

however, lessened by the view already expressed that the defendant cannot be held responsible for the trespass workings as such, nor has it ever made any use of them. The onus of proving that the maintenance of a column of water in the defendant's shaft caused an increased flow into the plaintiff's mine is upon the plaintiff, but though this should be clearly established I feel bound to say that generally speaking, the evidence in support of the allegation is not of that precise and definite nature which would be expected, and while it is often plausible and theoretical, it is likewise often far from convincing. The evidence of Davis and Jenkins does establish the fact that there was within the dates mentioned an increased flow of water into the Centre Star mine, but they must go further than that and show that this increased flow came from the defendant's workings.

In the face of much that is vague and theoretical regarding real and supposed natural seams and channels, there is this clearly established and striking fact that when the water had ceased flowing into the Centre Star mine on the 24th of June it was perhaps ten, but not more than twenty feet above the Nickel Plate 200-foot level, and some 180 feet below the highest point of the trespass workings from which it is alleged the water escaped into the Centre Star mine, chiefly at its 400-foot level, which is on a slightly higher plane than the Nickel Plate corresponding level. On this peculiar fact the defendant's counsel not unnaturally enlarges and contends that unless water can be proved to flow up hill, his client is clearly not responsible for its presence in the Centre Star, and that it must have got into that mine through theretofore unsuspected natural seams and fissures from undiscovered sources. This is undoubtedly the salient fact in the case, and it must be grappled with and satisfactorily explained, for in the face of it, it is not sufficient to rely on the mere coincidence, singular though it is, that the Centre Star, theretofore a dry mine, did not become wet till after the Nickel Plate shaft was allowed to fill up. The plaintiff's counsel on the argument at the trial was unable to solve the problem, nor have I been able to do so after a further close consideration of the evidence. Such being the case, I can only find that the basic fact on which this branch of the action must stand or fall has not been established.

In case it may be thought material, should the matter go further, and as a matter of precaution, I find that the bulkheads were in every way well and properly constructed to perform the function expected of them. And in regard to the water in the trespass workings, I think it proper to say that I place most reliance on the evidence of Thompson, who has a better knowledge and experience thereof than any other witness.

The action must be dismissed with costs.

COAL IN THE YUKON.

MR. ARTHUR J. COLLIER, who during the summer of 1902 was sent by the United States Geological Survey to Alaska to make an examination of the coal deposits along the Yukon River, paying particular attention to the paleontologic data as regards the age of coal and the problems of stratigraphy in that section, has made his report to his Government, which, in part, follows:

Coal of commercial importance is found in two different geologic horizons along the Yukon, namely, in the Upper Cretaceous and in the Kenai series. The Yukon silts contain some impure lignites, but they have no value. It will be shown below that coal seams which have been opened up near Nation River may be of Permian age, but these appear to be of little future importance. From the standpoint of the coal miner, therefore, all of the Yukon coal can be said to be of either Cretaceous or Tertiary age. Coal beds have been opened, or partially opened, by prospectors on two "Coal" creeks in Canadian territory and on American Creek, Wolf Creek and Washington Creek in American territory. Coal is known to occur, but has not been opened to any extent, on Coal Creek, a small tributary of the Yukon sixty miles above Circle; on Bonanza Creek, a tributary of Charlie River; and on a tributary of Seventy-Mile River known as Washington Creek. Coal has also been reported from the upper Forty-Mile region, from Seventy-Mile, and from the Porcupine, but the information is too vague to make it worthy of inclusion in this report.

The coals that have been mined in the Yukon basin are high-grade lignites and rather low-grade bituminous coals. With the exception of that at Nation River all the coals examined in the Circle and Rampart provinces are lignitic, those of the Circle province probably being of a little higher grade than those of the Rampart province. All the coals examined in the Nulato province fall within the bituminous grade.

In the Circle province the best coal by proximate analysis is that mined a few years ago at Nation River. This is a bituminous coal rich in hydrocarbons and having a low percentage of water and ash. Its percentage of sulphur, however, is higher than that of any other coal examined by the writer, and the supply is limited and uncertain. Some rather low-grade bituminous coal, with a high percentage of ash, has been mined at the Five Finger mine, on Lewes River, 200 miles above Dawson, and beyond the limits of the Circle province. The main limits of this province, however, is to be found in the lignite-bearing areas. At Cliff Creek, in Canadian territory, these lignites have been developed and yield good satisfaction for steaming purposes. The limits of this coal field have not been determined, but there are probably between 50 and 100 square miles of coal land contiguous to this mine, the greater part of which lies some distance from the Yukon.

In American territory, on Washington Creek about twelve miles from the Yukon, there is another large field, which will probably yield a considerable supply. This coal is a lignite, and is, so far as the analyses show, of slightly lower grade than that of Cliff Creek.

In the Rampart province the coal field of the Drew mine is the only one which has immediate value, and it is of very limited extent, the area of coal-bearing rocks probably not exceeding four square miles. The coal is a lignite, containing higher percentages of water and ash than the standard coals of the Circle province.

In the Nulato province coal has been exploited at a number of localities in the coal-bearing rocks which extend along the Yukon for 200 miles. The coal beds are usually rather thin, none of them measuring over four feet, and some of the seams are so crushed by shearing faults of the inclosing strata that systematic mining is difficult. At Williams' mine, 90 miles below Nulato, in this belt, the coal bed is regular and holds a uniform thickness as far as development has gone. The conditions are favourable for producing a large amount of coal. With proper development the mine can probably supply all the coal that will be required on this part of the Yukon for many years. The coal here is bituminous, having a fuel ratio of from 1.2 to 1.5 and a water content below 7.5 per cent.

Coal of a better grade is found at the Pickart mine and at the Blatchford mine, also in this province, but the beds are faulted and the conditions for producing coal are not favorable. At the latter mine the coal is by proximate analysis the best found by the writer on Yukon River, having a fuel ratio of 3.3, water content below 2 per cent., and ash below 3 per cent.

The lignites of the Circle and Rampart provinces are contained in sandstones of Eocene age, correlated with the Kenai series. The bituminous (Nation River) coal of the Circle province is probably of Permian age, while the bituminous coals of the Nulato province are contained in a series of sandstones in part Upper Cretaceous and in part Eocene in age, which has not yet been separated on stratigraphic or lithologic grounds. The Pickart and Blatchford coals are Upper Cretaceous, while the Williams coal is Eocene, in age.

THE BOUNTY ON LEAD ORES.

THE following is the text of the Memorial recently addressed to the Hon. the Minister of Trade and Commerce by the Silver-Lead Mines Association, asking for an extension of benefits under the Lead Bounty Act:

Sir,—The following is respectfully submitted for your favourable consideration:

1. The bounty granted on lead mined and smelted in Canada has caused the development of many mines which had