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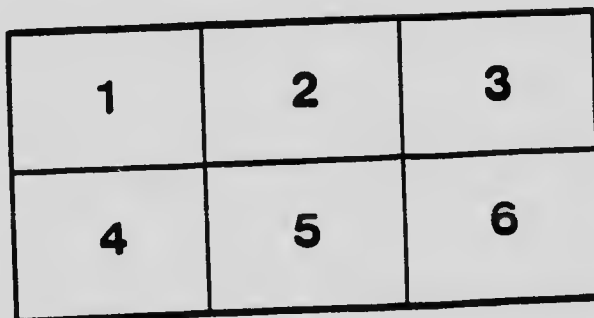
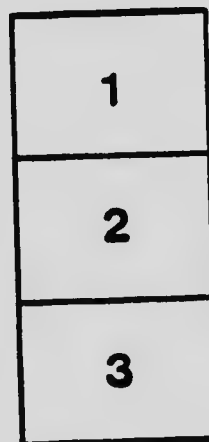
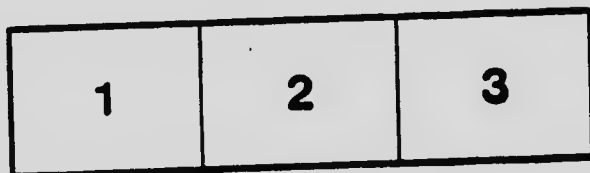
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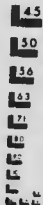
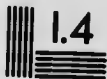
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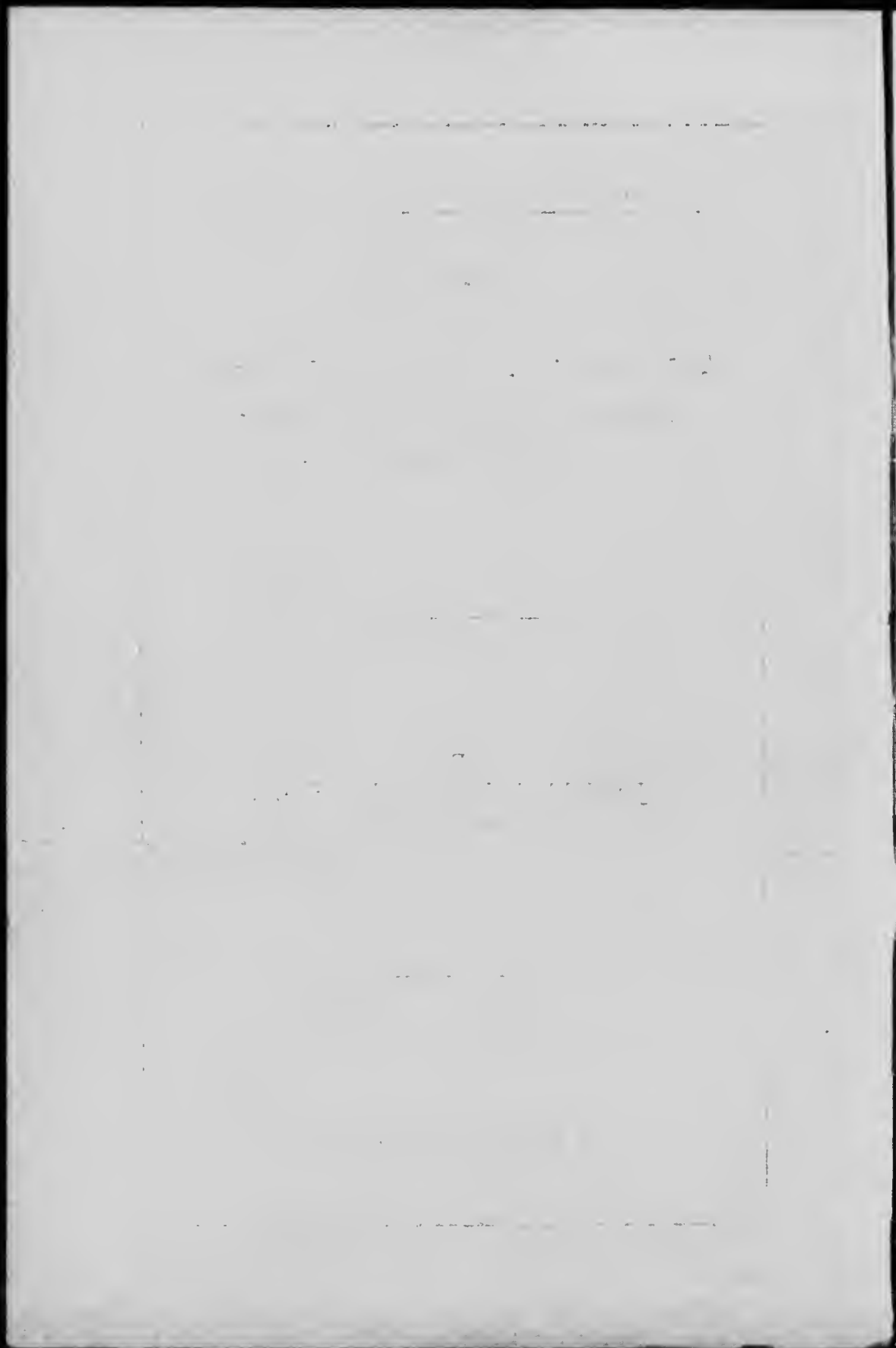
Coal Boring Operations near  
MacGregor, Grand Lake,  
Carboniferous Area

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By  
JAMES P. HOWLEY, F.G.S.  
for the Year 1907.

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ST. JOHN'S, N.F.  
Robinson & Company, Limited, Press  
1918.



*P. J. Sandover 2/4*

Geological Survey of Newfoundland

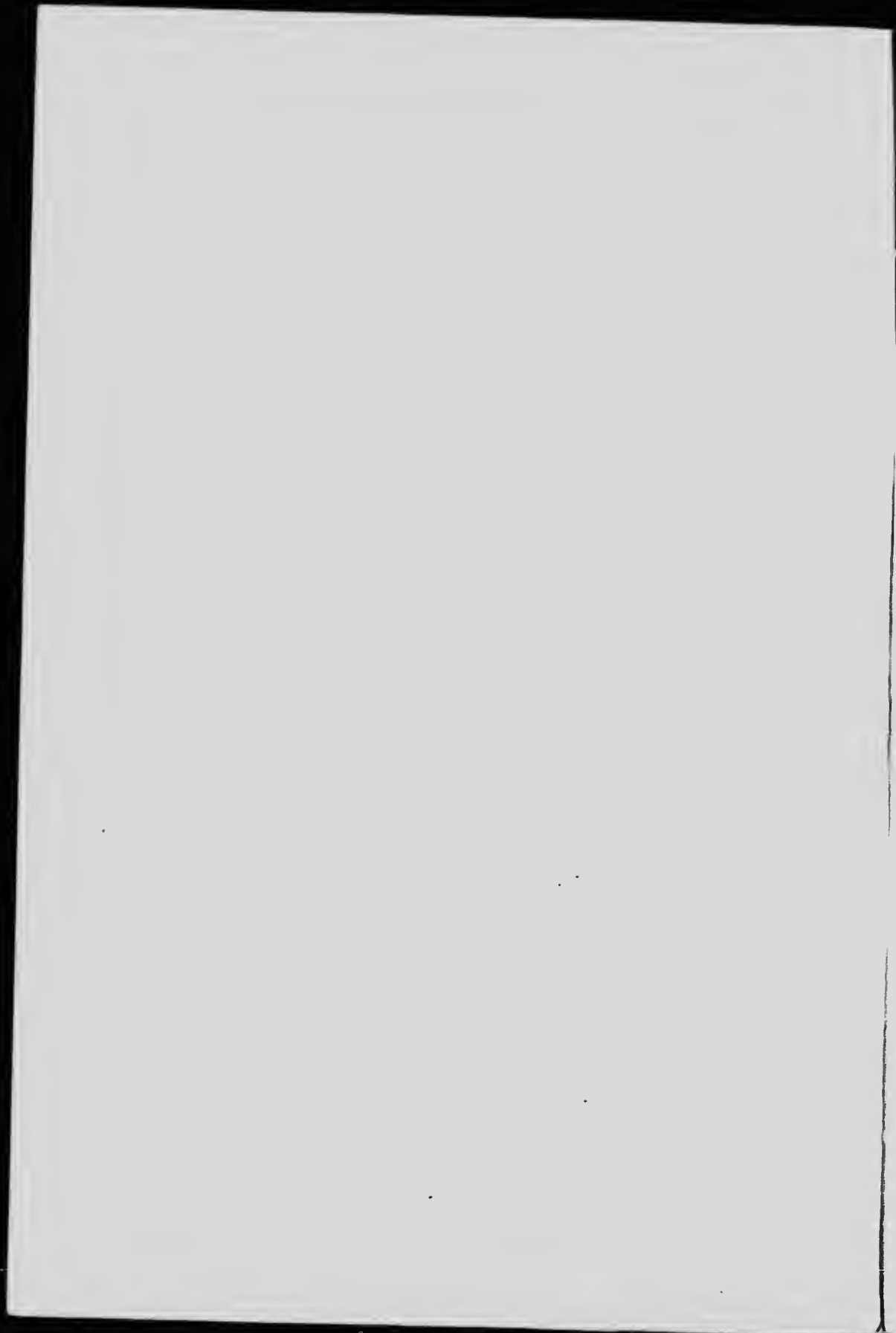
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**REPORT**  
ON  
**Coal Boring Operations near MacGregor, Grand Lake, Carboniferous Area, for the Year 1907.**

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Geological Survey Office,  
January 6th, 1908.

HON. J. AUGUSTUS CLIFT, K.C.,  
*Minister of Agriculture and Mines.*

Sir,—

I am pleased to inform you that the coal boring operations near Goose Brook during the past season resulted more favorably than heretofore.

Although several unavoidable delays occurred in the early part of the season, owing to the breaking down of certain parts of the machine, and the non-arrival of the casing pipe ordered at an early date, nevertheless more actual boring was accomplished than in any two previous years.

Two holes were put down—one to a depth of 194.7 feet, the other to a depth of 256 feet. Seventy-seven feet of the former were drilled in 1906, so that the actual depth made in that hole this year was 117 feet, with which the 256 feet of the second hole aggregated 373 feet altogether, or an average of 3.3 per day. As, however, the boring was suspended on two or three occasions for several days at a time, owing to the above-mentioned causes, and the number of working days thereby reduced to 85, the real average per day, that the machine was in operation, was about 4.38 feet, which under all the circumstances, may be considered fairly good work.

We commenced drilling on the 2<sup>nd</sup> of June at No. 3 of last year, near a small tributary of Goose Brook. This was the same hole we were compelled to abandon the previous November owing to the desperate state of the weather at that time.

Having first cleaned it out down to the bottom, good progress was made to a depth of 100 feet, which was reached on the 25th.

It then began to cave in badly, necessitating the withdrawal of the old 1-in. pipe and putting down the new three and a half inch casing pipe. By the 28th it was down thirty-eight feet when an unfortunate accident occurred. The main journal of the spindle rod, one of the chief parts of the running gear, became broken by the great strain upon it, and though we tried to effect temporary repairs, it soon gave out again, and could not be made further use of. A telegram was immediately despatched to the Davis Calyx Drill Company, New York, for a new journal and while awaiting its arrival, the pipe was screwed down by hand to within ten feet of the bottom of the hole.

The new journal did not arrive till the 16th of July. In the meantime the men were employed in procuring firewood and extending our road to Goose Brook. We commenced to bore again on the 16th, and the work progressed favorably till a depth of 194.7 feet was reached. At this stage the core barrel became so badly jammed that in trying to get it up it twisted off and remained in the bottom of the hole. It became so worn from use that the plug connecting it with the calyx barrel gave out.

We now had to abandon this place and remove the machine to a new site about four hundred feet to the eastward, where favourable surface conditions seemed to exist. The withdrawal of the casing pipe from the first hole was a difficult undertaking, and several days elapsed before we succeeded in recovering it all.

By the 22nd of August, the machine being again in working order, we commenced to put down the large 5 in. stand pipe, but it proved the most tedious and difficult task yet encountered. Such was the depth and character of the outlying drift deposit, all efforts to penetrate it were for a long time unavailing. Huge boulders and coarse gravel were encountered at almost every foot, and as these were cut through, they would become loosened, and turned over, necessitating cutting the same boulder several times. The pipe had to be withdrawn two or three times and reset. On the 7th of Sept. the spindle journal again gave out, and as it was too late in the season to procure a new one from the manufacturers of the machine, we were obliged to get a temporary one made at the Terra Nova Engine and Boiler Works, St. John's. This reached us on the 23rd. In the meantime we had succeeded in screwing down the five inch casing pipe to the bed rock, a depth of

twenty-one feet. Boring was now started with a four-inch core barrel and cutter, and all went well until October 16th. At a depth of one hundred and thirty-five feet the sides of the hole began to cave in so badly, and the drill rods became so frequently jambed, the 1 in. tools had to be laid aside, the small three and a half casing pipe screwed down to the bottom of the hole, and the 3-in. core barrel and bit brought into requisition for the remainder of the season. By the 10th November we had reached a depth of two hundred and fifty-six feet, when the weather conditions and the intensity of the season made it advisable to close down the work.

A shed having been erected over the machine where it stood, all the loose materials were carefully stored away for the winter.

During the progress of the drilling operations, the road to Goose Brook was completed, half a mile ahead, so as to be in readiness for moving the machine forward as new boring sites were located.

The details of the sections passed through in the two bore holes are given below, and the accompanying diagram, on a scale of ten feet to one inch, will more fully illustrate the same.

I have in course of preparation, on a scale of one hundred feet to one inch, a ground plan and section of all the work accomplished in this particular part of the Grand Lake carboniferous area within the last few years. I trust it will afford a more adequate idea of what has been accomplished than any written description, and will obviate the necessity of recapitulating the substance of former reports.

Our drillman, Mr. Ellison, gave every satisfaction. He proved himself a most experienced and careful expert in that particular capacity.

RECORD OF BORE HOLE NO. 1.

	STRATA.	COAL.
Surface deposit of sand, gravel and boulders.....	28	0
Dark grey fine-grained micaceous sandstone, with numerous carbonized plant impressions ... ..	15	0
Dark Bituminous shale with fossil plants ... ..	4	0
Coal Seam ... ..		4?
Shale filled with plant impressions ... ..	2	8
Coal Seam ... ..		3?
Shale with fossil rootlets ... ..	5	9
Coal Seam ... ..		5?

Alternations of shale and fine sandstone with numerous plant impressions and streaks of coal...	20	7		
Shale with kidney ironstone	16	20		
Ironstone with a little shale	10	0		
Coarse whitish grit	4	9		
Fireclay	1	3		
Coarse white grit	2	0		
Arenaceous shale	3	0		
Fine grayish sandstone	2	0		
Chiefly shale	8	0		
Shale and ironstone	1	0		
Fine gray sandstone with coal partings	5	0		
Coarse grayish grit	11	2		
Shale with kidney ironstone and some coal streaks	32	7		
Shale and ironstone	11	3		
Coal seam				3?
Shale with ironstone and coal streaks	9	4		
<hr/>				
Strata	193	4	1	3
Coal	1	3		
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Total	194	7		

## RECORD OF BORE HOLE NO. 2.

	STRATA.	COAL.
Superficial drift, sand, gravel and boulders	21	0
Coarse whitish grit	27	0
Shale	19	0
Coal Seam		3
Shale with coal partings	6	9
Shale with kidney ironstone	4	0
Coal Seam		9
Shale	5	3
Coal Seam		3
Shale with kidney ironstone	4	0
Shale with kidney ironstone with coal streaks	30	0
Chiefly Shale	8	0
Arenaceous shale and fine sandstone	3	0
Fine and coarse sandstone	5	0
Coarse grit		3
Arenaceous shale	2	9
Shale with coal streaks	3*	2
Coarse gray grit	16	0
Shale with coal partings	9	0
Coarse gray grit	8	0
Shale with kidney ironstone	10	0

Coarse gray grit . . . . .	5	0		
Shale and ironstone . . . . .	4	0		
Coarse grit . . . . .	7	10		
Shale with ironstone and coal partings . . . . .	20	9		
Coal Seam . . . . .				6
Dark carboniferous shale with ironstone and fossils	17	9		
Shale with thin coal streaks . . . . .	3	0		
Shale and ironstone . . . . .	29	0		
<hr/>				
Strata . . . . .	252	6	4	6
Coal . . . . .	4	6		
<hr/>				
Total . . . . .	256	0		

It will be seen by the above sections that the strata passed through are typical of the coal measures proper, and correspond almost exactly with those of the Cape Breton series. The preponderance of shale and ironstone is a very marked feature, while the great abundance of carbonized plant remains, and the frequent occurrence of thin coaly layers throughout the more shaly portions give promise of other and thicker seams occurring.

The failure to strike any large seams so far, should by no means be taken to indicate their absence. If we turn to Cape Breton to institute comparisons, it will be found that Mr. Brown in his section of the North Sydney Coal Measures, enumerates no less than 23 distinct coal seams therein, only four of which are considered of workable dimensions. Of the remaining nineteen, four only are over a foot in thickness. All the others range from two inches to one foot, fourteen of the fifteen averaging only six inches each.

The section passed through in No. 2 bore hole, between fifty and seventy feet, might be considered as one seam, which exhibits at least 3½ feet of coal of good quality, three feet of which might be recovered in actual mining. Unfortunately no good cores were obtained, nearly all the coal being ground up into small fragments by the friction of the core barrel, and the presence of hard lumps of grit and ironstone. The prospect of securing satisfactory cores with tools of such small dimensions as those now in use, is not favorable.

Efforts have been made since my return home to induce persons handling boring drills in the United States and Canada to contract for the further prosecution of the work, but so far without

avail, nor do I think from present appearances any such firms can be found willing to do so. In the event of our having to continue the work ourselves, I would strongly urge the necessity of procuring a second Davis Calyx drilling outfit for next season. The advantage of having two such machines in operation at the same time are manifold. One engineer could easily superintend the running of both machines, with the assistance of an intelligent mechanic and a few extra men. The drills would never be situated far apart, and in the event of one breaking down at any time, the other could be kept going, and thus avoid the vexatious delays which have hitherto so much retarded the work. Should this suggestion be adopted, the thorough exploration of this promising coal field would be very much facilitated.

In ordering a new outfit, it would be well to have duplicates of all such parts as are liable to most wear and tear. One of the chief drawbacks to the successful prosecuting of the work heretofore is the necessity of having to send to the manufacturers for every item in case of accident, and the great loss of time in obtaining the articles from New York.

I have the honor to be,

Sir,

Your obedient servant,

JAMES P. HOWLEY.

