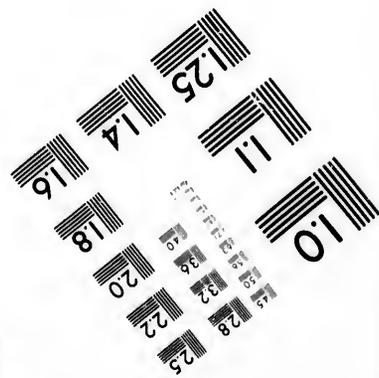
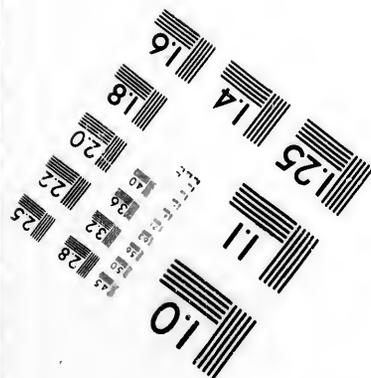
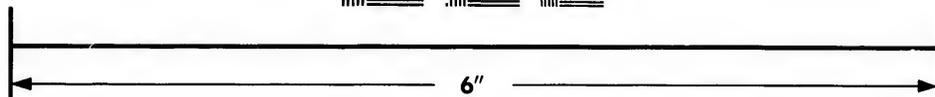
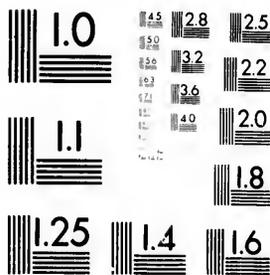


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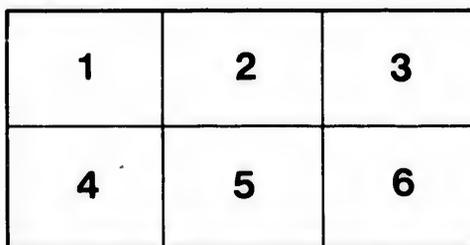
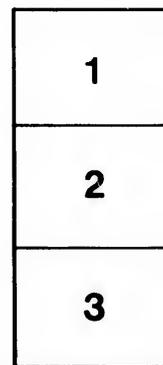
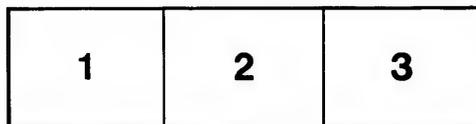
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PETERBOROUGH LEAD MINING COMPANY.

To be Incorporated under 27 and 28 Victoria, Chap. 23, Statutes of Canada.

CAPITAL, . . . £20,000 STERLING.

It is proposed to organize, under the Act 27th and 28th, Victoria, Chap. 23, Statutes of Canada, a Company, to be known as the Peterborough Lead Mining Company, having a capital of \$100,000 (£20,000, stg.), in shares of \$100 each (£20, stg.)

One half the Stock is to be subscribed at once, and paid to the Treasurer of the Company, or to Trustees to be appointed; and the balance to remain at the disposal of the Directors.

It is proposed, on the subscription of the requisite amount of Stock, to purchase the property of the present Galway Mining Company for the sum of fifty thousand dollars (£10,000.): one half to be paid in cash, and the balance in paid-up Stock of the Company; and to continue the present works of the said Galway Mining Company on an enlarged scale; also to erect smelting works, and other machinery for the purpose of mining, smelting, and otherwise preparing for market, the ores of all kinds of metals and minerals. together with the acquisition, employment, and disposal of all lands, mines, and ores, or granting to others the right to mine, smelt, or prepare for market, the ores of all metals and minerals that may be found of advantage to the interests of the Company.

The property is situated in the Township of Galway, in the County of Peterborough, and Province of Ontario, and is composed of the West half of Lot Twenty, Concession A, containing fifty acres,—twenty of which are cleared, and thirty uncleared. It is situated immediately adjoining the Bobcaygeon Road.

A shaft, of 10 feet by 6 feet, has been sunk about 110 feet deep, with a tunnel of the same dimensions running along the vein 30 feet. Twenty tons of the ore already taken from the shaft have been sold on the ground for \$40 per ton.

The buildings consist of dwelling-house, stables, shaft and tool houses, and blacksmith's shop.

It is considered that the provision made by the above subscription of Stock, of \$25,000 (£5000, stg.), for working capital, after the cash payment for the land, is sufficient for all purposes; but, it will be seen, that provision is made for a further sum of \$25,000 (£5000, stg.) by the reserved Stock, should any contingency arise rendering further working capital necessary.

Attention is directed to the reports of Professor Robb, of Montreal, and Professor Chapman, of Toronto, which are published herewith. Professor Chapman's second report, it will be seen, more than justifies the predictions of his first, and shows the location to be a very valuable one for mining purposes. The present works of the Company being in good condition, and much, if not all of the "dead work" done, there is nothing to prevent, with proper machinery and smelting furnaces, the raising of a large quantity of ore, and the preparation of the same for market immediately.

For the information of subscribers, the Act, under which it is proposed to organize, is published in full herewith. It will be found to be a simple and inexpensive method of procuring all the advantages of a Charter, with limited liability, leaving it open with the Shareholders to pass any By-laws they may deem fit for the guidance of the Directors and Officers of the Company.

REPORT OF CHAS. ROBB, Esq., MINING ENGINEER.

GENTLEMEN,

In accordance with your desire I have visited and made a cursory examination of your Lead mining property, situated in the Township of Galway, County of Peterborough, Ontario, and have noted its capabilities for mining purposes, and the development hitherto made thereon. I beg now to present to you the following brief report, embodying the results of my observations together with a plan showing the position of the property and of the mineral veins thereon, so far as shown to me. I must premise, however, that as at the time of my visit (about a month ago) little work had been done in testing the veins by sinking upon them, the information I have to convey, and the conclusions I may have been led to form, are of a less positive and definite character than I could have desired.

The part of your property consisting of Lot 20, Concession A, as designated by the Red tint on the accompanying plan, abutting upon, and adjacent to the Bobcaygon Road, held by you in fee simple.

This property is situated about 12 miles from Bobcaygon, which is a port on the great chain of navigable Lakes, communicating on the one hand with the town of Lindsay, about 22 miles distant, and on the other with a point about 6 miles from Peterborough, both of which places connect by short Railways with the waters of Lake Ontario, and with the Grand Trunk Railway.

The Geological position relative, and conditions of this property are highly favourable for the occurrence of metallic veins. It is underlaid by rocks of the "Laurentian formation," consisting of various forms of Gneiss rocks, interstratified with bands of crystalline Lime-stone. These rocks in several parts of Canada have proved to be productive of important Lead veins, and in the present instance since it has been proved that such veins exist on the property, their importance is greatly enhanced by the circumstance that they occur in the immediate vicinity of the junction between the Laurentian and overlying lower Silurian formation.

The greater part of the property is covered with a dense growth of timber, consisting chiefly of pine, spruce, and elm, the cleared portion occupying a comparatively narrow strip skirting the east side of the Bobcaygon Road. The mineral discoveries which have been made hitherto, and the little explanatory work which has been done, has naturally been for the most part confined to the cleared land on which some highly promising veins of Galena and Sulphate of Barytes have been exposed. The strike, or general direction of the rock formation throughout the country, coinciding also with that of the ridges and valleys, is north-east and south-west, while the general direction of the mineral veins is north-west and south-east, the dip of the veins is also

in the opposite direction to that of the rocks. These facts prove conclusively that they are *true* or *fiſſure veins* cutting the rocks, transversely and obviously resulting from deep-seated and powerful dislocations and disturbances. Hence there can be no doubt that they will prove persistent in depth and indefinite extent. These veins appear to be quite numerous and important upon your property. On this Lot, quite near the road, two parallel veins of Galena and Baryta have been found cutting micaceous and hornblende schist. These directions, north-west and south-east, which seem to be the normal direction of the group of metalliferous veins in this district. These veins, at surface, appear to be about ten inches in thickness, cutting the rocks perpendicularly, and are about 100 feet apart; one of them, the most easterly, has been traced for a very considerable distance, but had not been tested in depth any extent at the time of my visit. An adit, or tunnel, had been commenced upon its course, from the low ground at the north side of the Lot, and many very good stones of ore obtained. This work will prove the vein to the depth of 40 or 50 feet, and from present appearances the prospect is highly encouraging. The rock is soft, and will be mined at a very trifling expense. Numerous indications of other Lead veins occur on other parts of your property, but no data are as yet afforded for ascertaining their value. Baryta is an article of considerable commercial value, and especially in conjunction with the Lead, with which it is usually associated, may probably be found to be economically available, and thus to enhance the value of your property.

In view of the recent remarkable discoveries of the precious metals in the Laurentian rocks in the Township of Madoc, it is not unreasonable to expect similar results on your property, which appears to be in the same Geological position, and under similar mineral conditions—the proved existence of metalliferous veins on the spot, and the reported actual discovery of Gold in the neighbourhood, render this anticipation more probable, and the search in this direction more justifiable. I regret, from circumstances already mentioned, that I am precluded from making a report of a more positive and definite character than the present, which may be regarded as only preliminary. I may remark, in conclusion, that from the strength and persistency of the veins, the congenial character of the rocks, the extraordinary show of ore at the surface, and the reasonable prospect that the veins will be found thicker and richer as they are traced in depth, I consider this property to be of great prospective value, and well worthy of further development.

I have the honor to be,

Gentlemen, your most obed't Servant,

CHARLES ROBB, *Mining Engineer.*

P. S.—I omitted to mention in the proper place, that abundance of water, for washing ores, &c., is to be found near the property.—C. R.

PETERBORO' Jan. 6, 1868.

REPORT OF PROFESSOR CHAPMAN, ON THE GALWAY
MINING COMPANY.

Having been instructed by the Directors of the Galway Mining Company of Peterborough to examine the mineral property of the Company, and to furnish them with an impartial Report upon the same, I visited the ground on the 23rd inst. in company with two of the Directors, Messrs. Rogers and Stephenson, whose knowledge of the locality was of much service. I avail myself of this opportunity to offer my thanks to these gentlemen for their kind assistance, and beg, at the same time, to record my conviction that the greatest reliance may be placed in Mr. Stephenson's judgment and suggestions, as regards the development of the property generally.

The Galway Mining Location comprises the west half of lot 20 in concession A. of the township of Galway, county of Peterborough. It contains about 50 acres, and is held by the Company in fee simple. The Bobcaygeon Road forms the boundary of one side of the property. By this road, to the village of Bobcaygeon, on Sturgeon Lake, the distance is between 11 and 12 miles. From Bobcaygeon, freight can be shipped to Lindsay (22 miles), and from thence carried by rail to Port Hope on Lake Ontario, a station of the Grand Trunk Railway. Another outlet is by way of Mud Lake to a point 15 miles from Bobcaygeon, to which a line of railway will shortly be carried from Peterborough. The products of the Galway mine can thus be taken to the front almost entirely by water and rail: the only teaming required, being over the portion of road (11 miles) between the mine and Bobcaygeon village. This road is in good order, and of easy grade. As regards accessibility, therefore, the property is very favorably situated—more so, indeed, although lying in a comparatively remote township, than many mineral locations situated somewhat nearer to the front.

The country rock of the location consists essentially of mica slate interstratified with hornblendic gneiss and crystalline limestone, the whole belonging to the Laurentian or Gneissoid Series. The strike of these strata is N. 20° to 25° E., corresponding with the general direction of the ridges and narrow valleys of the district, the valleys lying chiefly along the course of the limestone bands. Several well-defined mineral veins occur upon the Company's property. Two of these, running parallel with one-another at about 100 feet apart, have been traced entirely across the location. They cut the strata almost at right angles, their course being N. 60° to 65° W., with a very slight underlie (in places imperceptible) towards the N. E. Another vein, of similar mineral character, appears to run N. 60° E., but at present it is entirely undeveloped. This is known as the "Cross vein." Well-marked indications

of others are also observable on the property. These veins are very narrow at the surface, but they widen considerably at a depth of a few fathoms, and continue apparently to increase in width at greater depths. They carry galena, the common ore of lead, in a gangue of sulphate of baryta (the *cawk* of the north-country miners) and crystallized carbonate of lime (calcite).

On the more northern of the two parallel veins running N. 60° to 65° W., a shaft (10 feet × 6 feet) has been sunk to a depth of about 60 feet, and is still being carried down. An adit has also been driven, from lower ground lying towards the north-west, for some distance along the course of the vein; but being too near the surface to be of much utility, it has been discontinued. At a depth of 58 feet from the surface this vein shews a width of 3 feet 6 inches, and consists of sulphate of baryta mixed with highly crystalline calc spar and a considerable amount of galena. It may not be amiss to state, that the latter ore contains, when pure, 86.6 per cent. of metallic lead, and 13.4 per cent. of sulphur—a portion of the lead being very generally replaced, however, by a small amount of silver. Here and there, a few specks of black and yellow blende, with traces of copper pyrites, occur in the calc spar of this vein, and thin lines of iron pyrites are seen in places. The calc spar is, in part, perfectly transparent and colorless. Large cleavable masses, available for optical purposes, and hence of some value, have been taken out of pockets in carrying down the shaft. From these pockets also, some heavy masses of galena, partly in fine crystals, have been obtained. The sulphate of baryta, if largely worked, might likewise be made a source of profit, but chemical treatment would be required to effect its purification from intermixed matters.

To arrive at an exact estimate of the amount of lead carried by the vein in question (which for the sake of clearness, I will call the *Galway lode*, designating the parallel vein in its vicinity as the *Peterborough lode*) several tons of ore would have to be carefully sampled and examined; but, at a depth of from 50 to 60 feet from the surface, the vein, at the lowest estimate, certainly holds a fourth part (by weight) of galena. In this connexion it must be remembered that galena is twice as heavy, bulk for bulk, as the mixture of cawk and spar of which the veinstone consists. If it be assumed (in order to keep within safe limits) that the lode would become no wider in descending, and would carry only the above amount of galena, each square fathom would contain 126 cubic feet of veinstuff (of average specific gravity equal to 5.0) and would weigh, in round numbers, about 20 Canadian tons. On this assumption, 20 tons of veinstuff would yield 5 tons of galena, or, due allowance being made for loss in the mechanical and furnace treatment of the ore, about 3½ tons of metallic lead. The actual yield would probably be nearer 4 tons, especially after the mill and furnaces had

been brought into full working order; but I wish, in this estimate, rather to underrate, than overrate, the assumed profits of the mine.

Taking these data, the debit and credit account (exclusive of a small deduction for interest on capital, management, commission, and wear and tear of machinery) may be stated as follows:—

DEBIT ACCOUNT.		CREDIT ACCOUNT.	
	\$		\$ c.
Mining 20 tons ore at \$2 50.....	50	3½ tons pig lead, at 4½ cents	
Hauling to Mill, at 50 cents.....	10	per lb.....	337 75
Crushing and dressing, at 50 cents, 10			
Smelting dressed ore, say 5½ to 6			
tons, at \$2.....	12		
Freight on 3½ tons lead to front..	20		
	<hr/>		
	\$102		

Leaving, in round numbers, a profit of \$80 per ton of reduced lead; but, as a higher per centage of galena will probably be found in the lode, a larger profit may be fairly anticipated.

The estimated cost of mining or winning the ore (\$2 50 per ton) may appear, at first sight, too low; but \$2, I believe, would be nearer the true cost. This may be verified, to some extent, by actual cost of the work done in sinking the shaft. The cost, per foot of depth, has been, I understand about \$17. The mean sp. gr. of the rock-matter and ore removed from the shaft may be taken at about 4.0. It would be somewhat less than this for the first few fathoms; but more at lower depths. As the shaft measures about 10 feet by 6 feet, each vertical foot of stuff removed would equal 60 cubic feet, the weight of which would be about 7½ tons. This amount, at \$17, equals \$2 26 per ton. It must be remembered, in this connexion, that the greater portion of the matter, removed from the shaft, consisted of very hard rock, whereas the extraction of the vein matter will be much more easily effected, and will be carried on also by drifting and stoping, in place of sinking. The above estimate will thus allow for the cost of underground timbering, where this may be required in the drifts.

A considerable amount of pay-ore has been taken out of the present shaft. A large portion has been carried off piecemeal by persons visiting the mine. Specimens of 8 or 10 lbs. weight, may be seen all over the vicinity, and probably a ton weight, if not more, has found its way in this manner to Peterborough alone. The ore that has escaped these depredations, is partly stored in a lock-up shed near the mouth of the shaft, and partly piled in heaps upon the ground. It has been roughly hand-dressed, and in part washed on a temporary buddle fed by water from the shaft. Much of it, consequently, contains over 70 per cent. of galena; and if the whole were smelted on the spot, it ought to produce at least nine hundred or a thousand dollars worth of metal.

I have made several assays of this galena, taken from different parts of the shaft, in order to determine the amount of silver present in the lead. The average amount is equal to a little over 2 oz. Troy in the

ton, or to about 1 oz. 17 dwts. per ton of galena. This amount is insufficient to defray the cost of its extraction, but the ore may prove richer at lower depths, or in other parts of the vein. I have also found a small amount of gold (3 to 4 dwts. per ton) in some samples of iron and arsenical pyrites taken from a narrow cross vein, which is cut at the shaft, and thrown 9 or 10 feet by the Galway lode. It would be advisable to have this pyrites vein occasionally tested, where cut by the drifts at different levels, as the amount of gold may be found to increase. The throw to which this cross vein has been subjected, shows the more recent origin of the baryta or galena veins; and surface indications observable in some of the surrounding lots, lead to the inference that these latter veins are not likely to be disturbed by slips or other interruptions. This, at least, may be safely predicted as far as regards the Galway and Peterborough lodes.

Drifting and stoping might be commenced at the present depth of the shaft on the Gulway lode, but this can scarcely be recommended. If the uncontrolled management of the works were under my charge. I would continue the sinking to another level of ten fathoms, and commence at the same time a second shaft about two hundred feet to the south-east of the present one. Owing to the fall of the ground, the new shaft at about 10 fathoms would reach the 20-fathom level of the other. The ore taken from these shafts ought to be at least sufficient to defray the cost of sinking. This second shaft would also fairly test the strength and richness of the lode: points known to us, at present, only by the 10-foot exposure in the shaft now being carried down. Until these works were completed, I would not think of erecting a dressing mill or putting up furnaces. A certain accumulation of ore, to feed these, should be on hand before starting, and also a certain amount of stoping ground under excavation, otherwise it will not be possible to keep the furnaces in constant blast.

The mill and furnaces ought to be near each other. A suitable spot for their erection might be found on the Company's ground; but a particularly desirable site, for works of this kind, occurs on a lot adjacent to the Bobeaygeon Road, within a short distance of the Company's property. The necessary ground, I understand, might be rented or easily secured. It is contiguous to a small creek issuing from Silver Lake. A dam could be placed on this creek at a little expense, and a good supply of water thus obtained. Timber for fuel and mining purposes occurs abundantly on the Company's location.

Notwithstanding the loss of metal entailed by its use, the Improved American, or Rossie Hearth, giving a blast heated by the combustion of the ore and fuel, will be found the most suitable furnace for the reduction of this ore. Pine or other wood is employed as fuel and very little is required, the heat being derived, in great part, from the combustion

of the sulphur in the ore. An ordinary furnace of this kind will give about three and a-half to three and three quarters tons of reduced metal in three eight-hour shifts, the ore being previously dressed to an average richness of 70 or 75 per cent. At the present time, in consequence of the stoppage of several mining works at no very distant localities, mill machinery, steam engines, and furnace materials may, probably, be obtained at a comparatively low cost. With judicious management, a sum of \$5,000 or \$6,000 would be sufficient to start the mine fairly, but a larger working capital will be eventually required in order to achieve a permanent success. Disappointment is very commonly caused, especially in new countries, by an attempt to work mining property on *too small a scale*. The ore may yield a fair profit, but the production is insufficient to render the aggregate profit of much account. Hence, if a lode begin to run poor for a time, or heavier machinery be required, or other difficulties arise to cause a temporary stoppage, the works are too frequently abandoned altogether. I urge these points more particularly, feeling confident that, under patient and liberal management, no fear of failure need be apprehended as regards the Galway Mine.

E. J. CHAPMAN, Ph. D. &c.

*Professor of Mineralogy and Geology in University College, Toronto,
and Consulting Mining Engineer.*

Toronto, September 30, 1868.

SECOND REPORT OF PROF. CHAPMAN.

*To the Directors of the Galway Mining Company
of Peterborough,*

GENTLEMEN,

In accordance with your instructions to furnish you with a Supplementary Report on your lead mine in the Township of Galway, I visited the spot on the 22d ult., and in company with your Managing Director, Mr. H. C. Rogers, I made a thorough examination of the works, both above and below ground.

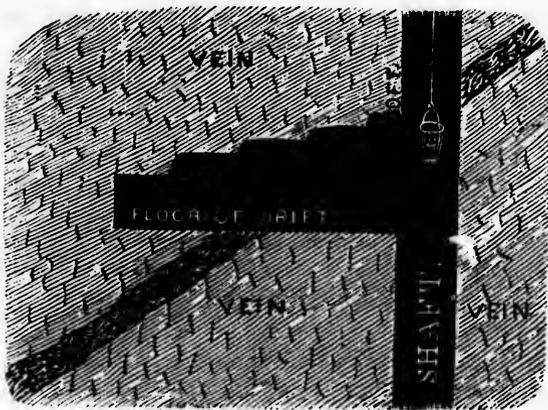
The position and geological character of the location, and the general conditions of the Galway Vein, as regards structure, width of lode, &c., having been already given in detail in my earlier report, I need not revert in my present communication to these particulars. In the Report alluded to, I expressed my confidence in the vein as a source of permanent profit, if fairly and thoroughly worked: and my recent inspection of the property has strengthened this opinion in every point of view. Of course, I regard the workings hitherto carried on at the mine, in the light of a system of development merely; and I do not consider, therefore, that the mine has had a fair opportunity, as yet, of shewing its actual capability. This it can only do under a thorough and vigorous system of working, entailing a certain outlay at the commencement, but promising most conclusively, in my opinion, to repay the investment within a comparative brief period. But I must repeat my conviction, that if success is to be achieved, a strong force of men must be put upon the work, and the mine must be amply provided with proper machinery both in the underground workings and at the surface. The requirements more immediately necessary in this respect, are stated at the close of my report.

The present condition of the mine is as follows: The shaft (10 ft. + 6 ft.) has been carried down and timbered to a depth of between 18 and 19 fathoms, or 110 feet. In consequence of the almost vertical position of the vein, the shaft keeps upon the lode throughout this entire depth, and it promises to do so indefinitely, one may say. This is a very favorable condition, as even in the poorest parts of the sinking, ore is being thus continually got out, and the amount of dead work is necessarily much reduced. The lode retains throughout its average width of 3 or 3½ feet, but here and there it is a good deal split up by imbedded angular masses of wall-work. Near the present sump, or bottom of the shaft, one of these intercalated masses forms a "horse" of considerable size, but a few additional shots would easily effect its removal. The vein, however, at this part of its course is rendered

harder, poorer, and less easily worked by this peculiarity; whilst at the distance of a fathom or two, or even a few feet, north and south of the shaft, it becomes much freer, and carries in places, as stated below, a large amount of ore. The shaft consequently appears to have been accidentally located in a comparatively hard and poor part of the vein, but this cannot, of course, be remedied now. At the same time it must be remembered that in many mines the shafts have to be sunk entirely or nearly so, in altogether unproductive ground.

At the period of my former visit, the drift, then carried out, consisted of a small adit 18 feet below the mouth of the shaft. At present, a drift of about five fathoms or thirty feet in length, at 30 feet from the surface, has been excavated on the north (or rather north-western) end of the shaft, and a portion of the lode has been taken out by over-hand stoping at this place. The vein at the end of the drift, and indeed along its whole length at a distance of a few feet from the shaft, is exceedingly rich. A long pipe-like rug or pocket holding large and mostly loose masses of crystalized and almost pure galena, here cuts the drift at an oblique angle.

These pockets will undoubtedly be met with at intervals throughout the run of the lode, and will make up largely for any poor streaks that may occur here & there in the workings. It may be observed



incidentally, that where loose deposits of rich ore have been found on the exposed surface of this and other lodes in the vicinity, pockets of a similar kind have evidently come to day. No other stoping has been attempted, but short trial drifts have been seen at 60 and at 85 feet from the surface: the latter on the S. E. end of the shaft. The walls and roof of these drifts are exceedingly solid, and require no timbering, but this advantage is somewhat counterbalanced by the extra expense of mining hard rock matter of this kind.

The vein, as already stated, keeps its average width and is thoroughly well defined, with good walls, within these drifts and throughout the

entire depth of the shaft. As to its permanency, therefore, at lower levels, there cannot be the shadow of a doubt. Its actual richness, however, is still to some extent an open question, as the extent of lode laid bare is scarcely sufficient to determine this point; but, taking one part with another, I think in a vein of this character an average yield of 20 per cent. galena ought, at least, to be relied upon. In many places, the percentage of galena will of course be less than this, and here and there for a yard or two, or even several fathoms, there may be merely specks of ore apparent in the gangue; but in other places, and in the vicinity of the pockets especially, the amount will certainly exceed 20 per cent. It is not, of course, possible to assert that the lode will actually carry this amount of galena; but, on the other hand, it is by no means improbable that a higher amount may be obtained when the vein becomes thoroughly opened out. A 20 per cent. ore, according to my calculations, should yield a profit of about \$60 on every ton of lead produced at the works. But if we assume that only 10 per cent galena would be carried by the lode, an estimate certainly within the truth, a very handsome profit would still be realized. This percentage is equivalent to 173 lbs. metallic lead per ton (2,000 lbs.) of raised ore; but as a loss of 10 per cent. must be allowed for in the mechanical and furnace treatment of the ore, the actual yield may be regarded as about equal to 155 lbs. of metal per ton of ore. About 13 tons of ore would consequently have to be raised, at this low estimate, in order to produce a ton of metallic lead. The cost of producing the latter may be estimated as follows:—

Mining 13 tons of ore, say at \$2.50.....	\$32.50
(Add \$1.00 per ton, to allow fully for dead-work, wear and tear, &c.).....	13.00
Crushing and dressing, say at \$1.00.....	13.00
Smelting dressed ore, say.....	4.00
Freight of ton of lead to "the front".....	6.00
	<hr/>
	\$68.50

The value of ordinary lead in Canada is, at present, about 5 cts. per lb. The ton of 2,000 lbs. will be worth, consequently, \$100, thus leaving, on the above calculation, a profit of \$31.50. If the mine were fairly opened and brought into working order by another shaft and proper system of levels and winzes, a considerable amount of ore could be raised daily. Supposing; for the sake of argument, and in order to arrive at some definite result, that only a square or mining fathom were excavated, it would produce, at the present width of the lode (say 3 feet), and on the assumption of only 10 per cent. of galena being present in it, an amount of ore equal to about 15 tons, from which rather more than a ton of metallic lead would be obtained. Admitting, therefore, that no more than this comparatively small amount were produced per day, the

annual profit (taking the working year at 300 days) would exceed \$20,000. If, consequently, a sum of say \$50,000 were expended on the mine, a handsome interest could be paid on the capital invested, and a good balance set aside as a reserve or sinking fund to pay off the purchase money, and meet any exigencies that might arise. It is not, however, to be inferred from this statement, that the mine will not be capable of doing a larger amount of work. With a sufficient force of men, and the mine properly parcelled out by drifts and winzes, probably three or four times the above amount of ore might be obtained. The preceding illustration shows, nevertheless, that putting the produce at the lowest probable estimate, the mine could be made to yield a very satisfactory return on the capital required to work it.

The following is an approximate estimate of the amount of ore on the mining ground at the time of my visit. The heaps of ore were somewhat irregular in form, but I measured them, with Mr. Rogers's assistance, as accurately as could be done, taking care to keep rather below than above the actual quantities:—

1. 70½ tons, holding about 20 per cent galena, on dumping ground at mouth of shaft.
2. 45½ tons, holding about 20 per cent. galena, in heap south of ore shed.
3. 5½ tons of washed ore, holding about 25 per cent. galena.
4. 6½ tons of small ore, holding about 25 per cent. galena.
5. 9½ tons of small coarse ore in box, holding 25 to 30 per ct. galena.
6. 8 tons of fine ore in box, holding about 60 per cent. galena.
7. 1½ tons in shed, holding about 55 per cent. galena.
8. 5½ tons "pocket ore," in shed, holding about 90 per cent. galena.

A single week's work of half-a-dozen men in the 30 feet drift, would add very largely to the amount of "pocket ore" now in the shed. Loose masses of many pounds' weight are lying on the floor of the drift; and if the pocket were thoroughly opened out, it is evident that a large quantity of almost pure ore could be easily obtained.

The undressed or partially hand-dressed ore in these heaps amounts in round numbers to 147 tons. If this were dressed to about 75 per ct. and the amount of pocket ore added, the whole would be equal to about 52 tons. Pure galena is worth at the front (*i. e.*, at places on the Grand Trunk Railway, or by the Lake Share) about \$70 per ton of 2,000 lbs. A 75 per cent. ore (galena) should consequently be worth \$52.50 per ton. But, putting the value at only \$50 per ton, and allowing fully for dressing and freight, the net value of the ore would be as follows:—

Value of 52 tons of ore, at \$50 per ton.....	\$2,600
Dressing 147 tons, say.....	\$150
Freight on 52 tons, at \$6.....	312
	462

Net Value.....\$2,138

In order to carry out the efficient opening of the mine, the following works are more immediately requisite:—

1. A second shaft.
2. Erection of pumping gear in present shaft.
3. Continuation of the 30 feet level, and commencement of a second level, on same side of shaft, 6 fathoms beneath this, in order to get proper space for stoping out the rich ore in this direction.
4. Erection of a crushing mill and dressing floors, the latter furnished with one or two circular buddles and other modern improvements.

It will then be for the Company to consider whether the dressed ore can be profitably disposed of, or whether it will be necessary, or more profitable, to reduce the ore to metal on the mining ground. In the latter case, the erection of good Rossie Hearths or a good Reverberatory Furnace, with a Cupalo Furnace for slags and refuse, may be proceeded with as soon as a certain amount of ore has been obtained. In my former Report (issued, in printed form, in September, 1868) I recommended the use of the American Hearth, more especially for reasons of convenience mentioned in the Report in question; but my recent visit to the mine has led me somewhat to modify this recommendation, from the fact that much of the ore will necessarily be obtained in a highly comminuted state, and in that condition it can scarcely be reduced without great loss (unless previously agglutinated) otherwise than by a Reverberatory Furnace. The entire absence of silica in the gangue or veinstone, renders the ore especially suitable for a Reverberatory. The proper kind of furnaces to be employed may be legitimately left, however, for future consideration.

Whilst the works on the Galway lode were being vigorously pushed forward, I would recommend the expenditure of a few hundred dollars in sinking trial pits on the run of the other vein, designated in my former Report as the "Peterboro' lode."

A certain amount of risk, everybody knows, is unavoidable in mining ventures of any kind; but in closing this Report, I may again express my honest conviction that the Galway Mining Location can be made to pay, and pay well, if it be worked with sufficient enterprise and capital.

Finally, as this Report is to be submitted, I understand, to English capitalists, I think it right to add that I have no pecuniary interest, present or prospective, in the Galway property.

I have the honor to be,

Gentlemen,

Your obedient servant,

EDW. CHAPMAN,

Professor in University College, Toronto,
and Consulting Mining Engineer; late
Prof. in University College, London.

TORONTO, October 2nd, 1869.

JOINT STOCK COMPANIES' ACT.

An Act to authorize the granting of Charters of Incorporation to Manufacturing, Mining, and other Companies.

[Assented to 30th June, 1864.]

WHEREAS it is expedient to authorize the Incorporation by Letters Patent of Companies for Manufacturing, Mining, and other purposes, and to provide that certain general clauses of this Act shall apply to all Companies so incorporated: Therefore, Her Majesty, by and with the advice and consent of the Legislative Council and Assembly of Canada, enacts as follows:

I. The Governor in Council may, by Letters Patent under the Great Seal of the Province, grant a Charter of Incorporation to any number of persons not less than five, who shall petition therefor, and constitute such persons and others who may become shareholders in such Company, a body corporate and politic, for any of the following purposes:

1. Carrying on any kind of manufacturing, shipbuilding, mechanical, or chemical business;
2. Mining for Gold, Silver, Copper, or other Metals or Ores; or for Coal, Plumbago or other Minerals;
3. Washing, dressing, smelting and otherwise preparing for market the ores of all kinds of metals;
4. Erection of dams, sluices and other hydraulic apparatus for excavating and washing auriferous earth in the process of gold mining;
5. Opening and working quarries of Marble, Slate or other economic minerals, or mineral substances and the manufacture, exportation and sale thereof;
6. Boring for, opening and using Petroleum, salt or other mineral springs;
7. Erection and maintenance of any building or buildings to be used in whole or part, as a Mechanics' Institute, or Public Reading or Lecture Room, or as a Public Hotel, or as Baths or Bath Houses, or for Agricultural or Horticultural Fairs or Exhibitions, or for Educational, Library, Scientific or Religious purposes;
8. Carrying on of any Fishery or Fisheries in this Province or the waters thereto adjacent, or in the Gulf of St. Lawrence, and the building and equipping of any vessels for such Fishery or Fisheries;
9. Carrying on of any forwarding business, and the construction, owning, chartering, or leasing of ships, steamboats, wharves, roads or other property required for the purpose of such forwarding business;
10. Acquiring or constructing and maintaining any plank, macadamized or gravelled Road, or any Bridge, Pier, Wharf, Dry Dock, or Marine Railway;

And such Charter of incorporation may be granted to any one Company for any two or more of the purposes mentioned in the paragraphs numbered two, three, four and five of this section.

II. The applicants for a Charter under the authority of this Act, must give at least one month's previous notice in the *Canada Gazette* of their intention to apply for such Charter, stating therein :

1. The names in full and places of residence of the applicants, to the number of five at least;
2. The proposed corporate name of the Company;
3. The object or purpose for which Incorporation is sought;
4. The place or places where the operations of the Company are to be carried on;
5. The amount of the nominal capital of the Company;
6. The number of shares and amount of each share;
7. The amount of the stock subscribed;
8. The amount paid in, or to be paid in before the Charter is granted.

III. Before Letters Patent are issued, in which the foregoing particulars shall be recited, the applicants therefor must prove to the satisfaction of the Minister, or officer to whom the duty of reporting thereon may be assigned,—that the proposed corporate name is not that of any other known Company; that one or more of the applicants is a resident of this Province and a British subject by birth or naturalization; that not less than one half of the proposed capital stock has been subscribed in good faith, and that at least ten per cent thereof, or five per cent of the whole capital, when it does not exceed five hundred thousand dollars, has been paid in to the credit of Trustees for the Company and still remains at the credit of the said Trustees in some one or more of the Chartered Banks of this Province, but if the proposed capital of the Company exceeds five hundred thousand dollars, then it shall be sufficient to prove that the sum of twenty-five thousand dollars, has been paid in and remains at the Credit of the Company as aforesaid; Provided always, that whenever the Company proposed to be incorporated, is formed for a purpose for the carrying out of which it is necessary that they should possess real estate, then it shall be sufficient that the applicants prove to the satisfaction of the Minister or officer to whom the duty of reporting thereon is assigned, that the sum required under the foregoing provision, has been invested in such real estate which is held by Trustees for the Company, or that part of such sum has been so invested and the remainder paid into a chartered Bank to the credit of the said Trustees.

IV. Every Company so incorporated by Letters Patent under the Great Seal, for any of the purposes mentioned in this Act, shall be a body corporate by the name contained in the Letters Patent, capable forthwith of exercising all the functions of an incorporated Company as if incorporated by a Special Act of Parliament, and having perpetual succession and a common seal, with power to acquire, hold, alienate and convey any real estate necessary or requisite for the carrying on of its operations; and the said Letters Patent shall be conclusive evidence that all the requisitions of this Act have been complied with; and any copy of such Letters Patent purporting to be certified by the Provincial Secretary and Registrar or his Deputy, under his hand, shall be evidence of the contents of such Letters Patent in all Courts and places in this Province.

V. Every Company incorporated under the authority of this Act, shall be subject to the following general provisions of law, which shall be embodied and set forth in their Letters Patent.

The General Provisions.

1. The affairs of the Company shall be managed by a Board of not less than three, nor more than nine Directors;

2. The persons named as such, in the Letters Patent, shall be the Directors of the Company, until replaced by others duly chosen in their stead;

3. No person shall be elected or chosen as a director thereafter, unless he is a Shareholder, owning Stock absolutely in his own right, and not in arrear in respect of any call thereon:

4. The after Directors of the Company shall be elected by the Shareholders, in general meeting of the Company assembled, at such times, in such wise, and for such term, as the By-laws of the Company may prescribe;

5. In default only of other express provisions in such behalf, by the By-laws of the Company,—

(a) Such election shall take place yearly, all the members of the Board retiring, and (if otherwise qualified) being eligible for re-election;

(b) Notice of the time and place for holding general meetings of the Company shall be given at least ten days previously thereto, in some newspaper published at or as near as may be to the office or chief place of business of the Company;

(c) At all general meetings of the Company, every Shareholder shall be entitled to as many votes as he owns shares in the Company, and may vote by proxy:

(d) Elections of Directors shall be by ballot;

(e) Vacancies occurring in the Board of Directors may be filled for the unexpired remainder of the term, by the Board, from among the qualified Shareholders of the Company.

(f) The Directors shall from time to time elect from among themselves a President of the Company; and shall also name, and may remove at pleasure, all other officers thereof;

6. If at any time an election of Directors be not made or do not take effect at the proper time, the Company shall not be held to be thereby dissolved; but such election may take place at any general meeting of the Company duly called for that purpose;

7. The Directors of the Company shall have full power in all things to administer the affairs of the Company, and may make or cause to be made for the Company any description of contract which the Company may by law enter into; and may from time to time make By-laws not contrary to law, to regulate the allotment of Stock, the making of calls thereon, the payment thereof, the issue and registration of certificates of Stock, the forfeiture of Stock for non-payment, the disposal of forfeited Stock and of the proceeds thereof, the transfer of Stock, the declaration and payment of dividends, the number of the Directors, their term of service, the amount of their Stock qualification, the appointment, functions, duties and removal of all agents, officers and

servants of the Company, the security to be given by them to the Company, their remuneration and that (if any) of the Directors, the time at which and the place or places where the Annual Meetings of the Company shall be held, and where the business of the Company shall be conducted, and if the Company be a Mining Company, one (or more) of such places may be without this Province,—the calling of meetings, regular and special, of the Board of Directors, and of the Company, the quorum, the requirements as to proxies, and the procedure in all things at such meetings, the imposition and recovery of all penalties and forfeitures admitting of regulation by By-law, and the conduct in all other particulars of the affairs of the Company; and may from time to time repeal, amend or re-enact the same; but every such By-law, and every repeal, amendment or re-enactment thereof, unless in the meantime confirmed at a General Meeting of the Company duly called for that purpose, shall only have force until the next Annual Meeting of the Company, and in default of confirmation thereat, shall, from that time only, cease to have force;

8. A copy of any By-law of the Company, under their seal, and purporting to be signed by any Officer of the Company, shall be received as *prima facie* evidence of such By-law in all Courts of Law or Equity in this Province;

9. The stock of the Company shall be deemed personal estate, and shall be transferable, in such manner only, and subject to all such conditions and restrictions as by the *Letters Patent*, or by the By-laws of the Company shall be prescribed;

10. The Directors of the Company may call in and demand from the Shareholders thereof, respectively, all sums of money by them subscribed, at such times and places, and in such payments or instalments, as the By-laws of the Company may require or allow; and interest shall accrue and fall due, at the rate of six per centum per annum, upon the amount of any unpaid call, from the day appointed for payment of such call:

11. Not less than ten per centum upon the allotted Stock of the Company shall, by means of one or more calls, be called in and made payable within one year from the incorporation of the Company; and for every year thereafter, at least a further ten per centum shall in like manner be called in and made payable, until the whole shall have been so called in;

12. The Company may enforce payment of all calls and interest thereon, by action in any competent Court; and in such action it shall not be necessary to set forth the special matter, but it shall be sufficient to declare that the Defendant is a holder of one share or more, stating the number of shares, and is indebted in the sum of money to which the calls in arrear amount, in respect of one call or more upon one share or more, stating the number of calls and the amount on each, whereby an action hath accrued to the Company under this Act; and a certificate under their seal, and purporting to be signed by any Officer of the Company, to the effect that the Defendant is a Shareholder, and that so much is due by him and unpaid thereon, shall be received in all Courts of Law and Equity as *prima facie* evidence to that effect.

13. If, after such demand or notice as by the By-laws of the Company may be prescribed, any call made upon any share or shares be not paid

within such time as by such By-laws may be limited in that behalf, the Directors, in their discretion, by vote to that effect, reciting the facts and duly recorded in their minutes, may summarily forfeit any shares whereon such payment is not made; and the same shall thereupon become the property of the Company, and may be disposed of as by By-law or otherwise they shall ordain;

14. No share shall be transferable, until all previous calls thereon have been fully paid in, or until declared forfeited for non-payment of calls thereon or sold under execution;

15. No Shareholder being in arrear in respect of any call shall be entitled to vote at any meeting of the Company;

16. The Directors of the Company, if they see fit at any time after the whole Capital Stock of the Company shall have been allotted and paid in, but not sooner, may make a By-law for increasing the Capital Stock of the Company to any amount which they may consider requisite in order to the due carrying out of the objects of the Company; but no such By-law shall have any force or effect whatever, until after it shall have been sanctioned by a vote of not less than two-thirds in amount of all the Shareholders, at a general meeting of the Company duly called for the purpose of considering such By-law, nor until a copy thereof duly authenticated shall have been filed as hereinafter mentioned with the Provincial Secretary or such other officer as the Governor in Council may direct;

17. Any By-law for increasing the Capital Stock of the Company, shall declare the number and value of the Shares of the new Stock; and may prescribe the manner in which the same shall be allotted; and in default of its so doing, the control of such allotment shall be held to vest absolutely in the Directors;

18. The Company may, within six months after a duly authenticated copy of such By-law has been filed with the Provincial Secretary, or such other officer as the Governor in Council may have named for the purpose, require and cause a notice under the signature of the Provincial Secretary or other proper officer, to be inserted in the *Canada Gazette*, that such By-law has been passed and filed as aforesaid, and stating the number and amount of the shares of new stock, the amount actually subscribed, and the amount paid in respect thereof, and from the date of such notice the Capital stock of the Company shall be and remain increased, to the amount, in the manner and subject to the conditions, set forth by such By-law, and the new Stock shall become subject to all the provisions of law in like manner, (so far as may be) as though the same had formed part of the Stock of the Company originally subscribed,

19. The Company shall cause a book or books to be kept by the Secretary, or by some other Officer specially charged with that duty, wherein shall be kept recorded—

1. A correct copy of the Letters Patent incorporating the Company, as also, of any and every By-law thereof;

2. The names, alphabetically arranged, of all persons who are or have been Shareholders;

3. The address and calling of every such person, while such shareholder;

4. The number of shares of stock held by each Shareholder;

5. The amounts paid in, and remaining unpaid, respectively, on the stock of each Shareholder;

6. All transfers of stock, in their order as presented to the Company for entry, with the date and other particulars of each transfer, and the date of the entry thereof; and—

7. The names, addresses and calling, of all persons who are or have been Directors of the Company; with the several dates at which each became or ceased to be such Director;

20. The Directors may refuse to allow the entry into any such book, of any transfer of Stock whereof the whole amount has not been paid in; and no transfer made with the view of relieving the transferor from preexisting debts of the Company, shall be valid or prevent any antecedent creditor from exercising his remedy against such transferor in the same way as if he had continued to be a Shareholder in such Company; provided, that nothing in this sub-section shall prevent the effect of chapter seventy of the Consolidated Statutes of Canada, as regards any such stock seized and sold in execution;

21. No transfer of Stock shall be valid for any purpose whatever, save only as exhibiting the rights of the parties thereto towards each other, and as rendering the transferee liable *ad interim* jointly and severally with the transferor, to the Company and their creditors,—until entry thereof has been duly made in such book or books;

22. Such books shall, during reasonable business hours of every day, except Sundays and obligatory holidays (*fetes d'obligation*), be kept open for the inspection of Shareholders and creditors of the Company, and their personal representatives, at the office or chief place of business of the Company; and every such Shareholder, creditor or representative, may make extracts therefrom;

23. Such books shall be *prima facie*, evidence of all facts purporting to be thereby stated in any suit or proceeding against the Company or against any Shareholder;

24. Every Director, officer or servant of the Company, who knowingly makes or assists to make any untrue entry in any such book, or who refuses or neglects to make any proper entry therein, or to exhibit the same, or to allow the same to be inspected and extracts to be taken therefrom, shall be liable to a penalty not exceeding twenty dollars for making each such untrue entry and for each such refusal or neglect, and also for all loss or damage which any party interested may have sustained thereby;

25. The Company shall not be bound to see to the execution of any trust, whether express, implied or constructive, in respect of any shares; and the receipt of the Shareholder in whose name the same may stand in the books of the Company, shall be a valid and binding discharge to the Company for any dividend or money payable in respect of such shares, and whether or not notice of such trust shall have been given to the Company; and the Company shall not be bound to see to the application of the money paid upon such receipt;

26. Every contract, agreement, engagement of bargain made, and every bill of exchange drawn, accepted or endorsed, and every promissory note and cheque made, drawn or endorsed on behalf of the Company, by any agent, officer or servant of the Company, in general accordance with his powers as such under the By-laws of the

Company, shall be binding upon the Company; and in no case shall it be necessary to have the seal of the Company affixed to any such contract, agreement, engagement, bargain, bill of exchange, promissory note or cheque, or to prove that the same was made, drawn, accepted or endorsed, as the case may be, in pursuance of any By-law, or special vote or order; nor shall the party so acting as agent, officer or servant of the Company, be thereby subjected individually to any liability whatsoever to any third party, therefor; provided, always, that nothing in this section shall be construed to authorize the Company to issue any note payable to the bearer thereof, or any promissory note intended to be circulated as money, or as the note of a Bank;

27. Each Shareholder, until the whole amount of his Stock has been paid up, shall be individually liable to the creditors of the Company, to an amount equal to that not paid up thereon; but shall not be liable to an action therefor by any creditor, before an execution against the Company has been returned unsatisfied in whole or in part; and the amount due on such execution shall be the amount recoverable, with costs, against such Shareholders;

28. The Shareholders of the Company shall not as such be held responsible for any act, default or liability whatsoever, of the Company, or for any engagement, claim, payment, loss, injury, transaction, matter or thing whatsoever, relating to or connected with the Company, beyond the amount of their respective shares in the capital stock thereof;

29. No person holding stock in the company as an executor, administrator, tutor, curator, guardian or trustee, shall be personally subject to liability as a Shareholder, but the estates and funds in the hands of such person, shall be liable in like manner, and to the same extent, as the testator or intestate, or the minor, ward or interdicted person, or the person interested in such trust fund, would be, if living and competent to act, and holding such stock in his own name; and no person holding such stock as collateral security, shall be personally subject to such liability, but the person pledging such stock shall be considered as holding the same, and shall be liable as a Shareholder accordingly;

30. Every such executor, administrator, tutor, curator, guardian or trustee, shall represent the stock in his hands, at all meetings of the Company, and may vote accordingly as a Shareholder; and every person who pledges his stock may nevertheless represent the same at all such meetings, and may vote accordingly as a Shareholder;

31. If the Directors of the Company declare and pay any dividend when the Company is insolvent, or any dividend the payment of which renders the Company insolvent, or diminishes the capital stock thereof, they shall be jointly and severally liable, as well to the Company as to the individual Shareholders and creditors thereof, for all the debts of the Company then existing, and for all thereafter contracted during their continuance in office, respectively; but if any Director present when such dividend is declared do forthwith, or if any Director then absent do within twenty-four hours after he shall have become aware thereof and able so to do, enter on the minutes of the Board of Directors his protest against the same, and do within eight days thereafter publish such protest in at least one newspaper published at, or as near as may be possible to, the office or chief place of business of the Company, such

Director may thereby, and not otherwise, exonerate himself from such liability;

32. No loan shall be made by the Company to any Shareholder, and if such be made, all Directors and other officers of the Company making the same, or in any wise assenting thereto, shall be jointly and severally liable to the Company for the amount of such loan,—and also to third parties, to the extent of such loan with legal interest,—for all debts of the Company contracted from the time of the making of such loan to that of the re-payment thereof;

33. Any description of action may be prosecuted and maintained between the Company and any Shareholder thereof; and no Shareholder, not being himself a party to the suit, shall be incompetent as a witness therein;

34. The Charter of the Company shall be forfeited by non-user during three consecutive years, at any one time, or if the Company do not go into actual operation within three years after it is granted; and no declaration of such forfeiture by any Act of the Legislature shall be deemed an infringement of such Charter.

The Governor in Council may, on the petition of the applicants, omit from the Letters Patent clauses eleven, sixteen, seventeen and eighteen, of the next preceeding section, or one or more of them, and the Company shall not then be subject to the said clauses;

The Governor in Council, may from time to time, fix and regulate the fees to be paid by applicants for Letters Patent under this Act, may designate the Department from which they shall be issued, and prescribe the forms of record and proceeding, and all other matters necessary for carrying out the object and purposes of this Act;

Every Company incorporated under the authority of this Act, shall be subject to such further and other provisions as the Legislature may hereafter deem expedient.

