last year from Edmonton to Athabaska Landing, went over the same route as he had