



RETURN

(142)

To AN ORDER of the HOUSE OF COMMONS, dated March 17, 1904, for copies of the Commission appointing Mr. Justice Britten and other Commissioners to inquire into the Treadgold and other Concessions in the Yukon Territory; and of all the evidence, exhibits, papers and documents produced at the investigation held by the said Commissioners, and of any report or reports made by the said Commissioners.

Toronto, July 28, 1904.

To the Honourable

RICHARD W. SCOTT, K.C., LL.D.,
Secretary of State,
Ottawa.

In the matter of the Yukon inquiry, I have the honour to submit my report.

The undersigned Commissioner, and Benjamin Taylor A. Bell, were appointed by letters patent under the Great Seal, dated 30th day of July, 1903, to inquire into and report upon certain matters and things more particularly mentioned and set out in certain Orders in Council, bearing date respectively the 29th day of May, and the 30th day of July, 1903.

These Orders in Council state:

1. That for several years placer gold mining has been successfully carried on in the Yukon Territory, particularly in the district traversed by the Klondike river, and rivers, streams and creeks tributary thereto.
2. That only such claims as enjoyed water facilities have heretofore been profitably worked.
3. That gold is supposed to be distributed in the benches, banks and other elevated grounds along such rivers, streams and creeks.
4. That owing to the expense and difficulty involved in procuring the necessary supply of water, the successful prosecution of the industry throughout these last named localities has been seriously retarded, and in many cases made impossible.
5. That it has been represented to the government, that great expense is required, to be incurred, to collect, store, and distribute the water of the said rivers and streams, so that the same may be utilized in working the said benches, banks, and elevated grounds.
6. That it has also been represented to the government that, the extent and value of the deposits of gold in the said benches, creeks and elevated grounds is at present unknown and must remain so, until a sufficient supply of water is available by the construction of hydraulic works, and that the parties advancing money for the construction of said works, must necessarily take great risks with respect to their investments.
7. That, while it is fitting that such reasonable and proper privileges and advantages should be offered as will induce parties to construct such hydraulic works, yet it is essential—

(a.) That no grants or concessions should be made which will interfere with the right of water, to which, an^y free miner is entitled under the regulations governing placer mining in the Yukon Territory;

(b.) That the water so to be held, and controlled by the hydraulic companies should be available on equal terms to all free miners whose claims can be profitably worked thereby and subject to such reasonable rates and conditions to be fixed by the Governor in Council, as shall secure the greatest possible benefit to the district in which the works are established.

8. That to obtain such hydraulic works and a supply of water for the benches, banks and elevated grounds above mentioned, certain powers, rights and privileges were granted by the Governor in Council on the 21st April, 1902, to Malcolm H. Orr Ewing, A. N. C. Treadgold and Walter Barwick;

9. That it has been alleged that the said grant and concession constitute a monopoly which, while depriving the treasury of enormous revenues, is most detrimental to the mining industry of the Yukon.

10. That it has been alleged that the hydraulic claims, granted in pursuance of the regulations for the granting of hydraulic claims in the Yukon Territory, have been procured by fraud and misrepresentation, and that the material conditions of the leases, have not been observed, thereby rendering the same liable to cancellation.

11. That it is important in the public interest, that inquiry be made for the purpose of obtaining information, showing to what extent the said grant and concession to Malcolm H. Orr Ewing, A. N. C. Treadgold and Walter Barwick, is likely to be beneficial, or injurious to the mining interests of the said Yukon Territory.

12. That the Commissioners should have full power and authority to inquire into the allegations, that these hydraulic claims, granted in pursuance of the regulations in the Yukon Territory were procured by fraud and misrepresentation and that the material conditions of the leases have not been observed, and to report their conclusions from the result of such inquiry.

His Excellency, as stated in the Commission, thought it desirable that the Commissioners making the inquiry should investigate generally, all facts and circumstances which might afford information to the government and to the parliament of Canada respecting the hydraulic or other means, which it is desirable should be adopted to successfully develop benches, banks and other elevated grounds, which can only be worked at great disadvantage under natural conditions, or are not able to be profitably worked at all, without an artificial supply of water.

NARRATIVE.

The Commissioners proceeded to the Yukon Territory and there made such inquiry as they could, and with such result as will appear in this report.

While in the Yukon Territory it was thought by the Commissioners that it might be of advantage, especially upon the general question of water supply, to have the evidence of competent engineers or others, not resident in that territory.

A doubt was entertained as to the power of the Commissioners to take evidence elsewhere than in the Yukon Territory, and on the 30th day of January, 1904, an Order in Council was passed authorizing the Commissioners or either of them to continue the inquiry at Ottawa or elsewhere in Canada.

On the 18th February, 1904, Mr. Bell, by an accidental fall, received injuries which proved fatal. He died at Ottawa on 1st March following. His death was reported by me, and the 18th day of April, 1904, a commission under the Great Seal, issued authorizing me as sole commissioner, to continue and complete the said inquiry, directing me to report to the Honourable the Secretary of State, the result of the investigation, together with the evidence taken before me and any opinion I might see fit to express thereon.

TREADGOLD CONCESSIONS

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The joint secretaries of the Commission were H. H. Rowatt, 1st class clerk in the Department of the Interior, and G. A. Lacombe, M.L.A., St. Mary's Division, Montreal.

John Agnew, of the city of Toronto, court stenographer and reporter, was appointed as our stenographer for this work.

We left Ottawa for Dawson on the 31st day of July, 1908, and arrived at Dawson on the 18th day of August.

Prior to our arrival at Dawson, the following notice had been inserted and appeared for several successive days in the *Yukon Sun*, a daily paper published at Dawson:—

PUBLIC NOTICE.

Notice is hereby given that the Honourable Mr. Justice Britton and Mr. B. T. A. Bell, commissioners appointed to hold an investigation in regard to certain concessions granted to various persons within the Yukon Territory, will begin such investigations at Dawson on or about the 14th day of August instant. More specific notice of the exact time and place of the sittings of the Commissioners will be given later.

All persons desiring to appear before the Commissioners and present any facts for their consideration, are requested to govern themselves accordingly.

Dated at Dawson this first day of August, A.D., 1908.

By order of the Commissioner of the Yukon Territory.

(Sgd.) C. B. BURNS,
Secretary.

The Commissioners carefully considered and determined what the full scope of the inquiry under the Commission would be, and embodied the result in a notice which was inserted in each of the three daily papers, published at Dawson, viz., the *Yukon Sun*, *The Record* and the *Evening News*.

The notice was as follows:—

Public notice is hereby given that the Honourable Byron Moffatt Britton and Benjamin Taylor A. Bell, Commissioners appointed under the Great Seal of Canada, are now in Dawson ready to proceed with the inquiry thereunder.

The matters to be inquired into are:—

(1) To what extent is the concession to Malcolm H. Orr Ewing, A. N. C. Treadgold and Walter Barwick, commonly called the "Treadgold Concession," likely to be beneficial or injurious to the mining interests of the Yukon Territory?

(2) Are the hydraulic concessions, granted under the regulations in that behalf, in the Yukon Territory likely to be beneficial or injurious to the mining interests in the Yukon Territory.

(3) Were any of the hydraulic concessions, granted under the regulations in that behalf in the Yukon Territory, obtained by fraud or misrepresentation on behalf of the applicant.

(4) Have any of the holders of these hydraulic concessions, granted under the regulations in that behalf, failed to comply with the requirements of the leases of such concessions?

(5) What hydraulic or other means is it desirable to adopt to successfully develop benches, banks and other elevated grounds, which can only be worked under great disadvantage, under natural conditions, or are not able to be properly worked at all without an artificial supply of water.

All persons having complaints to make within the scope of the Commission, or having information in their possession, material to be known, and which will assist the Commissioners in their investigation, are requested to furnish particulars, in writing, to the undersigned as soon as possible, to enable the Commissioners to arrange time and place, and whatever may be necessary for the production of evidence.

3-4 EDWARD VII., A. 1904

'Take notice that the inquiry will be public, and the first meeting of the Commissioners will be held in the south room of the Court House, Dawson, on Monday, the 17th day of August, 1903, at 10 o'clock a.m.

'H. H. ROWATT,

'G. A. LACOMBE.

'Secretaries to Commission.

'Dated at Dawson this 14th day of August, 1903.

Pursuant to notice, the first public meeting was held at the Court House, Dawson, when the Commission, the Orders in Council and the notices were publicly read, and the oath was, by Judge Dugas, administered to John Agnew as stenographer and reporter.

It was represented that the board of trade at Dawson had retained Messrs. Woodworth and Walsh, barristers of that city, as counsel, and these gentlemen stated that they would be prepared to introduce evidence upon some, if not all, of the matters mentioned. Many others present appeared, respectively, for and against certain concessions. After an open conversation with counsel and others, and after hearing all that any person present had to say as to the matters to be investigated, and as to the procedure, the Commissioners decided to limit the time within which any person could enter a specific complaint against any lease-holder on the ground of such lease having been obtained by fraud or misrepresentation, or on the ground that such lease-holder had failed to comply with the requirements or conditions of his lease. Monday, the 24th August, was named. This was publicly announced on Tuesday, the 18th August, and the following notice was published:—

'PUBLIC NOTICE.

'Public notice is hereby given that any person, or persons, who has or have any complaint or objection, that any of the hydraulic concessions, granted under the regulations in that behalf, in the Yukon Territory, was or were obtained by fraud or misrepresentation, or that any of the holders of such concessions has or have failed to comply with the requirements of the leases of such concessions, must give notice of such complaint or objection to the undersigned, or formally state the same to the Commissioners in open session on or before the 24th day of August instant.

'The notice must name the concession and give particulars of the complaint.

'This notice does not stay proceedings as to cases already before the Commissioners or that may prior to the 24th instant be brought before them, but the 24th instant is the limit within which complaint must be made.

'Any required information as to procedure may be obtained from the undersigned.

'The Commission will continue to meet in the south room of the Court House, Dawson, each day during the present week at 10 a.m., when evidence may be given upon matters which are within the scope of the inquiry.

'H. H. ROWATT,

'G. A. LACOMBE,

'Secretaries to Commission.

'Dated at Dawson this 18th day of August, 1903.'

Public meetings for the taking of evidence and for the work of the Commission were held at Dawson, August 17th, 18th, 19th, 20th, 21st, 22nd, 24th, 25th, 26th, 27th, 28th, 29th and 31st, and September 1st, 2nd, 7th and 8th; at Grand Forks, on 3rd September; and at Gold Bottom on 5th September.

On some of these days we had three sessions, holding an evening, as well as morning and afternoon session.

There were examined 154 witnesses, many of whom were from time to time recalled upon different matters.

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Two hundred and sixty-seven exhibits were filed. Many original documents were produced in evidence, and in all cases where these originals were not left, copies of same were filed and will accompany this report.

Formal protests were submitted against the Treadgold Order in Council by:

The Dawson Board of Trade, Messrs. W. A. Walsh and C. M. Woodworth, acting as their counsel; Dr. Catto, Charles Blunden and Graham Campbell.

These will be found with the papers returned.

Since my appointment as sole Commissioner, I have not had witnesses called to give expert testimony upon the question of water supply in the Yukon Territory.

This would have involved a considerable further delay, and a large amount of additional expense, upon problems that cannot be satisfactorily solved—in that way, but which must be dealt with by engineers having knowledge of the territory, of its rivers and creeks, its topography, its climatic and other conditions. Having completed what was begun at Dawson, and obtained statements promised by witnesses called and sworn at Dawson, I thought it unnecessary to do more, and decided to close the Commission with the evidence already in, except with regard to the evidence of the ex-assistant Gold Commissioner, which will be mentioned later.

Before dealing with the subject matter of the Commission and the evidence, I desire to make a remark or two by way of explanation as to procedure. There was unquestionably a very strong feeling at Dawson and up the creeks, of opposition to not only the Treadgold, but to all concessions. The opposition was so pronounced and demonstrative as to render a calm and impartial inquiry or discussion of the subject somewhat difficult. The witnesses heard by the Commission were in the main those who voluntarily appeared or who were summoned at the request of the Dawson Board of Trade.

The government did not employ counsel.

The legal adviser of the Yukon administration took no part in the investigation.

The counsel who did appear were able men. They represented, on the one side, an agitated and excited people who had formed opinions hostile to the concessions long before the Commission issued; and on the other side the concessionaries, who were very thoroughly disliked by their opponents.

Then, the season was very dry, and there was comparatively little work at mining by individual miners, and a great many hostile miners thronged the court room and corridors during the sittings. It required considerable moral courage for any miner voluntarily to give evidence against the expressed opinion of the hostile majority in the court room.

The result of this state of things was, that when Mr. Bell or myself suggested, or ruled that a statement was improper or irrelevant or immaterial, or when a question was asked by either that appeared to be like cross-examination, it was treated by some of those present as an unfair interference on the part of the Commissioners.

Absence of counsel having general direction of the inquiry also, in part, explains why the evidence in reference to any one matter is not consecutive and continued to its conclusion. We were obliged to take evidence as we could get it or the work would have been much prolonged, and so it appears in some cases in instalments. Particular portions of evidence given by certain witnesses and discussions at the sittings can hardly be understood without knowing all that was said at different times, by, and to these persons.

WATER.

It is made abundantly clear by the evidence:

1. That in the Yukon Territory only such claims as enjoyed water facilities have heretofore been properly worked.
2. That wherever else gold may be found in that Territory, it is there actually distributed in the banks, benches and elevated grounds.

3. That owing to the difficulty in procuring the necessary supply of water, successful mining has been 'seriously retarded and in many cases made impossible.'

4. That great expense will require to be incurred to collect, store and distribute water so that it may be used for benches, banks and elevated grounds, and

5. That the extent and value of the deposits of gold in these benches, banks and elevated grounds must remain unknown until water is made available by the construction of hydraulic works, and that parties making advances for the construction of such works must necessarily take great risks with respect to their investments.

A plentiful supply of water, distributed for use in washing gold from gravel and dirt, on such terms as miners, whether working individually or in or for companies, is the great need of the Yukon Territory. It was emphatically declared by witnesses, and conceded by counsel in argument against the concessions, that what is urgently needed is such a supply of water and so distributed that it will reach, not only the scantily supplied creeks, but also the benches and hill sides.

For the purpose of dispensing with further evidence upon a matter so clear, it was, with the approval of all present, formally noted at one of the meetings, that it could be considered as established, that there is a very large amount of gold in the district comprising the beds, banks, valleys, slopes and hills of the Klondike river, of Bonanza, Bear and Hunker creeks and their tributaries, and in other places in the vicinity of Dawson, and of the places particularly named, and that there is a great scarcity of water available for mining purposes in the district and places named.

In many places in the district the rich pay streaks have been worked out, that is, they have been worked as far as they can be worked to profit by former methods. Now if water can be supplied in sufficient quantity, and at low enough price, it will pay to work them over again, just as it will pay under similar conditions as to water to work gravel, which was at first regarded as containing no pay, or too low grade to work profitably. The future of the Klondike section of the Yukon Territory depends not so much upon rich finds by a few, as working large quantities of gravel by individuals, and by companies, big and small, in all the methods of sluicing, and what is generally called hydraulicking. The need for water is emphasized by many witnesses. I must not lengthen the report by quoting, except from Geo. White-Fraser, one of the chief witnesses against concessions. He said (page 39): 'I think every successive witness will show, if I have not, that there is not sufficient water to successfully and profitably work these benches, lying in some cases 300 feet high.' Again (page 82), in speaking of getting gold on the Bonanza, Bear and Hunker creeks, he said: 'Water is an absolute necessity in this country. It will close the country up, if they cannot get water.'

To remedy such a state of things as White-Fraser, and others describe, there was an inviting field for a man of enterprise, who had a knowledge of the country and could command capital. Mr. Treadgold stated that he had made a study of the country's needs. He was apparently a man of means, and he was the owner of mining claims in the district in need of water. So far as I remember the evidence, there is not a word criticising the mode of Mr. Treadgold in procuring claims, or against his reputation or character apart from the concession in question. Mr. Treadgold disclaimed philanthropic motives, and asserted that his project was good business for the miners and the country, as well as for the grantees. He and his colleagues had obtained in their favour a former Order in Council which for some reason was cancelled. The only Order in Council for my consideration is the one dated 21st April, 1902, and which is as follows:—

EXTRACT from a Report of the Committee of the Honourable the Privy Council, approved by His Excellency on the 21st April, 1902.

On a memorandum dated 17th April, 1902, from the Minister of the Interior recommending, in virtue of clause 47 of the Dominion Lands Act as enacted by section 5, chapter 15, of the Act 55-56 Victoria, and of section 8 of the Yukon Territory Act

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as that section was enacted by section 2 of chapter 11 of 62-63 Victoria, that Messrs. Malcolm H. Orr Ewing, of Malvern, England; A. N. C. Treadgold, of London, England, and Walter Barwick, of Toronto, Ontario, be granted the following rights, powers and privileges:—

1. The sole right to divert and take water from the Klondike river at any point or points between its entry into the Yukon river and Flat creek, for the purpose of generating power with which to pump water to work the auriferous deposits in the district (hereinafter termed 'the district') comprising the beds, banks, valleys, slopes and hills of the Klondike river, of Bonanza, Bear and Hunker creeks and of their tributaries.

Provided that if the right given by this section is not exercised within six years from the date hereof it may be revoked by order of the Governor General in Council.

Provided that if any power is developed and rendered available by the grantees under this section, which they do not make use of, then the same shall be offered for sale to the public, and the rates to be charged therefor shall be subject to the control of the Governor General in Council.

Provided that licensed holders of mining locations situated on the Klondike river shall be entitled as against the grantees to the use of a flow of water sufficient for working their claims, but not exceeding in all three thousand five hundred (3,500) miner's inches, equal to five thousand two hundred and fifty (5,250) cubic feet per minute.

Provided further that in the event of the grantees interfering with the flow of the Klondike river by the erection of dams or other obstructions or by diversion of its water to such an extent as to prevent the passage of saw-logs or other timber down the stream, then the grantees shall, for holders of timber berths under license from the Dominion government, provide slides and facilities free of charge for the transmission of such logs and timber over such dams and obstructions and over the portion of the river affected by such diversion of water.

2. The prior right to divert and take water from the Klondike river for distribution and use in the district up to five thousand miner's inches.

3. The right to divert and use the water of Rock creek, subject to any grants lawfully subsisting and subject to the right of free miners' bona fide working claims on Rock creek to the use of the water which they are entitled to under the Regulations now in force respecting the diversion of water in the Yukon Territory.

4. The right at any point or points in the bed, banks, valleys, slopes and hills of the Klondike river, between its mouth and Flat creek, and of any creeks and tributaries within the district to construct and maintain dams, cribs, intakes, flumes, and any other works necessary for the generation of power as well as for the diversion, distribution and use of water and the right of entry upon and way through any lands and any mining ground, for the purpose of such construction and maintenance.

Provided, that the grantees shall place in a separate dump, for the use of the owners of any mining ground entered upon by them, in the exercise of this right, all gravel which they may be obliged to move in such mining ground, in consequence of the exercise of such right.

5. The right to purchase any Crown Lands required by the grantees for the purposes of their works at a price not exceeding ten dollars per acre, saving and reserving all the timber, mines and minerals upon or under such lands.

6. The right at any point or points in the district to build, maintain and operate pumping stations, electrical works and reservoirs.

7. The right of entry upon and way through any lands and any mining ground for the purpose of constructing, laying and maintaining dams, reservoirs, flumes, ditches and pipe lines, for conveying the grantees' water supply to any point within the district.

Provided, that the grantees shall place in a separate dump for the use of the owners of any mining ground entered up by them in the exercise of this right all gravel which they may be obliged to move in such mining ground, in consequence of the exercise of such right.

8. The right of entry upon and way through any lands and any mining ground within the district and within the Indian river district for the purpose of constructing and maintaining overhead or underground wires and any other structures for the transmission of electricity, for any purpose whatever, throughout the said districts and the right to levy and collect such tolls as may be approved by the Governor-General in Council, for the use of electricity in the said districts.

Provided, that the grantees shall place in a separate dump for the use of the owners of any mining ground entered upon by them in the exercise of this right, all gravel which they may be obliged to move in such mining ground in consequence of the exercise of such right.

9. The right, subject to the regulations hereinafter contained to use, distribute and dispose of, by sale or otherwise the water delivered by the grantees within the district. No water so delivered shall at any time be deemed to be part of the water naturally flowing in any creek or tributary within the district, but shall be and remain at all times and places the property of the grantees.

10. The right, subject to no payment, except the royalty prescribed upon output, to make entry for and work any abandoned mining claim or claims on Bonanza, Bear and Hunker creeks, such right to be exercisable only when the grantees, by the construction of works in pursuance of this franchise are in a position to deliver water upon such claim or claims for the working thereof.

11. The prior right, if mineral bearing lodes or deposits of any kind whatever be discovered, through the operations of the grantees, upon lands or locations owned or leased by the grantees within the district, to enter upon, and purchase locations embracing the discoveries in the manner prescribed by the regulations governing mining in the Yukon Territory.

12. The right to take from Crown Lands, to be designated by the department, subject to the payment of Crown Timber dues, all timber and materials, needed for the construction, maintenance and operation of the grantees' works.

13. The right, subject to the regulations hereinafter contained, to construct, lay, maintain, supply with water and operate bed rock flumes, and any other flumes for supplying water in the district.

14. The grantees shall not be required to pay to the Crown, or to the district or local authorities, any rental, occupation rents, assessments or other dues in respect of any lands except timber lands, or in respect of any flumes, drains, properties or profits other than import Customs duties, school taxes, and a royalty on the gold mined in the mines owned by them or any tax or assessment which may be substituted for such royalty.

Provided, that no other or higher royalty, or any tax or assessment which may be substituted for such royalty, shall be imposed on any gold or silver mined from quartz by the grantees, than that prescribed by the present regulations, nor shall it, at any particular time be greater than the lowest royalty imposed on the output of gold and silver from the quartz mines of other mine owners in the Yukon district.

Provided also, that no other or higher royalty or any tax or assessment which may be substituted for such royalty, shall be imposed on any gold and silver mined from placer mines by the grantees than that prescribed by the present regulations, nor shall it, at any particular time, be greater than the lowest royalty imposed on the output of gold and silver from the placer mines of other mine owners in the Yukon district.

The properties of the grantees shall be exempt from representation.

The rights conferred upon the grantees shall extend for the period of thirty years, at the expiration of which period, all exclusive and prior rights granted to them shall cease and be determined, but the works and structures built by the grantees together with the lands, rights and easements, which they shall have purchased or acquired shall remain the grantees' private property.

The grantees shall have the right to assign any of the rights conferred upon them to any company or companies, or to any persons associated together for the purpose of carrying into effect the objects of the grant or any part of them.

REGULATIONS.

(a) The grantees shall allow all free miners within the district to tail their sluices, hydraulics, ground sluices and drains free of charge into the flumes and drains of the grantees, yet not in such a way as to damage or obstruct the free working of the flumes and drains of the grantees by rocks, stones, boulders or otherwise.

(b) The grantees shall compensate the owner of any mining claim or lands for any damage which any such owner may sustain by reason of any of the grantees' works breaking or being imperfect.

(c) Any question of compensation arising under this grant shall be determined judicially by the Gold Commissioner, subject to appeal to the Territorial Court of the district, and the said court may, upon special circumstances being shown, make an order for the taking of further evidence.

(d) The grantees shall yield to the owners of claims entered upon by them for the purpose of carrying out any of the works contemplated by this grant, any gold which they may obtain in respect to any gravel which may be moved by them in such claims in consequence of the construction of such works.

The Committee submit the same for His Excellency's approval.

JOHN J. MCGEE,

Clerk of the Privy Council.

Apart from its objectionable features, this concession, in so far as it enables the grantees to supply, and the miners to obtain, on such terms as they can afford to pay, the much needed water to each location within the area covered by the concessions, it would, unquestionably, be a great boon.

OBJECTIONS.

1. The concession was objected to, most strenuously, by the great majority of persons who appeared before us. It will be seen, by a perusal of the evidence, that many of the objections are not based upon what is found in the Order in Council.

The Order is so framed, as to be rather difficult of ready interpretation, and perhaps that, in part at least, will explain the reason why many who gave evidence thought, and possibly still think, the grant much greater than the grantees claim, or if claimed, much greater than they could get.

Objections, and by the great majority, were however, made to the terms of the Order in Council as they really are. All the objections, by whomsoever made, and however varied in form of protest or statement, are included in these I will mention:

1. It is objected 'that the concessionaires get a monopoly of the water of the Klondike river.'

The right to divert and take water from this river is given by sections 1 and 2 of the Order.

Section 1 does give to the grantees the sole right, subject to what I will mention, to divert and take water for a particular purpose, viz.: for generating power to pump water to work auriferous deposits in the district.

For any other purpose any one having occasion to use this water is in no way prevented by any thing in section 1 of the Order in Council.

The right to take water for generating power, is subject to the proviso that power developed and made available, and not used by grantees, must be sold if miners or others desire to buy, and the price to be charged shall be subject to the control of the Governor in Council. The monopoly or sole right to water is only for power to pump water to work deposits of gold, and if the grantees do develop power which they do not use for that purpose, they must sell that power to the public, if the public will buy, and at a price to be fixed by the Governor in Council.

This right is subject to the further proviso, that holders of mining locations situate on the Klondike river shall be entitled, as against the grantees, to the use of a flow of water sufficient for working their claims, but not exceeding 3,500 miner's inches, equal to 5,250 cubic feet, per minute.

According to the evidence this quantity of water would appear to be amply sufficient to more than satisfy the holder of every mining location on the Klondike, even if every one that is now only a prospect, and thus far showing no profitable results, should become a 'paying proposition.'

The evidence establishes that there will always be in the Klondike much more than enough water for the purpose of this concession without reducing the quantity to anything like 3,500 miner's inches.

The proviso protecting owners of logs and timber was not objected to as insufficient, by any of the witnesses.

Section 2 gives the prior right to divert and take water from the Klondike for distribution and use in the district up to 5,000 miners' inches, or up to 7,500 cubic feet per minute.

The grantees may have the right to take for that purpose more, if there shall be an ample supply, but subject to other people acquiring similar rights, and it is only when the quantity shall be so reduced that the supply could not equal the demand that the matter would seem to be of importance. In the event of the demand for water being greater than the supply, the grantees would get, as against others who may wish to divert and take water from the Klondike river for distribution and use in the district, a prior right to the 5,000 miners' inches.

So far as appeared no danger is to be apprehended from a scarcity of water in the Klondike. Last season was exceedingly dry in the Yukon Territory, and yet, in August, in the dry time of a dry season, there were, according to Mr. White-Fraser, 70,000 miners' inches flowing in that river.

No person put the minimum quantity of water in that river at less than 50,000 miners' inches, and the average is considerably above the 70,000. With that quantity of water it is not easy to see how there can be any 'monopoly' by reason of any right to water under section 2.

It did appear, although I do not remember that evidence was particularly directed to this point, that owing to there being practically no mining on the Klondike, there could be no object in diverting the water from that river for use in its own valleys in the immediate vicinity. The only way to divert and take water from the Klondike, even for use in other parts of the 'district,' is by pumping. If the only practicable way of pumping there is by power generated by water from the river, then there is an argument based on the strict letter of the two sections taken together that they give more than was intended.

The sole right to divert water for generation of power is given to the grantees by section one, so that upon a strict reading of sections 1 and 2, unless power for pumping can be generated or procured without diverting the water, there is a conflict between these sections and the intended limitations of the grantees to 5,000 miners' inches would not be effective. It was evidently intended that, of the 5,000 inches to which grantees get the prior right, others interested should be entitled to a right to divert and take water in a way, and for some useful purpose, and what was intended should be clearly expressed.

It seems to me clear that the interpretation must be that the sole right is only for generation of power to pump for distribution, &c., that is to say, to generate power to pump, in accordance with some large scheme of water supply for the district.

There is no monopoly of water for ordinary mining purposes.

There is no interference with the rights of miners or claims, except when prior right to 5,000 miners' inches would create a difficulty.

It would be against the letter of this order, reading section 1 by itself, if a mine owner with a portable engine and boiler took a pail of water from the Klondike to

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make steam to pump with his engine for his own claim, if he had one, in the valley of the Klondike. If the grantees set up such a contention in the face of section two, giving them the prior right to only 5,000 inches, and when there were 50,000 inches, or 200,000 inches, as is often the case, in the Klondike, it would not stand a moment. It has only to be stated to show that such cannot be the meaning of the order.

TIME.

2. It is also objected : 'The term of six years within which the grantees may exercise their rights is regarded as too long.'—

The proposed work is one of great magnitude and will require a large amount of money and great engineering skill. It cannot be entered upon hastily.

Six years would not be too long, within which to require the complete installation of the plant and completion of the system, so that grantees could deliver water; but in view of possible failure to finance the undertaking, a period of six years, according to the best opinion of those who gave evidence, is too long to keep the matter open without beginning the work. The right should be exercised and the work commenced and an expenditure made of at least \$200,000 within two years. That ought to be ample time to complete the surveys and arrange for the work being done, or to see that the undertaking is not feasible. While the grantees have the right, no other capitalist or promoter will interest himself in the matter of a water supply.

ROCK CREEK.

3. It is also objected that : 'The rights of grantees to water of Rock creek is a monopoly and injurious to the mining industry.'

I am of opinion that the objection is not supported either by the evidence or by a fair construction of section three of the Order in Council.

Rock creek empties into the Klondike on its right limit, about 12 miles from Dawson.

Its water is valuable as an additional supply for the district, and the grantees get the right to divert and use it, but not an exclusive right, and it is subject to subsisting grants, and subject to the right of free miners, *bona fide* working claims on Rock creek, to the use of water to which they are entitled under the regulations in the Yukon Territory. As a matter of fact there are not many claims, if any, being worked on that creek, but many or few, free miners are protected and only subject to their rights and to all existing rights of others, and subject to what may hereafter be given to others in accordance with the regulations, the grantees may divert and use the water.

It was argued that the right of grantees to divert and use the water at Rock Creek was subject only to free miners, *bona fide* working claims, existing at the date of the Order in Council. That is not in my opinion the correct interpretation of clause three.

The right of the grantees to this water is subject to the right to the use of water by free miners, such as they are entitled to under the then existing regulations for *bona fide* working claims on Rock creek whether they had claims on the day of the Order in Council or acquired them since or may hereafter acquire them.

INTERFERENCE WITH MINERS.

4. It is also objected that : 'Section 4 gives to grantees the right to erect dams, &c., in any creek in the district.'

As this protects the gravel, and obliges grantees to put all they remove into a separate dump for the owners, it cannot, in that respect, be of any injury to the miner. No right is given to interfere with any building or machinery or structure of any free

miner, and every person owning or working a location is protected in his water rights as to any claim to which these rights attach.

This objection was not emphasized to any great extent by the witnesses. If this plan or any such plan should be carried out, some inconvenience must necessarily be experienced by a few, for the good of many. In the majority of cases, the removal of the gravel and placing it in a separate dump for the owner would be a positive benefit in the saving of money to him.

5. Objection was also made to the right of entry upon, and way through, lands and mining ground for the purpose of constructing overhead and underground wires, and other structures for transmission of electricity.

This was not at all seriously pressed; it was mentioned by counsel in argument, but such right of entry was by most conceded to be something necessary and beneficial in the development of the territory.

SALE OF WATER.

6. It was also objected that: 'Grantees are not obliged to sell water.'

This objection is pressed in a two-fold way:

(a) It is said that, as the grantees have been granted the right to sell, there is impliedly an exclusive right to sell, so that, if they refuse, and others hereafter attempt to supply and sell water, or attempt to get the right to do it, this concession would be claimed as a vested right, and used to the prejudice of the miners in their attempt to get water. There is, in my opinion, nothing whatever in this branch of the objection.

(b) It was contended that the grantees being miners already owning mining claims, and with the right to acquire other claims, may not desire to sell, because they require for their own use all the water they can supply, or, because they may desire to obtain a particular claim or claims and so prevent mining by others. Such being the case, they will simply refuse to sell, and so force an abandonment of the claim by the owner.

Having given the best consideration in my power to the evidence, and to all that has been said in argument, I can find nothing that would warrant even the suspicion, that these grantees do not intend in good faith to sell water. Their expected profits would be from such sale, and the price to be paid must depend upon the cost of construction and operating. In the interest of the grantees themselves, they must, if they desire customers for all the water they can furnish, make the price as reasonable as possible, consistent with making a profit. And yet I think as a matter of business, and to give the miners a feeling of security against any contingency, there should be a clause compelling grantees to sell water, and the rates to be charged therefor should be under some control outside of the grantees. The development of the country is dependent upon the miners feeling secure in working their claims. I would suggest that rates be determined by a board of three within the district, one to be selected by the grantees, one by the free miners of the district, chosen at a public meeting in the district, to be called by the Gold Commissioner of the territory after one week's notice of meeting, duly published as may be directed, and the third by the senior judge of the Yukon Territory, or by the chief justice of British Columbia. Some such tribunal which would be satisfactory could easily be constituted.

A water company would naturally sell. To create such a company is the manifest object and design of these grantees, in order that they may get the benefit of this franchise or concession. It is almost inconceivable, in considering this in a practical way, that the grantees or company to be formed should seek to erect and maintain a collecting and distributing water system and use all the water in the more or less precarious business of mining, and neglect the more sure profit likely to result from selling. The project is to collect sufficient water to supply the miners in the district. If enough water can be collected for this district, and it is assumed there can be, it is surely an imaginary danger that the water will not be sold, if buyers are ready.

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It was argued that the grantees might refuse to sell water to a particular mining claim in order to compel its abandonment, and then obtain it as an abandoned claim.

That is an argument of weight. Such a miner ought to be protected; although even in that case he will be no worse off than at present. He should be better off, and it should not be in the power of the grantees to discriminate against any miner wanting water and willing to pay. It appears to me that the concession is upon the express condition that the water, if diverted and used in the way mentioned, is diverted for distribution to those, for the time-being, working mining claims. It is for the development of the country and in the interest of all that grantees should sell. The grantees, as owners of claims, will benefit by sale of water to others, just as others will benefit by the working of the grantees' own claim. Apart from what would be inferred from reading this Order in Council, Mr. Treadgold said it was the intention of the grantees to sell water, so there can be no objection to amending the Order and having it stated therein that grantees must sell.

ABANDONED CLAIMS.

7. It was objected, 'that the grantees should not have the right to make entry for any abandoned claims.' The grantees are different from the ordinary free miner in reference to these claims, in two respects: One, no payment of entry fee of \$10, and no payment of renewal fee of \$10. Two, the ordinary free miner can only make entry for one claim on each separate river, creek or gulch. It was made perfectly clear that an abandoned claim is not necessarily a worthless claim. In some cases an abandoned claim has proved very rich. Some claims are abandoned because when prospected no gold in paying quantities was found, and none will ever be found upon them; some because of the discouragement of the holder after a very little prospecting; some from neglect and other causes. When there is an abandoned claim any free miner who has not already obtained entry for a claim on that river, creek or gulch, may make an entry for it. The grantees represent a large number of miners and a large amount of capital, and it is not unreasonable if the grantees do, by the construction of work in pursuance of this franchise, put themselves in a position to deliver water on such claims for the working of them that they should be at liberty to make entry for them, and it is not unreasonable that they should be at liberty to hold as many as they can get. They can be of value only if worked, and if gold is found. The increased production of gold by the successful working of these claims must be beneficial to the Yukon Territory. The grantees can make entry only when in a position to deliver water. Any free miner in the locality, and every person who desires to become such, who does not hold a claim, may be on the alert; he may know the progress of the grantees' construction work, and if such a person desires to forestall the grantees in making entry for an abandoned claim, he can do so.

8. Objection was made to the grantees' 'freedom from representation.'

Representation means that there should be work to at least \$200 in value done upon each claim during the year. There is no advantage to the grantees to hold unproductive property; to make it productive the work must be done and that work is representation. As to some claims of no value for gold, but valuable to hold for dumping ground, and as to some held for the future upon chance, it is, of course, to that extent, a bonus to the grantees in connection with the undertaking.

There is beyond doubt a vast quantity of gold in the Yukon; the production year by year indicates that. According to the evidence of E. C. Senkler, Gold Commissioner, the output of gold from 1898 to 1903, inclusive, was \$97,000,000. I send the statement of Mr. Senkler as appendix 'A' to this report. Mr. R. G. McConnell was sworn as a witness, and subsequently handed in answers to questions which were put to him; these answers are returned as appendix 'B.' Mr. A. J. Beaudette also was called as a witness, and he has handed in answers to questions which will be found as appendix 'C.'

Mr. Treadgold gave his evidence at considerable length. He was cross-examined sharply, but there was nothing from first to last to indicate that he considered that he had obtained anything more than a good business venture. He realized that the undertaking would involve risk and would require tempting possible profits, to get the money to carry it on.

Mr. Treadgold put in, as part of his evidence, a statement of the plan and estimated cost of his proposed work. This will be found as exhibit No. 13.

Mr. Joseph McGillivray has handed in a statement prepared for the Commission, giving his opinion as to the origin of the gold-bearing gravels in the Yukon. We are not so much interested in the inquiry as to the origin of the gold as we are about its remaining there waiting for present-day men, and their successors, to get it out. With great respect to Mr. McGillivray, I can only say that in my opinion his statement, interesting from a scientific point of view, is not evidence upon this inquiry.

Mr. J. I. Timmans asked leave to hand in a statement in regard to water supply, which, without comment, I have placed with the papers to be returned. It may possibly be useful for reference on the general question, when that comes to be considered.

Upon argument, considerable was said as to the contention by Mr. J. Langlois Bell, against Mr. Treadgold, and so far as it was material at all, the date of payment by Mr. Treadgold of \$7,600 to suspense account was important.

Mr. Bell was of opinion that the money was paid on behalf of Mr. Treadgold in the early part of 1901, probably in May of that year, and that when he received that money he had not received a copy of the Order in Council of 12th June, 1901. The statutory declaration of William White has been produced, in which he states that the money was paid by him to Mr. Langlois Bell, on 28th July, 1901, and put to credit of suspense account by direction of J. H. Ross, Commissioner of the Yukon Territory.

EVIDENCE.

A good deal of the evidence was of a general and superficial character. It did not amount to proof of specific material allegations, much less to proof one way or the other in reference to this concession.

To illustrate this: Sigmund Rothschild, president of the Detroit Yukon Mining Company, a witness considered by all as important, representing capital, and who is one of the owners of the Williams concession, where some work was being done, was called to prove the injurious effects of the Treadgold concession, and that it was injurious to him as Treadgold had a monopoly of the water of Rock creek, and that his company was prevented from getting water from Rock creek. Mr. Rothschild's evidence on that point is: that he made no application in writing for Rock creek water; that he was informed by the Governor that he could not get it; that Mr. Beaudette read to him papers showing that he could not have the water; that he, Rothschild, said nothing as to the grant he desired, or its terms, or how the water was to be taken.

From all the evidence, and looking at the matter in every aspect, I do not think this Treadgold proposition, even with all the objections to it, that are at all tenable, would be a bad thing for the Yukon Territory, if carried out on the lines indicated by Treadgold; but, without change in the particulars mentioned, or change in the public sentiment towards this undertaking, there might be no little risk in attempting to instal the system, as possibly there would be ill-advised interference on the part of some who are hostile.

I return the evidence. There is with each volume an index of the names of witnesses and of the subject matter so that persons who may wish to pursue the inquiry can easily do so.

To assist in fully understanding the evidence, I have attached a list, with definitions of some of the words and terms in general use in the mining territory, and as used by some of the witnesses.

So far I have treated the Order in Council as alive, and have made my report as if it continued in force, but it was in fact rescinded on the 22nd of June, 1904, i

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consequence of a request by the grantees to be relieved of the obligations created by it, and to be permitted to withdraw from the enterprise contemplated thereby.

In view of this, and having regard to evidence that others were ready to negotiate for putting in a water supply, I venture to make the following suggestions :—

In any matter of this kind it is important that the concessions should not, only in fact, be beneficial to the mining industry of the territory, but that this should clearly appear; and that all necessary safeguards of the miners and others should not be left to be implied, no matter how clearly, but should be expressly provided.

The majority of those who appeared before the Commission are anxious that the government should, as a government work, undertake the supply of water. I express no opinion upon government ownership of water supply, as a 'public utility' in the Yukon Territory.

It would, I think, be in the public interest for the government to procure plans, specifications and estimates of the probable cost of an adequate water supply to the District of the Klondike, Bear, Bonanza and Hunker Creeks, and the probable cost to miners who would use the water.

If water, with the right of distribution, is to be made to individuals, or to a company, there should be :—

(1) A definite time limit, clearly expressed, for commencing, continuing and completing the undertaking.

(2) An obligation to sell within the district, and there should be supervision over rates by a board in the district.

As stated, I think there would be no difficulty in having a suitable board, composed of men, one appointed by the grantees, one by miners in the district and one by a judge; or the third might be appointed by the Governor in Council.

(3) The right of miners should be preserved, not only to the gravel which the grantees may be obliged to move in consequence of the exercise of their right of entry, in the construction of the works, but the grantees should be obliged to move all the gravel or to make compensation for any not moved, as to which the right of miners is interfered with.

(4) The right to compensation for any buildings, erections, flumes, construction-work, and plant of any kind, moved or injured by grantees.

(5) To avoid possible disputes the continued ownership by grantees of water, after its delivery in the district, should be explained and defined, and

(6) It should be plainly stated whether exemption from representation, if granted, applies to all property owned by grantees, no matter when acquired, or only to the property acquired under Order in Council.

There are many things which render any forecast as to the future of the Yukon Territory of little value.

Changes come quickly in a mining camp. There are in that territory severe conditions, and its remote situation renders the importation of machinery and supplies, and all that is required, very expensive.

The season for work is short, only about 120 days. But with all its disadvantages I venture to say that with its 450,000,000 cubic yards of gravel bearing gold, all within the small area of the district of Bonanza and Hunker creeks and their tributaries, as estimated by Mr. McConnell, to say nothing of the remainder of the territory, if water can be supplied at a reasonable price, and prosperity of the Yukon Territory for many years is assured.

HYDRAULIC CONCESSIONS.

It was contended that the hydraulic concessions, granted under the regulations, were likely to be injurious to the mining industry of the Yukon because, in cases named and perhaps in other cases, placer claims were included within the territorial limits of the concession. If the concessions were opened, these placer claims would

be staked and worked, and would produce gold. Estimates were given of the number of placer claims in the concessions specially attached. It was argued, as if each claim would be a producer, and would easily give employment to a certain number of men and would produce a certain amount of gold, which would yield a very large revenue to the government and would give a great impetus to the mining industry. It is not difficult to assume certain things as facts, and from such premises reach any desired conclusion. In this case it is only a question of multiplication. It is impossible, upon the evidence, to come to the conclusion that there are so many placer claims, or anything like so many, that would be staked upon any one of the concessions under consideration, as have been estimated by some of the witnesses. Under the regulations for obtaining hydraulic locations, it is not intended that the ground asked for shall include any ground that is being worked, or that is suitable to be worked, under the regulations governing placer mining. If there is much valuable placer mining ground in any one of the concessions then, while it does not necessarily follow that such a concession has been obtained by fraud or misrepresentation on the part of the applicant, it does indicate either that, or carelessness or mistake of some kind on the part of the person or persons whose duty it is to see that regulations are fairly complied with.

If there has been shown any fraud or misrepresentation by reason of which a concession has been granted my Commission enables me to deal with such. It may be taken for granted that if a hydraulic concession is only of such a mining location as is contemplated by the Regulations, and if that location is worked as such, it must necessarily be beneficial to the mining industry of the Yukon Territory; and that is so, whether gold is found in paying quantities or not. Even if not found, to the extent that the owner gives employment to men, it will be of general benefit, although the owner himself may be ruined. If gold is found, so much the better, and the more the better.

The hydraulic Regulations show that the government did not consider it likely to be beneficial to the mining industry, to lock up placer ground in the hydraulic locations, or to permit placer mining under the pretence of hydraulic work. I do not think that there is anything further that can be usefully said on the general question. The conclusion must be upon the evidence, and as the fair inference from the evidence, that hydraulic concessions of limited area, properly granted under the Regulations in that behalf, and as to which the conditions have been complied with, are likely to be beneficial to the mining industry.

That brings me at once to the consideration of the particular concessions, in reference to which protests have been lodged, and to see:

1. If any one of these has been obtained by fraud or misrepresentation, and
2. Have the holders of any of them failed to comply with the requirements of the leases?

It will be seen by the Regulations approved on 3rd December, 1898, that a lease would be issued to an applicant only under the following circumstances:—

1. The applicant or his authorized agent must have been actually upon the ground and have prospected it prior to the date of the Regulations.
2. The application had to be filed with the Department of the Interior at Ottawa, or with the Gold Commissioner, or Commissioner at Dawson, for the particular location, which the applicant or his agent had prospected.
3. If the applicant was the first qualified applicant for that location, then he required to have it proved to the satisfaction of the Commissioner that the applicant himself, or a person acting for him, had been upon, and actually prospected, prior to the date of the regulation, the ground applied for, and also he required a report from the Gold Commissioner that the ground was not being worked, and was not suitable to be worked under the placer mining Regulations.
4. The Regulations were somewhat changed by Regulations of 24th October, 1899 of 2nd March, 1900, and 25th August, 1900.

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The Hydraulic Mining Regulations referred to in the above questions, under the provisions of which were issued the several leases except what is called the Herrmann lease, against which protests were submitted to the Commission, were approved by Order in Council dated the 3rd of December, 1898, and contained the following provisions:—

1. That locations in the Yukon Territory shall have a frontage of from 1 to 5 miles in length, and a depth of 1 mile, but where such location is situated in a valley its depth may extend to the limits of the valley, if so ordered by the Minister of the Interior.

2. That to any person who, prior to the 3rd December, 1898, filed an application in the Department of the Interior at Ottawa, or in the office of the Commissioner or Gold Commissioner at Dawson, for a location previously prospected by him, or by his authorized agent, the Minister of the Interior may issue a lease (provided he is the first qualified applicant therefor), upon a report from the Commissioner that it had been proved to his satisfaction that the applicant himself, or a person acting for him, was upon and actually prospected prior to that date the ground included in the location, and upon a further report from the Gold Commissioner that the ground included in the location was not being worked and was not suitable to be worked under the Regulations governing placer mining.

3. That after the applicant has obtained a free miner's certificate and filed in the Department of the Interior at Ottawa, a Dominion Lands Surveyor's plan of the location, the minister might issue a lease thereof for a term not exceeding twelve years, such lease to be renewable for a further period of twenty years, upon the performance of the conditions imposed thereby.

4. That the lessee shall pay an annual rental of \$150 for each mile of frontage and shall pay the same royalty on the output of gold as is provided or which may hereafter be provided in the case of placer mining claims, the first \$25,000 of the annual output being exempted.

5. That the lessee shall begin active operations on his location within one year from the date of his lease, and shall expend in operating his location not less than \$5,000 during each year from the date of his lease.

6. That in default of the payment of the rent or royalty or in the performance of the conditions imposed by the Regulations or by the lease, the Gold Commissioner may post a notice on the location in connection with which such default has been made, and mail a copy thereof to the lessee requiring such default to be remedied, and in case such default is not remedied within three months of the date of posting the notice, all the rights of the lessee under the lease shall be and become *ipso facto* null and void.

The form of hydraulic mining lease provides, among other things, that the lessee shall, within one year from the date of the lease, have sufficient hydraulic or other machinery in operation on the location to admit of his beginning active operations for the efficient working of the leasehold, which active operations he shall begin within the said period, and if, during any year of the said term, the lessee shall fail to expend in such mining operations in, about or upon his location the sum of \$5,000, of the fact of which failure the minister shall be the sole and final judge, the lease shall become and be utterly and absolutely null and void, unless the minister shall otherwise decide.

HYDRAULIC LEASES ATTACKED.

Within the period set out in the public notice given by the Commission, protests were filed against the following hydraulic mining leases, and representations were made that these leases had been obtained by fraud or misrepresentation on behalf of the applicants, and that the holders thereof had failed to comply with the requirements of the leases of such concessions.

1. Lease No. 9, comprising a tract of land situate between Adams creek and Fox gulch, on the left limit of Bonanza creek, having a frontage of $1\frac{1}{2}$ miles, issued in favour of C. A. Matson and associates, and known as 'The Matson Concession.'

2. Leases Nos. 2 and 8, comprising a tract of land situate between Boulder creek and Fox gulch, on the left limit of Bonanza creek, having a frontage of 55 claims, issued in favour of J. J. Doyle and associates, and known as 'The Doyle Concession.'

3. Lease No. 5, comprising a tract of land commencing $2\frac{1}{2}$ miles from the mouth of Bonanza creek and extending up that stream for a like distance, issued in favour of the Hon. E. H. Bronson and C. C. Ray, and known as 'The Bronson and Ray Concession.'

4. Lease No. 18, comprising a tract of land commencing about $1\frac{1}{2}$ miles from the mouth of the Klondike river, thence up stream for a distance of 6.72 miles, issued in favour of M. J. W. Boyle, and known as 'The Boyle Concession.'

5. Lease No. 10, comprising a tract of land situate on Quartz creek, a tributary of the Indian river, in the Yukon Territory, having a frontage of $3\frac{1}{2}$ miles, and known as 'The Quartz Creek Concession.'

6. Lease No. 1, comprising a tract of land situate on Hunker creek, below the mouth of Last Chance, having a frontage of $2\frac{1}{2}$ miles, and known as 'The Anderson Concession.'

7. Lease No. 33, comprising a tract of land situate on Gold Bottom creek, a tributary of Hunker creek, issued in favour of C. J. Hermann, and known as 'The Hermann Concession.'

8. Lease No. 30, comprising a tract of land commencing at the mouth of Miller creek, a tributary of Sixty-mile river, and extending up stream a distance of 3.38 miles, issued in favour of the North American Transportation and Trading Company, and known as 'The Miller Creek Concession.'

'THE MATSON CONCESSION.'

Lease No. 9.

The evidence submitted to the Commission in connection with this location showed that the application was made to the Gold Commissioner at Dawson on November 2, 1898, by Messrs. C. A. Matson, I. Flatow, Theodore Schmidt, D. J. Grauman and Peter Iveson, for a lease, in which the applicants stated that they had examined the ground and found it could not be worked by the ordinary placer mining process. Mr. Matson submitted a statutory declaration, dated the 22nd of April, 1899, in which he stated that he had prospected the ground applied for and found that it was unfitted for profitable placer mining, which affidavit was corroborated by the declaration of Mr. Schmidt, bearing the same date. A report was submitted from Messrs. Bolton and Hawkins to the effect that the ground included in the application could not be profitably operated by individual miners, and this report was endorsed by Mr. Thomas Fawcett, Gold Commissioner, thus making it his own. Mr. William Ogilvie, Commissioner of the Territory, recommended that a lease be issued to the applicants on favourable terms, and that the subsisting placer mining claims within the location should revert to them as soon as the same were abandoned.

On August 8, 1899, the ground included in the application was closed to placer mining entry, and on the 13th of January, 1900, a lease of the location, as surveyed by Lewis Bolton, D.L.S., containing 213 acres, was issued in favour of the applicants, which excluded from the operation thereof the ground which had been taken up and entered for, under the Placer Mining Regulations, the entries for which had not been cancelled by the mining recorder. It will be seen that there was not, in obtaining this lease, a literal compliance with the regulations, but what was done clearly negatives any allegation that the lease was obtained by fraud or misrepresentation.

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On the 27th of August, 1900, Mr. Doyle made affidavit to the effect that between the 30th of November, 1899, and the 1st of February, 1900, an expenditure of not less than \$5,000 had been incurred in connection with this location, and on the same date Messrs. A. M. Grant and Charles Dillman made affidavit that between the 1st day of June and the 27th day of August, 1900, not less than \$5,000 had been expended in mining operations—that is, in tunnelling and drifting 365 feet on the location. This was a sufficient expenditure for the year ending the 13th day of January, 1901.

On the 11th day of July, 1901, the inspector of mines at Bonanza reported that the work done on this location during the previous winter was confined to the Magnet fraction; that to his knowledge five men worked on the claim during the winter; and that \$42,000 worth of gold had been taken out, upon which amount royalty had been paid, less the prescribed exemption.

On the 30th of September, 1901, Mr. Matson made affidavit to the effect that he had done, or caused to be done, work on this location to the value of at least \$5,000 between the 1st day of July, 1900, and the 1st day of March, 1901, and on the 23rd of December following he made affidavit to the effect that he had done or caused to be done work on the leasehold to the value of at least \$5,000 between the 13th of January and the 1st of December, 1901, which statements were corroborated by the affidavits of Messrs. P. J. Baldwin and Thomas Doyle.

This expenditure was in compliance with the regulations up to the 13th day of January, 1902.

On the 11th of November, 1902, the government mining engineer reported that all operations carried on on this location were by the hydraulic mining method; that work was commenced on the 12th day of August and continued to the 11th of October, 1902; that in addition to the ditch purchased by the lessees, 350 feet of new ditch was dug, and 950 feet of hydraulic hose added; that the cost of these operations was between \$10,000 and \$12,000, and that he was satisfied that the provisions of the lease in respect of work and machinery on the location had been complied with.

This expenditure was accepted as sufficient compliance with the regulations up to the 13th of January, 1903.

On the 17th of May, 1903, the Commissioner of the territory reported that \$28,000 had been expended for a water right, conduit, and mining claim, one-half of which expenditure might be fairly applied to this location.

The allegations of fraud and misrepresentation, as to which witnesses were called, were, that the statements of the applicants as to prospecting and as to the suitability of the ground for placer mining, were untrue and fraudulent. Prospecting must always be a question of degree, and may be all the way from comparative little, testing and digging, to making a large number of prospect pits connected by drifts.

Matson was not called as a witness, but he made the original affidavit filed with the department in support of the application, Exhibit 19. The affidavit was made before Mr. Ogilvie, then Commissioner of the territory, and who, as a surveyor, had a considerable knowledge of the land applied for.

Doyle was called, and apparently made no representation that is shown to be untrue.

It is of considerable importance in determining the question of fraud and misrepresentation that:—

1. The application was made before the regulations; and
2. That everything which could possibly be ascertained by the applicants was supposed to be known by Mr. Ogilvie, and Mr. Ogilvie speaks in his letter of 16th September, 1899 (Exhibit 24) of some of those located as merely speculators. See also his letter of 11th November, 1899 (Exhibit 25).

In the face of what had been done by the holders and accepted by the department, and apparently done in good faith, I cannot find that the conditions of the lease have not been complied with.

'THE DOYLE CONCESSION.'

Leases Nos. 2 and 8.

The evidence submitted to the Commission in connection with this hydraulic mining location showed that application was made on the 22nd day of July, 1898, to the Gold Commissioner at Dawson by Messrs. Robert Lee, Andrew Olson, John Zarnowsky, A. H. Griffin, P. J. Baldwin, D. E. Griffith, John J. Doyle and Emil Weinheim for a lease of this location, which is situated between Boulder creek and Fox gulch, on the left limit of Bonanza creek, and the applicants stated that the ground included in their application could not be successfully or profitably operated by the ordinary placer mining methods, and affidavits were submitted by Messrs. F. E. Wileman and William A. Stout, to the effect that they prospected the location and found that the ground included therein was not suitable for placer mining, and could only be operated profitably by the hydraulic mining process, and on the 28th of that month Mr. Fawcett, the Gold Commissioner, reported that he was fully in accord with the views set forth in the above application. On the same date Mr. Lewis Bolton, D.L.S., reported to the Gold Commissioner that he had been over the ground included in this application, and that in his opinion it could not be worked by other than the hydraulic mining method.

Mr. J. J. Doyle himself gave evidence as to his application. He stated that he took his application to Ottawa in the spring of 1898, and that he was in Ottawa when the Hydraulic Mining Regulations were approved. He ascertained that it would be necessary to have a survey of the location made by a Dominion lands' surveyor; that he returned to Dawson in December, 1898, and again went to Ottawa in the spring of the year 1899, having in the meantime had a survey made and a plan of the location prepared by one Jefferson Hawkins. These he took to Ottawa with him, and they are now exhibits numbers 77 and 78. He stated that he explained to the department that he did not wish to interfere with individual placer mining claims, and that he required the additional land, for which he applied, for dumping purposes, and to give access to the bank. He stated in short that he made no untrue statement in regard to this concession.

On the 31st of March, 1899, Mr. Ogilvie, in making reference to this application, stated that 'while the applicants were prospecting the ground men came and staked claims, evidently under the impression that there was something in it.'

While this was not in accordance with the provisions of section 3 of the Regulations, it was assumed that before making it Mr. Ogilvie had obtained proof to his satisfaction that the applicants had prospected the ground before making the application on the 22nd of July, 1898. The evidence shows that Mr. Ogilvie was cognizant and approved of all that was done.

A lease in their favour was issued on the 10th day of June, 1899, containing the usual provisions. I cannot find upon the evidence that this lease was obtained by fraud or misrepresentation.

On the 5th day of January, 1900, a supplementary lease, No. 8, was issued in favour of the above lessee for the tract of land lying in front of the location described in lease No. 2, and in the rear of and adjoining creek claims numbered from 25 to 34, both inclusive, on Bonanza creek, having a frontage of fifty chains or thereabout, but excluding therefrom and thereout any ground taken up and entered for, under the regulations in that behalf as placer mining claims, the entries for which had not been cancelled by the mining recorder. This lease was issued on the recommendation of Mr. Ogilvie, the Commissioner of the territory, and his letter of 31st March, 1899 (Exhibit 43) shows that prospecting was done prior to date of application.

On the 27th of August, 1900, an affidavit was submitted by Mr. J. J. Doyle to the effect that an expenditure of over \$5,000 had been incurred in connection with the locations described in the above leases, between the 30th November, 1899, and the 1st of February, 1900, which affidavit was corroborated by the declarations of Messrs. O. A. Schultz and Thomas Doyle, made on the same date.

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On the same date Inspector H. H. Norwood reported that the lessees were operating a steam plant valued at \$3,000, and that they had probably expended on the concession about \$20,000.

On the 30th of September, 1901, Mr. P. J. Baldwin made affidavit to the effect that he had done or caused to be done work on these locations to the value of at least \$5,000, between the 10th of September, 1900, and the 15th day of March, 1901, which affidavit was corroborated by the declaration of Messrs. Thomas Doyle and C. A. Matson, bearing the same date. On the 24th day of December of that year Mr. John Zarnowsky made a declaration to the effect that work had been done on the locations in question, between the 1st day of April and the 15th day of May of that year, to the value of at least \$1,500 in sinking, timbering and drifting, which affidavit was corroborated by the declaration of Mr. E. M. Keyes and Mr. Thomas Doyle, bearing the same date. On the 21st of January, 1902, the mining inspector at Grand Forks, in submitting these affidavits, stated that sufficient representation work had been done on these locations for the past year.

On the 25th of September, 1902, Mining Inspector A. C. Robertson reported that he examined the locations in question and found that since the 12th of August previous, the lessees had cleaned over 300 feet square of bedrock, and that two sluice-ways had been dug through bedrock, 175 feet and 210 feet respectively, and ranging in depth from 12 to 35 feet.

On the 17th of May, 1903, the Commissioner of the Territory reported \$28,000 had been expended by the lessees for a water right, conduit and mining claim, one-half of which expenditure might fairly be credited to the 'Doyle concession.' The evidence will not warrant any finding that the hydraulic mining locations described in lease No. 2 and in supplementary lease No. 8 were obtained by fraud or misrepresentation on behalf of the applicants. The holders of these leases appear to have complied in a manner fairly satisfactory to the department with the requirements of the leases.

'THE BRONSON AND RAY CONCESSION.'

Lease No. 5.

The evidence submitted in connection with this hydraulic mining location showed that application for a lease was made on 30th day of November, 1898, to the Minister of the Interior at Ottawa by the Honourable E. H. Bronson and Mr. C. C. Ray, for a lease thereof under the provisions of the regulations, under which they stated that the tract applied for had been prospected by a reliable agent acting for them, and that it had been found that the ground was not sufficiently rich to warrant its being worked by the ordinary placer mining methods. This statement was supported by affidavits of T. B. Tyrrell and H. H. Cameron, in which they stated that they had prospected the ground and found that it was not suitable to be worked by the ordinary placer mining methods, and could only be operated upon some extensive scale.

On the 5th of May, 1899, the Gold Commissioner issued his certificate to the effect that the ground included in this location, with the exception of the subsisting placer mining claims, was not suitable to be worked under the regulations governing placer mining, and on the day following he issued a public notice closing the location from entry. On the 14th of June following the Commissioner of the Yukon Territory submitted a similar report, and stated also that the ground had been prospected by Mr. Tyrrell.

On the 3rd day of November, 1899, a lease of the location as surveyed, containing the usual provisions, was issued in favour of Messrs. Bronson and Ray, which excepted from its operations the placer mining claims already recorded, but included any claims within the tract leased which might from time to time be cancelled or abandoned.

In the absence of evidence contradicting Mr. Ogilvie, Commissioner of the Territory, or evidence showing bad faith on his part, fraud or misrepresentation on the part

of the applicants cannot be found. The Commissioner, in his letter to the Minister of the Interior dated June 14th, 1899, which will be found as Exhibit No. 93, transmits a copy of certificate of Gold Commissioner, also Mr. Tyrrell's statutory declaration, and then Mr. Ogilvie says, 'I believe from Mr. Tyrrell's statements, and *my own personal knowledge*, that the ground is not suitable for mining purposes except on an extensive scale, except in so far as it has been located for placer miners, and even part of that is not considered valuable enough for placer mining, as is shown by the Gold Commissioner's certificate.'

On the 13th of March, 1900, the lessees were granted an extension of time within which to comply with the provisions of their lease as regards the annual expenditure of \$5,000 in mining operations thereon, as certain placer mining claims within the location prevented them from operating to advantage. This extension of time to comply with the provisions of the lease was terminated on the 2nd day of June, 1902. On the 11th of November, 1902, the government mining engineer reported that no work had been done on this location, nor had any preparatory work to commence operations been started, nor had any machinery been placed on the tract leased. On the 26th of June, 1903, the department refused to accept the rental of this location, and a cheque for \$388.50, which was tendered in payment for the same, was returned to the agents of the lessees.

On the 10th day of July, 1903, Mr. J. B. Tyrrell made affidavit to the effect that he had done or caused to be done work on this location, between the 16th of January and the 1st of July, 1903, to the value of \$6,029.84, exclusive of the sum of \$3,052.68 paid for machinery, and he furnished a detailed statement of the several items on account of which this expenditure was incurred. This statement was corroborated by the affidavits of Messrs. C. E. McDougal and J. T. Kelly, dated 21st of the same month. The extension of time granted the lessees to comply with the provisions of their lease in regard to the annual expenditure of \$5,000 in mining operations was terminated on the 2nd of June, 1902, but no evidence would appear to have been submitted to show that within one year from that date the expenditure required by section 4 of the lease was incurred in mining operations, although Mr. Tyrrell made affidavit that between the 16th of January and the 1st of July, 1903, work was done on the concession to the value of \$6,029.84. Under the provisions of the lease an expenditure of \$5,000 in mining operations should have been incurred between the 2nd of June, 1902, the date upon which the extension of time terminated, and the 2nd of June, 1903.

A condition of all the hydraulic leases is that 'the lessee shall have sufficient hydraulic or other machinery in operation on the demised premises within one year from the date of lease to permit of beginning active operations for the efficient working of the rights and privileges granted, and that such operations shall be begun within one year,' and then that \$5,000 shall be expended in each year.

The machinery necessary to efficiently operate an hydraulic mining location is what will bring water, and water itself, and water at high pressure. If this water can be obtained by gravity, then the required machinery comprises the ditches, flumes, and pipe lines necessary to conduct it to the point of operation, and the 'giant' or 'monitor,' through which it is discharged against the gravel bank containing the gold. If, however, a gravity supply of water cannot be obtained, then it is necessary for the miner to remedy this defect by means of machinery comprising boilers, engines, piping, &c., with which water is pumped to a reservoir at a sufficient altitude to give the required pressure.

If an hydraulic mining location is being operated by what is termed the ordinary placer mining methods, then the machinery which would be required to operate the location would be engines, boilers, self-dumping hoists, &c. As the leases against which protests were lodged provide for the placing on the locations of 'hydraulic or other machinery,' it would appear to have been accepted as a sufficient compliance with this provision of the lease if either class of machinery above referred to were placed on the location.

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No definition has been given of the expression 'mining operations,' and no definite rule has been established as to what particular expenditure in connection with an hydraulic mining location might be accepted as compliance with the regulations.

The expenditure incurred in the construction or acquirement of a flume, ditch, or pipe-line, to convey water to a location has by general practice been accepted as expenditure 'in mining operations in, about and upon the location,' as required by section 4 of the lease, and such flume, ditch, or pipe-line also constitutes the machinery which the lessee is required, under the same section, to place upon his location.

I think that any machinery or appliances which a lessee may have placed upon his location, so long as it is sufficient for the 'efficient working of the rights and privileges granted,' must be accepted as compliance with the terms of the lease.

No sufficient hydraulic or other machinery was placed upon the demised premises in the Bronson and Ray concession within the year, nor is there yet such reasonably sufficient hydraulic or other machinery there as required for efficient working or for active operations.

It cannot be said that the conditions of the lease have been complied with.

There may have been waiver of the conditions other than the condition as to 'representation' work which was waived to 2nd June, 1902, as above stated.

Any such waiver would require to be evidenced by writing under the authority of the Minister of the Interior, and no such waiver was shown.

'THE BOYLE CONCESSION.'

Lease No. 18.

The evidence submitted in connection with this location showed that application was made on the 1st of December, 1897, to the Gold Commissioner at Dawson, by Messrs. F. P. Slavin and J. W. Boyle, for a lease of a tract of land on the Klondike river having a frontage of about eight miles, and on the 5th of October, 1899, the applicants were advised that it had been decided to issue a lease to each of them of a location having a frontage of four miles on the said river, and they were given sixty days to furnish the reports required by section 3 of the hydraulic mining regulations, and to file descriptions of the locations which they desired to lease. On the 21st of the same month the descriptions asked for were furnished, and on the 24th of the month the Gold Commissioner at Dawson submitted his certificate under the provisions of section 3 of the regulations, to the effect that the ground included in the location applied for was not being worked, and was not suitable to be worked, under the regulations governing placer mining, with the exception of the mining claims set out in that report.

On the 26th October, 1899, Mr. Boyle made affidavit that the location had been prospected on behalf of the applicants; that a shaft had been sunk to a depth of 24 feet, and the tests showed from 5 to 12 cents to the pan; that since the date of the application further prospecting had been done on the location, and that shafts had been sunk varying from 18 to 26 feet in depth.

On the 26th of the same month the Commissioner of the territory submitted his report, to the effect that it had been proved to his satisfaction that the applicants, Messrs. Slavin and Boyle, or a person acting for them, had been upon and actually prospected, prior to the 3rd of December, 1898, the ground included in the location. In October, 1900, the acting minister decided that this location might extend from summit to summit on each side of the Klondike river.

As far as I can tell from the evidence, this decision was arrived at in this way:

A plan had been prepared for Boyle by T. D. Green 18th December, 1899, and Boyle asked that the limits of his location should be extended. By the regulations, 3rd December, 1898, clause 1, these locations are one mile in depth, but where location

is situated in a valley it may be extended by the Minister of the Interior to the limits of the valley. What purports to be a duplicate of this plan has been submitted to Mr. Ogilvie, the Commissioner, who wrote his approval thus, 'approved as per report to follow,' see Exhibit 130. No report did follow, so far as appears, but he did examine the plan at Dawson, and put upon it a blue dotted line, from station 54 to station 100 across the southerly part of the land, and marked his approval 'subject to dotted line,' see Exhibit 131. This plan was not sent to Ottawa, but was retained in the office of Gold Commissioner at Dawson. On or about 17th October, 1900, when a question arose as to description to be inserted in Boyle's lease, the assistant gold commissioner wired to the secretary of the Department of the Interior (Exhibit 143): 'Please wire exact boundaries, length and breadth of "Boyle concession, Klondike river." Does it extend from summit to summit,' and he received a reply from the acting minister simply, 'Yes, summit to summit.' In some unexplained way the lease was, in fact, issued at Ottawa without the report which Mr. Ogilvie promised and without the plan with dotted line. Assuming that either Boyle nor Salvin was guilty of any fraud or misrepresentation, and there is not evidence that would warrant a finding of fraud or misrepresentation by either, much more land is demised to Boyle than Boyle applied for or expected to get. Even if the limits were extended to limits of valley, that could not mean more at the most than from summit to summit of lowest hills above the valley. The plan includes all the land from which water flows into this valley. This seems to be a palpable error in the description of the Boyle concession.

Without fraud or misrepresentation Boyle was entitled to a concession extending to the limits of the valley.

What does the error in description mean as a matter of actual value? It was not shown that the land itself, between the height of the limit of the valley and the extreme height as contended for by Boyle had, or probably had, any great value for gold. Any right which Boyle gets under his lease of this land, other than for gold mining, is of no practical value to Boyle, and works little or no injury to others. It is a formidable concession, on the map, and in my opinion a mistake was made in plan mentioned in lease; and that is all that can be said as to the area of this large concession.

In my opinion neither fraud nor misrepresentation was shown in procuring the extension of the limits, nor was it shown that the difference between the two plans was the result of fraud or misrepresentation.

On the 5th of November, 1900, a lease of the location, as surveyed by Mr. T. D. Green, D.L.S., was issued in favour of Mr. J. W. Boyle, an assignment to him from Mr. Salvin of his right to the location having been accepted and registered in the department. This lease contained the usual provisions, and was made subject to the rights or claims of all persons who had acquired the same under the regulations, under any Order of the Governor General in Council, up to date thereof. It also required that the machinery to be placed upon the location should be of such a character as might meet with the approval of the minister.

On the 17th of November, 1900, an assignment from Mr. Boyle to Mr. H. B. McGiverin, of Ottawa, of his right to the lease in question was accepted and registered in the Department of the Interior.

On the 6th of November, 1901, Mining Inspector P. H. Belcher reported to the assistant gold commissioner that, upon inspection, he found the amount of work performed upon the location leased to Mr. Boyle did not amount to anything more than some wood-cutting, and that as far as he could find there has been no machinery placed on the location during the year.

On the 7th of the same month Mr. Boyle submitted an affidavit to the effect that between the 5th of November, 1900, and the 5th of November, 1901, a preliminary examination, survey and estimate had been made to determine the proper method to pursue for the installation of an hydraulic plant on this location; that he had obtained the services of Sir Thomas S. Tancred, Bt.C., who made the survey and estimate at a cost of 2,000 pounds sterling, and that in addition to his cost he had expended over

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\$1,000 in connection with his leasehold. Mr. McGiverin, however, was advised on the 14th November, 1902, that after consideration it had been decided that this expenditure could not be accepted as complying with the provisions of the regulations, and that no further extension could be granted to perform the work and to place on the location the machinery called for by the regulations.

On the 11th of November, 1902, Mr. A. J. Beaudette, the government mining engineer, reported that no work had been done on the location leased to Mr. Boyle, nor any work preparatory to commencing operations, nor had any machinery been placed upon the leasehold.

The evidence shows that the material requirements of the lease and the provisions of the regulations have not been complied with, in so far as the placing of machinery on the location, and the annual expenditure of not less than \$5,000 in mining operations thereon, are concerned.

'QUARTZ CREEK CONCESSION.'

Lease No. 9.

The evidence submitted to the Commission in connection with this location showed that application was made on the 21st day of September, 1898, to the Commissioner of the Yukon Territory by William C. Gates and Frank P. Slavin for a location situated on the west side of Quartz creek, a tributary of Indian river, having a total frontage of 3½ miles, which application was supported by an affidavit made by Mr. Gates, bearing date the 8th of May, 1899, in which he stated that he prospected this location in the month of September, 1898. A further affidavit, dated December, 1899, was made by Mr. Gates, in which he stated that he prospected the location for the purpose of determining whether the ground was rich enough to be worked by the ordinary placer mining methods; that he sunk three holes, only one of which was to bed-rock, and that he found nothing in these prospects which would justify him in staking a claim with a view of acquiring it under the placer mining regulations; and that he was firmly of the belief that this ground was unsuitable for placer mining purposes, and could only be profitably worked by the hydraulic or some other equally extensive principle.

On the 14th of December, 1899, the Gold Commissioner issued his certificate under section 3 of the regulations, to the effect that the location applied for was not being worked, and was not suitable to be worked, under the regulations governing placer mining, with the exception of the subsisting mining claims within the location referred to in said certificate.

On the 26th of October, 1899, the Commissioner of the Yukon Territory issued his certificate, to the effect that it had been proved to his satisfaction that the applicants themselves, or a person acting for them, was upon and actually prospected, prior to the 3rd of December, 1898, the ground included in the location.

On the 17th of March, 1900, an assignment was accepted and registered in the Department of the Interior from Mr. Slavin to Mr. Joseph W. Boyle, of his right to the application in question, and on the same date an assignment from Mr. Gates to Mr. Boyle, of his right to the application was also accepted and registered in the department.

On the same day a lease of the location as surveyed by T. D. Green, D.L.S., was issued in favour of Mr. Boyle, subject to the rights of all persons who had acquired the same under the regulations up to the date upon which the location was closed to placer mining entry.

This concession is about 20 or 25 miles from Dawson. There are several placer mining claims on this creek. There is no evidence of fraud or misrepresentation on the part of applicant in obtaining this lease.

On the 29th of November, 1900, Mr. Boyle's solicitor was advised that any placer mining claims, within the location for which entry existed at the date of the lease, but which might subsequently lapse or become abandoned or forfeited for any cause, would not be open to re-location, but would be included in and form a portion of the tract described in the said lease to Mr. Boyle.

On the 6th of December following, an assignment from Mr. Boyle to the Quartz Creek Yukon Syndicate, Limited, of his right to the lease in question, was accepted and registered in the Department of the Interior.

On the 8th of January, 1901, Mr. C. Gomez made affidavit that considerable mining machinery had been placed on this location, and that considerable expenditure had been incurred in operating it between the 1st day of April and the 1st day of September, 1900, which affidavit was corroborated by the declaration of Mr. John T. Clayworth. This statement was further corroborated by an affidavit made on the 17th of the same month by Mr. Thomas Adair.

On the 27th of April, 1901, Mining Inspector A. C. Robertson reported that he visited the ground included in this location, and found that a boiler and pumping machinery had been placed on the location; that cordwood had been cut; and that considerable mining had been done on claim No. 23 below A. Mack's discovery, and on the hillsides; but that this claim appeared to be the personal property of Mr. Boyle.

A further report with respect to the machinery and expenditure in mining operations on this location was made on the 28th of April, 1901, by Inspector C. C. Raven, of the North-west Mounted Police (Exhibit No. 180), in which he stated that no mining, except the dams constructed on Quartz creek, had been done on the location.

On the 2nd of November, 1901, Mr. A. J. Beauvierre, the government mining engineer, reported that this property was being worked on as large a scale as possible, and that an effort was being made to comply with the regulations; that to operate the location properly all that was necessary was a constant head of water, flumes, ditches, giants and elevators for the tailings, and that as a substitute for this a boiler and pump had been used.

On the 21st of that month the Gold Commissioner issued his certificate, to the effect that it had been proved to his satisfaction that the lessees of this location had complied with the terms of their lease in respect of representation work and placing machinery upon the ground for the year which ended on the 17th of March, 1903.

No evidence has been submitted to show that the expenditure required by section 4 of the lease was incurred in actual mining operations on the location during the year ending the 17th of March, 1901, nor was any such evidence furnished for the year which ended on the 17th of March, 1903.

It would also appear from evidence submitted to the Commission that at least a portion of the mining machinery which was placed upon this location has been removed.

The material conditions of this lease have not been complied with.

'THE ANDERSON CONCESSION'

Lease No. 1.

The evidence submitted to the Commission in connection with this location showed that application was made on the 2nd September, 1897, by Mr. Robert Anderson to the Gold Commissioner at Dawson for a location situated on Hunker creek, commencing about one thousand feet below the mouth of Last Chance creek, thence down stream two and one-half miles. The Gold Commissioner reported that the location applied for by Mr. Anderson had been passed over by individual prospectors as altogether too wide to search for a pay-streak; that it had been reported that gold in small quantities might be found by excavating anywhere, but not enough to pay under the existing circumstances, and that it was necessary to obtain a considerable area, in order to operate it by hydraulic mining method.

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By an Order in Council, dated the 12th January, 1898, authority was given for the issue to Mr. Anderson of a lease for hydraulic mining purposes of the tract of land applied for, under certain conditions.

Under the authority of this Order in Council, a lease was issued to Mr. Anderson on the 24th December, 1898, of the above location, and on the 26th May, 1899, an assignment from Mr. Anderson to the 'Klondike Government Concession, Limited,' of his right to the lease in question was accepted and regist. red.

By an Order in Council dated 12th February, 1900, authority was given to issue a lease of this location under the provisions of the Hydraulic Mining Regulations which were approved of by His Excellency on the 3rd December, 1898, and on the 12th February, 1900, the substitute lease referred to was issued, which contained the usual provisions but required the payment of a rental of \$500 per annum.

On the 10th June, 1901, Mr. T. A. R. Purchase reported that the lessees had expended on this location between the year 1898 and the year 1901, the sum of \$215,000, in salaries, wages, supplies, fuel, timber, machinery and freight.

On the 29th day of August, 1901, Mr. T. A. R. Purchase made affidavit, to the effect that since the 12th day of February previous the lessees of this location had caused work to be done upon their property to the value of over \$15,000.

On the 21st August, 1900, Mining Inspector P. H. Belcher reported that the lessees had placed a large amount of valuable machinery on the location; that they were working ground unawaitable for individual mining, and that they were doing their work in an excellent way, washing down the hillsides for about one hundred yards.

On the 23rd September, 1901, Inspector Belcher reported as to the number of men employed by the lessees on their location, also with regard to the amount of work performed on it, and the amount of gold taken out; and, on the 13th November following, the Gold Commissioner issued his certificate, to the effect that it had been proved to his satisfaction that the lessees had complied with the terms of their lease for the year ending the 12th day of February, 1902, in respect of representation work and machinery.

On the 12th November, 1902, Mr. A. J. Beaudette reported that the operations conducted on this concession were of a placer nature only, and were not on as large a scale as some of the placer mining claims on the same creek, that three shafts had been sunk, each twenty-five feet in depth, from which drifts were carried, and that about six hundred cubic yards of gravel had been hoisted and sluiced. He stated that as near as he could judge, about \$5,000 had been expended in actual mining operations on the location during the year which ended November, 1902.

On the 4th day of December, 1902, Mining Inspector P. H. Belcher reported that he had inspected the work done on this location, and found that the value was in excess of \$5,000, and on the 10th of the same month the Assistant Gold Commissioner issued his certificate, to the effect that it had been proved to his satisfaction that the lessees had done, or caused to be done, work upon their location to the value of \$5,000.

Mr. Anderson also submitted an affidavit, dated the 25th November, 1902, to the effect that he had done, or caused to be done, work on this location between the 12th July and the 24th November, 1902, to a value of at least \$5,000, which affidavit was corroborated by the declarations of Messrs. J. R. Nicholson and J. F. Steeves.

It would appear, therefore, from the evidence submitted to the Commission that the Anderson concession was not obtained by fraud or misrepresentation, and it would appear, further, that the material conditions of the lease and of the Orders in Council and Regulations under which it was issued, have been complied with.

'THE HERRMANN CONCESSION.'

Lease No. 33.

The evidence submitted to the Commission in connection with this location showed that application was made on the 30th day of June, 1899, to the Gold Commissioner at

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Dawson by Mr. C. J. Herrmann, for a lease of a tract of land situated on Gold Bottom creek, a tributary of Hunker creek, in the Yukon Territory, having a frontage of 4.78 miles.

Mr. Herrmann made a declaration to the effect that he prospected the location by sinking two holes to bed-rock, and that he did not find any pay-dirt of sufficient value to warrant the working of the ground by the ordinary placer mining methods.

On the 16th day of August, 1899, the Gold Commissioner, Mr. Senkler, issued his certificate under section 3 of the Regulations, to the effect that the location applied for by Mr. Herrmann was not being worked, and was not suitable to be worked, under the regulations governing placer mining, and on the 9th April, 1900, the Commissioner, Mr. Ogilvie, issued his certificate, to the effect that it had been proved to his satisfaction that the applicant himself, or some person acting for him, was upon and actually prospected, prior to the 3rd day of December, 1898, the ground included in this location.

It will be observed that this application was not filed with the Gold Commissioner at Dawson until after the 3rd day of December, 1898, as required by section 3 of the Regulations. As Mr. Herrmann, however, made affidavit that he had commenced prospecting the location on the 26th of September, 1898, and continued such work for a period of three months, it was decided to consider his application, but it was not granted until after the Order in Council of the 2nd March, 1900, had come into force. This order authorized the granting of a lease to a person who filed an application for a location previously prospected by him or by his authorized agent, without reference to the date upon which such application was made.

Certain petitions were forwarded to the Department of the Interior protesting against the ground in question being leased for hydraulic mining purposes, and on the 16th day of October, 1901, a lease in favour of the assignees of Mr. Herrmann, namely G. F. Wesburne and P. R. Ritchie, was issued, which contained the usual provisions, and excepted from the operation of the lease placer mining claims numbered from 11 to 20, inclusive, situated on the right fork of Gold Bottom creek, also all placer mining claims within the location for which entries had been granted or which had been staked out or located, and in connection with which notice had been given to the mining recorder prior to the date of the lease.

On the 3rd October, 1902, Mr. Ritchie submitted an affidavit to the effect that he had done or caused to be done work on his location to the value of at least \$5,000, and he specified the items of expenditure. This affidavit was supported by a further declaration made by Messrs. W. F. Gibson and J. M. Keefer, to the effect that between the 15th day of April and 16th day of September, 1902, mining operations on the location in question had been carried on. On the 13th November following, Mining Inspector Belcher reported that he had inspected this location and found that \$5,000 worth of work had been done thereon, and that a boiler, thawing machine, hose and nozzle had been placed on the location.

On the 5th December, 1902, the Assistant Gold Commissioner issued his certificate to the effect that it had been proved to his satisfaction that the lessees of this hydraulic mining location had expended in mining operations on their property the sum of \$5,000 between the first day of December, 1901, and the 16th day of September, 1902.

I cannot, upon the evidence submitted to the Commission, find that the Herrmann concession was obtained by fraud or misrepresentation, and I am of the opinion that the lessees have complied with the conditions of the lease and of the regulations under which the same was issued.

'THE MILLER CREEK CONCESSION.'

Lease No. 30.

The evidence submitted to the Commission in connection with this location showed that application was made on the 23rd day of April, 1898, to the Gold Commissioner

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at Dawson, by Mr. John J. Healy, for a lease for hydraulic mining purposes, of the first tier of bench claims on each side of Miller creek, between Discovery and the mouth thereof. On the 19th July, 1899, Mr. Edward Monaghan made affidavit that in the month of November, 1894, he began prospecting in the valley and along the hill sides of Miller creek; that he continued prospecting for nearly a year; that he did this prospecting in association with Mr. Healy, who shared the expenses with him; that since that time he had transferred his interest to Mr. Healy, and that he did not consider himself justified in continuing to work the ground by the placer mining method, the pay being too small for that purpose. On the 19th of December following, he made a further affidavit to the effect that he had prospected Miller creek for a period of six months, and that from his knowledge of it he considered it was worked out, so as no longer to pay as a placer mining proposition. On the 9th February, 1900, Mr. Healy applied for such of the creek claims on Miller creek as were available, as his company, the North American Transportation and Trading Company, desired this ground to be operated in conjunction with their location on the benches of the creek.

On the 22nd June, 1899, the Gold Commissioner, by notice under the provisions of section 13 of the Hydraulic Regulations, closed to placer mining entry the location applied for, which he described as commencing at the mouth of Miller creek, thence up the said creek a distance of five miles, and in width from summit to summit on either side, and on the 10th day of August, following, he issued his certificate under the provisions of section 3 of the regulations, to the effect that the location applied for by Mr. Healy on behalf of the North American Transportation and Trading Company, was not being worked and was not suitable to be worked under the regulations governing placer mining.

On the 14th September, 1899, the Commissioner, Mr. Ogilvie, issued his report to the effect that it had been proved to his satisfaction that the applicant himself, or a person acting for him, had been upon and actually prospected prior to the 3rd December, 1898, the ground included in the location, and on the 15th March, 1900, he reported that Miller creek was discovered in 1893, was worked a little during 1894, and a good deal during the summers of 1895 and 1896; that the discovery of gold in the Klondike region, in 1897, caused the claims in the Miller creek region to be abandoned, as they had been practically worked out; that the ground applied for by Mr. Healy was simply tailing, and that the applicant did not want the ground so much for the gold that was in it as to utilize the surface for dumping from the hillsides. Mr. Ogilvie added that he believed no claims in the vicinity were being operated, and that it was unlikely they would be operated in the future.

On the 10th September, 1901, a lease was issued in favour of the above company for a tract of land lying on either side of Miller creek, between the mouth thereof and Discovery claim, being a distance of 3.38 miles more or less, but all placer mining claims the entries for which were in force on the 22nd day of June, 1899, the date of the Gold Commissioner's closing notice, were excluded, but any of said claims which had, since that date, been abandoned or forfeited, were included in that leasehold.

Upon the evidence I cannot say that this lease was procured by fraud or misrepresentation on the part of the applicants or of the lessees. In November, 1902, the Gold Commissioner, Mr. Senkler, issued his certificate to the effect that it had been proved to his satisfaction that the holders of hydraulic mining lease number 30, had expended in mining operations on their property described in said lease the sum of \$5,000 between the 10th day of September, 1901, and the 10th day of September, 1902.

On the 13th November, 1902, Mining Inspector P. H. Belcher, reported that he had inspected the location and found that a considerable expenditure had been incurred in mining operations on the location; that machinery had been placed thereon; and that the cost of such operations would be \$5,000 at least.

On the 2nd December, 1902, Mr. Beaudette, the Government Mining Engineer, reported that the work done on this concession was by placer mining methods, and that no hydraulicking had been done; that there was no objection to this method being used

during the first year of the lease, as much development of that nature was necessary before a larger expenditure would be warranted, and that the work done was satisfactory for the first year.

It therefore appears from the evidence submitted that the conditions of the lease and of the regulations under which the same was issued have been substantially complied with.

As stated, I have arrived at a conclusion in each of the cases, but, as many objections were applicable to all, I desire to consider these a little more at length.

I have carefully considered the argument, and analysis of evidence, of every professional man and layman who has been good enough to assist in that way, on this investigation.

Certain evidence was adduced as if bearing upon matters within the scope of the inquiry, and arguments have been presented, based upon that evidence, to establish something which I have no authority to investigate. Conclusions upon such outside matters ought not to be drawn from this evidence alone, because it may be that all the evidence available was not in fact given as to these.

Except so far, and only so far, as was necessary, for the satisfactory determination by me of the questions of fraud and misrepresentation by, or on behalf of an applicant I have not thought it my right to inquire in any case, whether or not the lease accurately describes the particular ground applied for or to what extent hydraulic concessions cover ground capable of being profitably mined by the placer process.

There have been granted, in all, since the opening of the Yukon Territory, 40 hydraulic leases. Of these 13 have been cancelled, and 27 are standing. Of the 27, 8 have been attacked. Only 2 others were mentioned as likely to be attacked, and no one interested took the trouble within the time given, to formally lodge any complaint as to these.

In dealing with charges of fraud and misrepresentation, I have endeavoured to do as would be done in a case on trial in a court of justice. There must be moral fraud; a false statement made in the belief that it is true is not sufficient to constitute fraud; and misrepresentation, to be fraudulent, must relate to an existing fact. In many of the cases presented, the statements alleged to be untrue and fraudulent, were presented to officials whose duty it was to have knowledge, and who did have knowledge of the matters as to which such statements were made.

In most of the cases complained of, the Commissioner of the territory reported to the department that what the applicants stated was proved, to his satisfaction, to be true. Even if scores of witnesses now say that certain things could not be as stated in the application or affidavit of the applicant, fraud could not be inferred in the absence of evidence of persons to whom such statements were made or of further evidence against the applicant.

It is not fraud to call some work 'prospecting' which is shown to be very far short of thorough prospecting. In the opinion of an applicant it was prospecting. Apparently in the opinion of officials of the department it might be considered prospecting, and a representation which is only the expression of an opinion is not fraudulent.

The leases have been spoken of as 'hydraulic concessions' and 'hydraulic locations.' 'Concession' is a convenient word. As to every one of these, entry had been made for placer claims within the area. In some cases these claims had been worked out. Some, after being prospected, thoroughly or partially, according to circumstances, were abandoned; some were being profitably worked. This was all well known to officials and to persons interested, so the statement that the ground was not suitable for placer mining, and fit only for working by hydraulic methods, must have been treated, to the knowledge of all, as having reference to ground outside of such claims thereon as were specially excepted from the lease.

The exceptions from the lease were of all claims held, or staked and applied for, under Placer Mining Regulations, prior to closing the ground.

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The matter was treated in the larger way, ignoring placer claims when they formed a small part compared with the large quantity of gravel ground which it was alleged could be worked only by hydraulic methods.

There certainly was, not, in the earlier days after the opening of the territory, sufficient care on the part of the officials in the territory to see that the regulations were strictly complied with; but careless methods do not amount to fraud.

All the concessions protested, except Miller creek, were close to Dawson. Messrs. Ogilvie and Fawcett resided at Dawson, and both were surveyors, with a skilled knowledge of that part of the country.

It will be seen by a perusal of the lease that the conditions are exacting and carefully drawn, with the manifest intention of protecting every interest connected with the mining industry. Under these circumstances, it has apparently been thought best to accept as representation work, work done by placer methods instead of insisting upon work by hydraulic methods. Where it has been clearly so accepted by the department, I ought to find, to that extent, compliance with the condition.

Considerable evidence was given as to disputes between holders of hydraulic leases and placer miners about wood, about water, about tailings, and as to trespasses by lease holders upon placer miners' ground.

Individual disputes prove nothing as to the general benefit or injury of hydraulic concessions. To decide upon these would involve an investigation upon the merits of each. As there are disputes in the older places, there are likely to be more in new settlements and especially in mining camps where rights at first are not so well defined.

It appeared in evidence that after an application was made for an hydraulic lease, and before a lease was granted, and before the ground was formally closed to placer mining, there were applications for placer ground. It also appeared that some of those who procured placer claims, after attempting to dispose of them to the holders of an hydraulic location, abandoned these claims. Apparently there were always people ready to make entry, some no doubt for the purpose of bona fide mining, and some expecting to be bought off by the applicant for, or owner of, the concession.

The argument that free miners were ready and willing to apply for and work placer ground was forcibly put. As against that is the fact that the number of placer claims worked on these different concessions steadily decreased. In the Matson concession, the one in which there was by far the larger number of placer claims, between the 2nd of November, 1898, and the 17th of August, 1903, the number was reduced on Adams gulch from 49 to 27, and on Magnet gulch from 55 to 14.

It is said that there was no power to grant or agree to grant to leaseholders, abandoned claims; that there was no right to grant hydraulic leases until there was provided either by lessee or by the government, ground for tailings; that hydraulic leases should not be granted until the question of water supply had been determined; that leases should not be granted until the lessees had in hand sufficient capital to work, by hydraulic methods.

All these questions are beyond the scope of my commission as affecting the rights of parties respecting any particular concessions, but are of importance for the consideration of the department upon the question of benefit or injury to the mining industry of the territory.

The fact of these large concessions existing no doubt has a bad moral effect.

A miner, on the look out for a placer location, makes a discovery, and upon application, finds that this ground is not open, because it is within the territorial limits of a concession. This annoys him, and he spreads what he calls his grievance far and wide, creating dissatisfaction among miners. Others, without attempting to prospect or locate, say they cannot, because all the ground is covered by concessions, and men who never were and never intend to be miners join in the cry against concessions.

In reference to the benefit or injury of hydraulic concessions, I think it proper to make the following suggestions:—

1. It was stated by several witnesses that the conditions as to some of the concessions were unfavourable to carrying on hydraulic mining. Whatever may be said in support of such statements, I am of opinion that as long as the lessees continue to hold, the conditions of the lease should be strictly enforced, and that placer work or 'preparation work' should not be accepted in lieu of what can properly be called hydraulic work, or 'hydraulic operations.' An annual expenditure of \$5,000 is very small for such large areas. If the conditions are not complied with, the lease should be cancelled.

2. In the case of ground which is, beyond dispute, unfit for placer mining, and eminently suitable for mining by hydraulic methods, the only reason warranting the leasing of large areas is that hydraulic operations may be carried on in an extensive way. Placer mining methods, if there is any land suitable, might be adopted for the first year, or two years at most, as prospect work, and to secure a dump, and pending water supply. This might be accepted as representation work for the year or two, but it should be promptly followed by work of the character and extent contemplated by the lease.

The regulations define the width of an hydraulic mining location as one mile; but where it is situated in a valley, the location may extend in width to 'the limits of the valley,' if so ordered by the minister. A very liberal construction has been placed upon the expression 'limits of the valley' as it has been held to mean from 'summit to summit' of the watershed on either side. I think that too wide; wider than the regulations were intended to authorize. Such location should not extend beyond the summit of the first or lowest hill on either side. It is too much to say that 'limits of the valley' in defining a location, should include a succession of hills and valleys between, leading up to the summit of the watershed. The regulations should be amended.

These hydraulic concessions would be more beneficial to the mining industry of the territory if considerably smaller, or the conditions should require a much larger annual expenditure than \$5,000.

In coming to the conclusion mentioned before, that in certain cases lessees had complied with the conditions of their leases, I did so because it was proper to consider, and I was bound to consider, the interpretation which the department had placed upon 'representation work' upon all the hydraulic concessions.

As in my opinion there was no fraud or misrepresentation by the applicants in procuring the leases, it was not necessary to mention the assignees.

In any case where a lease has been assigned to an innocent purchaser for value, without notice of anything such as is charged against applicants, and where the assignment has been assented to by the department, the assignee should be fully protected.

The assignee takes, subject to, and is liable for the performance of all the conditions of the lease. In respect to the performance of the conditions since the assignment was assented to, he is in no better position than the original lessee.

The protests are returned herewith and will be found in a separate parcel, but with the exhibits filed.

B. M. BRITTON,
Commissioner.

LIST OF WORDS.

Bucket.—A vessel in which the wash-dirt is raised from the under-ground workings to the mouth of the shaft, and contains about ten pans.

Commutation.—The fee which at one time a claimholder might pay in lieu of work on his claim.

Draw.—A smaller ravine than a gulch.

Dump.—The material taken from the mine and piled up awaiting the time when it can be washed.

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Forks.—The junction of streams, spoken of as 'right' and 'left' looking up stream.

Giant or monitor.—An iron nozzle from which water conducted in pipes from an elevation is discharged under high pressure. This is used to wash down banks of gravel containing gold.

Grizzly.—A revolving cylinder containing a number of holes or a set of poles with spaces between, through or over which the gravel containing the gold is discharged and while the gold and fine material drop through into a sluice-box or other receptacle placed for their reception, the stones and coarse material is carried by the force of the water to the tailings.

Grub-stake.—A barely sufficient amount to support a miner while engaged in prospecting or mining.

Gulch.—A ravine tributary to a creek which may or may not contain a stream.

Gumbo.—A species of tough clay in which the particles of gold are sometimes found.

Lay.—An agreement between a claim-owner and miner, under which the miner works the claim or part of it and pays the owner a percentage of the gold obtained.

Limit.—The bank of a river or creek. Spoken of as 'right' or 'left' looking down stream.

Open-cut.—An open excavation of a claim as opposed to drifting or tunnelling.

Pan.—A shallow dish, with widely flaring sides, used by miners in separating the gold from the gravel by washing. This is the most primitive method of separation, and is chiefly confined to prospecting operations.

Prospect, a.—The amount of gold washed from a pan of gravel.

Prospect, to.—The work done by the miner in his efforts to find gold.

Pup.—Is a tributary to a creek which is not sufficiently large or important to be given a name.

Rim.—The line of out-crop of the bed-rock strata in the sides of the valley.

Representation.—The amount of work which a claim-holder must do each year on his claim in order to hold it.

Riffles.—Obstructions in a sluice-box for stopping the gold and preventing it from being carried away with the refuse.

Rocker.—A box with sloping sides, about six feet long, two feet wide, and 18 inches deep, placed on two rockers with a hopper into which the wash-dirt is shovelled and with screens underneath. While the miner keeps his rocker in motion with one hand he pours in water with the other, and so separates the gold from the refuse.

Sluice-head—means about fifty miners' inches of water.

Sluice-box.—The flume or trough set at a grade for conducting a rapid current of water into which the wash-dirt is thrown and the gold separated from the refuse by the action of such water.

Skunk.—A pan of gravel which when washed out is found to contain no gold.

Stampede.—A rush of miners to an alleged new discovery of gold.

Tailings.—The gravel, stones and other debris resulting from washing operations.

Wash-dirt.—The name given to the sand, gravel or earth in which placer gold is found.

APPENDIX A.

I, Edmund Cumming Senkler, Gold Commissioner for the Yukon Territory, having been sworn before the Commission appointed to investigate the Treadgold and other concessions granted in the Yukon Territory, give my answers as set out below to certain questions given to me by the Honourable Mr. Justice Britton, the chairman of the Commission:—

1. What was the output of gold from the Yukon Territory in the years 1898, 1899, 1900, 1901, 1902 and for the eight months to September 1st, 1903?

Answer: Exhibit 'A' hereto attached, sets out the output according to the royalty collected to September 1st, of this year. The royalty for the output during the summer of 1898 was collected by the mining inspectors. From May, 1899, until August 31st, 1902, the royalty was collected by the officers and men of the North-west Mounted Police. From May 1st, 1902, up to the present time the royalty is collected by the comptroller, and no gold can be taken from the territory unless his receipt is produced that the royalty thereon has been paid. The result is that under the present system of collection a very small percentage of gold goes from the country upon which the royalty has not been paid. Before May, 1902, however, as the output of a claim was arrived at by the affidavit of the owner to the royalty collector, royalty was not paid on a very large percentage of the gold produced.

I would place the output in round numbers for the different years, as follows:—

1898..	\$10,000,000
1899..	19,000,000
1900..	24,000,000
1901..	20,000,000
1902..	13,000,000
1903..	11,000,000

I arrive at these figures through information as to the volume of work going on in the district, the value of the ground worked, and the amount of gold received by the Seattle, San Francisco and other mints, from the Yukon Territory, reports of which are obtained yearly. Under these circumstances it is impossible to make an accurate estimate and the figures must be taken with a view of means by which they are arrived at.

2. If decreasing, to what do you attribute the decrease?

Answer: The output has steadily decreased since the year 1900, because the richer claims are pretty well worked out. This is especially so on Eldorado and Bonanza (the richest creeks in the territory), and to a considerable extent on Hunker, Dominion and Gold Run. The life of a 500-foot placer claim, if diligently worked, is from four to six years. To give an instance, number sixteen Eldorado, from which considerable more than one million was taken by the original owners, was sold this summer for \$30,000. Again, during the last three years, no new strikes have been made to materially affect the output.

3. What is the entire number of placer mining claims granted in the territory bounded on the west by the Yukon river; on the north by the Klondike river; on the east by Flat creek and Dominion creek, and on the south by the Indian river?

Answer: Exhibit 'B' gives a detailed statement of the number of claims granted within the boundaries to which you refer. The claims granted before June 1st, 1898, have to be arrived at approximately as the office was very irregularly kept prior to that time. The number of claims granted were, approximately, 20,803.

4. What is the number of claims now in force and held by individuals or companies?

Answer: The number of claims in good standing on October 1st, 1903, within the aforementioned boundaries, was 6,073. A correct detailed statement of these will be found on exhibit 'C' hereto attached.

5. Of those so held what is the number of them being actually worked at the present time?

Answer: In order to answer this question I have to refer to the Mining Inspector's Report for the half year ending June 30th, 1903; from these reports, the number of claims that were working during those months was, approximately, 1,252. Exhibit 'D' hereto attached is a detailed statement. This, however, does not mean that they were all working continuously. It means that the mining inspectors found work going on on the claims to which they refer at some time during the six months their reports

cover. Some would be working continuously, others only for a sufficient length of time to complete their representation work.

6. Have you considered the question, and, if so, in your opinion, should anything be done by the government (and if so, what) towards providing a water supply for mining on elevated grounds, which grounds, if worked at all, can only be worked with an artificial supply of water?

Answer: From general information I have received since I have been in the territory, I am of opinion there are numerous beds of gravel on the benches of Bonanza, Hunker, Dominion and Quartz creeks that can be worked profitably only by water supplied by gravitation on a large scale. I believe the best results would be obtained if the government undertook to supply the water. I refer exclusively to the benefit that would accrue to this district. I am not prepared to say that it would be advisable for the government to undertake such a large expenditure, as, in order to give a sufficiently large supply of water for all the creeks above mentioned, the total cost would be, according to the best information I can obtain, somewhere between two and three million pounds sterling. Mr. Beaudette, the government mining engineer, advises me the only practical means whereby a sufficient supply of water can be obtained by gravitation, is to bring water from a certain point on what is known as the Twelve-mile river (this river flows into the Yukon twelve miles below Dawson, but its source is within a short distance of the source of Flat creek) and convey it by ditches to a certain point on Rock creek (a tributary of the Klondike), then by means of ditches and syphons to Bonanza, Hunker, &c. These two creeks could supply from ten to fifteen thousand miners' inches, and it would cost, approximately, the amount above mentioned to complete the works for carrying this water to the creeks in question. It must be considered at the same time that the cost of repairs would be very great. The ditches would not only have to be repaired, but, owing to the extreme cold weather, the syphons would break from contraction, unless they were disjointed every spring. This would entail a large annual expenditure. For these reasons I doubt the advisability of the government undertaking such an expenditure.

7. From your experience as Gold Commissioner, and from your intercourse with individual free miners, can you give the members of this Commission any information on any question of fact, or any opinion, within the scope of this inquiry; if so, please state the same as fully as if particularly asked?

Answer: As to the Treadgold Ordinance of April, 1902, I am of opinion it should be changed as follows:—

(a.) He should not have an exclusive right to the water of the Klondike.

I have received figures from Mr. Beaudette, the government mining engineer, of the amount of water in the Klondike, close to Dawson. On June 15th, 1903, he estimated the total volume at 305,643 miners' inches; on August 15th, 1903, at 54,281 miners' inches. The second estimate was made when the water was at its lowest point in the history of the camp. To show how low it was, Mr. Beaudette tells me he measured the water on August 15th, 1901, and found slightly over 300,000 miners' inches. Of course, Mr. Treadgold may require a very large amount of water for generating power. I think it should be ascertained what he requires for his purposes, and he should be confined to that amount. This will not harm him, and it will satisfy the people, which is important. I doubt that any person else wants water from the Klondike, but applications have been made for it (whether bona fide or not I am unable to say), and if by any chance some person wants water from the Klondike in the future they should be given an opportunity to obtain it, subject to what has been given Mr. Treadgold. Mr. Treadgold cannot use more than, say 50,000 inches, there is always double this amount in the Klondike, with the exception of a few days when the season is unusually dry, as it was this summer, and the surplus water should be utilized if required by any person.

(b.) The government should regulate the rate at which he sells water to miners, as he might ask the miners to pay more than they could afford and thus compel them

to drop their claims. These claims would then revert to Treadgold under his Ordinance. In this way he might close them all out and acquire their property himself.

(c.) He should undertake to supply a certain amount on each of the creeks above mentioned, for the exclusive use of the miners, provided they require it and are ready to pay the rates fixed by the government. I would put the amount to be supplied at 2,000 inches for Bonanza, 1,000 inches for Hunker and smaller amounts for Dominion and Quartz, if it is possible for him to supply those creeks. I have no information as to whether this is practical as they are on the Indian river side of the Dome.

(d.) He should be compelled to have his works completed within a certain period, as the country requires water as soon as it can possibly be supplied, and he should proceed with his work promptly and diligently, and the miners will know how long they will have to wait. How long he should be given is a question that should be answered by an engineer who could figure how long it would take to complete the work if it were started without delay and pursued with diligence until its completion.

(e.) The miners who buy water should supply boxes and flumes to carry water from Treadgold's stations or ditches to their claims; unless this is provided for disputes will arise.

(f.) The points on the different creeks to which the water is to be carried by Treadgold should be fixed.

If these changes were made, I think the government would make the best possible arrangement for the miners of the territory, and they would have nothing to complain of as they are amply protected, and Treadgold could not freeze them out. As the Ordinance now stands they are afraid they would be frozen out, and they would have to drop their claims, as I have stated above. I am of opinion that there is reason in this, as the maximum rate fixed by the present Ordinance is more than any miner can pay. This, however, has reference to claims that cannot be profitably worked without help from some outside source for water supply.

As to his obtaining a title to reverted claims when his work is completed. I see no objection to this, as, by the time he is ready to supply water, all claims that can be worked by ordinary placer methods will be worked out (at least, with very few exceptions), and as he cannot obtain title to those claims until his work is completed, miners can easily anticipate where the water ditch is going, and can stake any desirable ground before Treadgold is ready to supply water; and, if Treadgold spends all the money necessary to carry out his scheme, it seems to me reasonable that he should be allowed a concession of this kind, as by the time he is ready to supply water the ground will be of little or no use to individual miners, but may be of immense profit to a large concern. The worst feature of Treadgold's obtaining these claims is, that it is very unpopular amongst the miners in general. This feeling, however, will, I think, gradually diminish as they find the ground is of little value for their purposes.

The above changes would, I consider, be an improvement, but the Treadgold Ordinance, as it now stands, if carried out, would be an immense benefit to this district, and would be a means of largely increasing the yearly output.

As to the Bronson and Ray, Poyle, Doyle and Matson concessions, I am of opinion there is very little ground that could be worked profitably by placer methods, but they should be made to comply with the provisions set out in their leases.

The Miller creek concession, held by the North American Transportation and Trading Company, is the only concession upon which work has been done to show that they intend to hydraulic. I am informed by Mr. Beaudette, who was there about three weeks ago, that they were preparing large ditches for the conduct of water to their ground, and that over eighty men were working on the ditch when he was there.

From my experience I am of opinion that in future the government should grant hydraulic concessions only on creeks that have been abandoned by placer miners. This is the only evidence that can be relied upon as to the ground being not fit for placer mining. Unexplored ground should not be granted in such large blocks, as it might turn out very valuable, and granting hydraulic concessions on creeks upon which

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placer mining is going on is bound to create friction with the miners, and the fact that placer mining is going on is an indication that the ground is too valuable for an hydraulic concession.

E. C. SENKLER,
Gold Commissioner, Y.T.

EXHIBIT 'A' TO EXAMINATION OF E. C. SENKLER.

GOLD OUTPUT.

From 13th May, 1898, to 31st October, 1898.

	Total Production.	Exemption.	Royalty Paid.
	\$ cts.	\$ cts.	\$ cts.
Grand Forks.....	3,834,858 90	71,243 20	379,124 65
Dominion.....	7,065 00		706 50
Hunker.....	236,006 50	54,356 60	18,164 99
	4,077,930 40	125,599 80	397,996 14

From 1st November, 1898, to 31st October, 1899.

Grand Forks.....	5,462,135 15	1,089,302 00	437,282 74
Dominion.....	1,154,956 90	300,000 00	84,882 61
Hunker.....	538,938 50	235,060 00	29,889 32
Dawson.....	2,196,643 83	362,500 00	182,905 45
	9,352,674 38	1,986,802 00	734,960 12

From 1st November, 1899, to 31st October, 1900.

Grand Forks.....	6,135,623 66	1,144,549 13	496,588 02
Dominion.....	1,570,277 47	387,500 00	105,432 39
Hunker.....	1,055,629 73	385,796 00	65,886 24
Sulphur.....	578,792 79	171,500 00	40,379 59
Gold Run.....	950,844 82	123,420 00	80,711 33
Dawson.....	1,222,575 87	174,166 66	111,303 46
	11,513,744 34	2,396,925 79	900,301 03

From 1st November, 1900, to 31st October, 1901.

Grand Forks.....	5,847,328 43	1,122,877 31	244,179 31
Dominion.....	1,098,988 90	321,000 00	36,023 25
Hunker.....	1,189,076 26	442,948 66	37,715 81
Sulphur.....	369,701 79	150,000 00	10,985 15
Gold Run.....	761,480 74	162,500 00	29,949 26
Eureka.....	24,945 18	18,500 00	321 21
Dawson.....	343,035 87	90,000 00	14,162 61
Hootalinqua.....	10,518 59	2,500 00	801 85
Whitehorse.....	840 00		342 00
Forty-Mile.....	10,980 00	5,000 00	599 00
	9,668,895 76	2,375,281 97	375,079 45

From 1st November, 1901, to 1st May, 1902.

Grand Forks.....	28,500 87	10,000 00	1,050 03
Hunker.....	22,250 00	10,000 00	612 50
Sulphur.....	9,082 15	5,000 00	204 10
Dawson.....	301,721 27	30,000 00	16,048 56
	361,554 29	55,000 00	17,915 19

RECAPITULATION.

Gold output, Yukon Territory, from 13th May, 1898, to 1st May, 1902.

	Total Production.	Exemption.	Royalty Paid.
	\$ cts.	\$ cts.	\$ cts.
Grand Forks.....	21,308,447 01	3,437,914 64	1,538,224 75
Dominion.....	3,831,288 27	1,068,500 00	227,044 75
Hunker.....	3,041,900 99	1,138,095 26	152,268 86
Sulphur.....	957,576 73	326,500 00	51,568 84
Dawson.....	4,063,976 84	656,668 66	324,420 08
Gold Run.....	1,712,325 56	285,920 00	110,660 59
Hootalinqua.....	10,518 59	2,500 00	801 85
Eureka.....	24,945 18	19,421 00	321 21
Whitehorse.....	6,840 00		342 00
Forty-Mile.....	16,980 00	5,000 00	599 00
	34,974,799 17	6,940,517 56	2,426,251 93

E. C. SENKLER.

The following is the output for the Yukon Territory, as compiled from the royalty export tax book, for the dates given, viz.:-

From May 1st, 1902, to April 30th, 1903.....	\$12,184,660 59
From May 1st, 1903, to August 31st, 1903.....	6,973,804 15
Total output.....	\$19,158,464 75

G. I. MacLEAN,
Royalty Clerk.

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EXHIBIT 'B' TO EXAMINATION OF E. C. SENKLER.

LIST showing number of Claims Recorded in the Dawson District during the following months:

Month.	Year.	Number of Grants.	Month.	Year.	Number of Grants.
June.....	1898	419	Brought forward.....		11,481
July.....	1898	506	April.....	1901	788
August.....	1898	894	May.....	1901	238
September.....	1898	969	June.....	1901	247
October.....	1898	830	July.....	1901	317
November.....	1898	577	August.....	1901	263
December.....	1898	527	September.....	1901	223
January.....	1899	597	October.....	1901	409
February.....	1899	614	November.....	1901	354
March.....	1899	693	December.....	1901	202
April.....	1899	525	January.....	1902	197
May.....	1899	342	February.....	1902	129
June.....	1899	260	March.....	1902	159
July.....	1899	221	April.....	1902	154
August.....	1899	261	May.....	1902	139
September.....	1899	170	June.....	1902	190
October.....	1899	63	July.....	1902	163
November.....	1899	52	August.....	1902	367
December.....	1899	34	September.....	1902	108
January.....	1900	22	October.....	1902	106
February.....	1900	24	November.....	1902	47
March.....	1900	20	December.....	1902	115
April.....	1900	36	January.....	1903	34
May.....	1900	26	February.....	1903	19
June.....	1900	22	March.....	1903	16
July.....	1900	67	April.....	1903	23
August.....	1900	116	May.....	1903	53
September.....	1900	64	June.....	1903	46
October.....	1900	307	July.....	1903	28
November.....	1900	424	August.....	1903	23
December.....	1900	702	September.....	1903	51
January.....	1901	292	Total number of Placer claims recorded in the Klondike District since 1st June, 1898.....		16,753
February.....	1901	191			
March.....	1901	484			
Carried forward.....		11,481			
Approximate number of claims recorded prior to 1st June, 1898:—					
Bonanza creek.....					200
Eldorado creek.....					100
Eldorado tributaries.....					50
Bonanza tributaries.....					400
Bench claims, Bonanza.....					400
" Eldorado.....					400
Dominion.....					350
Dominion tributaries.....					300
Hunker and tributaries.....					500
Bear.....					50
Bear tributaries.....					50
All Gold.....					200
Lucky.....					50
					3,050
On additional creeks and tributaries.....					1,000
					4,050
Grand total.....					20,803

TREADGOLD CONCESSIONS

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EXHIBIT 'C' to EXAMINATION OF E. C. SENKLER.

List showing number of Claims situated in the Klondike District, which were in good standing on the 1st October, 1903.

Record.	Number of Claims.	Record.	Number of Claims.
Bonanza, No. 1	249	Brought forward	3,613
" " 2	150	Sulphur, No. 1	198
" " 3	67	" " 2	91
" " 4	85	" " 3	65
" " 5	140	" Hillsides	36
" " 6	107	Dominion, No. 1	245
" " 7	116	" " 2	118
" " 8	184	" " 3	87
" " 9	17	" " 4	129
" " 10	163	" " 5	136
" " 11	153	" " 6	149
" " 12	69	" " 7	180
Elorado, No. 1	207	Gold Run, No. 1	122
" " 2	70	" " 2	21
" " 3	80	" " 3	77
French Hill, No. 4	114	Indian river	16
All Gold and tributaries	141	Hunker tributaries	224
Hunker, No. 1	207	Dominion tributaries	165
" " 2	70	Klondike tributaries, &c.	193
" " 3	191	Gay gulch	25
" " 4	167	Lindow	23
L. L. Hyd. Res., No. 5	121	Everette group	1
R. L. " 6	6	Klon. Bon. Res. group	30
Last Chance, No. 1	136	Chief gulch	16
" " 2	71	Benches on All Gold, No. 1	5
" " 3	126	" " 2	12
Gold Bottom, No. 1	103	French gulch	42
" " 2	29	Bear creek	54
Quartz creek and tributaries, No. 1	114	Total	6,073
" " " 2	71		
Carried forward	3,613		

E. C. SENKLER.

EXHIBIT 'D' TO EXAMINATION OF E. C. SENKLER.

The following is the number of claims working in the districts given below, as reported by the several mining inspectors for the six months ending 30th June, 1903.

District.	Number of Claims Working.
Bonanza	525
Hunker	372
Dominion	166
Gold Run	103
Sulphur	86
	1,252

E. C. SENKLER.

APPENDIX B.

ANSWERS BY R. G. McCONNELL.

Q. You are a member of the staff of the Geological Survey of Canada, and for several years have been engaged in making a topographical survey and in investigating the economic geology of the Yukon gold fields?

A. Yes.

Q. How long have you been engaged in this work?

A. I have been working in the Yukon district since 1898. Part of the season of 1899 and the whole of 1903 were spent in the Klondike gold fields and the immediate vicinity.

Q. Are you acquainted with the district comprised within the Treadgold concession?

A. The area covered by the Treadgold concession forms part of the district known as the Klondike gold fields, and was included in the general investigation.

Q. Describe briefly the topographical features of the district and of the adjoining country so far as it bears on the water supply question?

A. The Klondike region may be described as a high plateau, thoroughly dissected by numerous deep and wide branching valleys. The general aspect, viewed from one of the higher elevations, is rough and hilly but fairly regular. The outlines are rounded, the slopes even and sharp peaks are notably absent. The region really consists of a system of long, round-backed ridges, separated by wide, flat-bottomed valleys. Most of the ridges, speaking broadly, centre in the Dome, the highest eminence of the district.

The ridges have an average elevation above the valley bottoms of 1,500 feet. They are deeply gashed on both sides by steep gulches, and are surmounted by numerous bare, rounded prominences, separated by wide depressions. They radiate out in irregular curved lines from the Dome, and ascend gradually throwing off branches at intervals toward the main water courses.

The elevation of the ridges and surmounting hills is fairly uniform. The Dome has an elevation of about 4,250 feet above the sea, 3,050 above the Yukon at Dawson, and about 500 feet above the ridges at its base. It is not conspicuously higher than the other hills in the neighbourhood, and the gradual decrease in elevation outward along the ridges is scarcely noticeable to the eye.

The valleys separating the ridges are wide and flat-bottomed in their lower portion, but narrow towards their heads into steep-sided gulches. The streams are all small, the volumes of Hunker and Bonanza creeks at summer level along the central portion of their valleys being often less than 20 inches each.

The Klondike district proper, except in the south-east corner, is isolated from the surrounding country by wide valleys. It is bounded on the south by the valley of Indian river, on the west by the Yukon, on the north by the Klondike, and on the east by Flat creek plain, a depression ten to fifteen miles in width which extends north-westward from Stewart river across the Klondike to Twelve Mile river and beyond, and separates the Klondike hills where water is needed from the Ogilvie range, the source of the supply. It is this feature in the topography of the country which renders the establishment of a water supply system for the camp such a difficult and expensive undertaking. The plain is overlaid by soft tertiary deposits, is easily eroded and all streams crossing or running parallel with it have cut out great valleys, the bottoms of which are usually below the level at which water requires to be delivered. The elevation of the plain at the summit between the Klondike and Stewart rivers is about 2,400 feet, and of the summit between the Klondike and Twelve Mile river of about 2,500 feet.

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Schemes have been proposed for supplying the camp with water from the upper main Klondike, or one of its upper southern tributaries; from Rock creek, one of the lower northern tributaries; and from Twelve Mile river, the first large stream entering the Yukon north of the Klondike.

The Klondike river heads in the Ogilvie range, and after issuing from it flows westward across the Flat creek plain, and then skirts the Klondike hills to its junction with the Yukon at Dawson. The grade of the main valley up to Flat creek, a distance of 27 miles, averages about 16 feet to the mile, and from Flat creek to the Ogilvie range it is nearly the same but increases after entering the mountain. Assuming the elevation at Dawson at the mouth of the Klondike at 1,200 feet, water to hydraulic the hill gravels at the mouths of Hunker and Bonanza creeks requires to be furnished at an elevation of 1,800 feet, and at Bonanza Forks of 2,100 feet. To obtain this elevation with water from the upper Klondike, or its upper southern tributaries, the intake must necessarily be situated deep in the Ogilvie range, and the supply flumed, piped or siphoned across the long stretch of broken, mountainous country, then siphoned across a part, if not the whole, of the Flat creek depression before the border of the Klondike hills is reached. Afterward it could be led along the ridge separating the Klondike from Hunker creek until a favourable point is reached for piercing this ridge without a long tunnel. To supply Bonanza creek from the same source many additional miles of piping and fluming, or a second long tunnel would be necessary. The total length of a supply system from the upper Klondike cannot be given as the contours of the Ogilvie range are only imperfectly known, but would probably be at least 70 miles, and inverted siphons would be necessary for a considerable proportion of the whole distance. The feasibility of the scheme seems doubtful on account of the great expense involved.

The Rock creek scheme, although also expensive, appears to present fewer difficulties. This stream enters into the Klondike from the north 4 miles above the mouth of Hunker creek. Its grade is steep, amounting to 70 feet or more to the mile, and the necessary elevation is attained in less than 20 miles, before the stream reaches the mountains, but above its forks. About 30 miles of piping, fluming or ditching, and one long tunnel at least are required to bring the water from the intake to the northern bank of the Klondike valley, and an inverted siphon a mile and a half to two miles in length would be necessary to bring it across the valley to a distributing point. The branch of Rock creek which it is proposed to divert is small and cannot be depended on to give a steady supply of more than 1,000 to 1,500 inches. To obtain a larger supply it will be necessary to collect by a system of flumes or ditches the water from the two other branches of Rock creek. Water can also be turned into Rock creek above the proposed intake from Spotted Fawn creek, a tributary of Twelve Mile river, and also possibly from the north fork of the Klondike. 4,000 to 5,000 inches at least could be obtained from Rock creek and Spotted Fawn during low water, and much more in spring and autumn. An additional supply, it is claimed, can also be obtained from the north fork of the Klondike.

Twelve Mile river, like the Klondike, heads in the Ogilvie range and crosses the northern continuation of the Flat creek depression on its way to the Yukon. Water can be obtained from upper tributaries of this stream at a sufficient height to place it on the divide between Twelve Mile and the Klondike, from which point it would follow the same general course as the Rock creek supply. I am not personally acquainted with the details of the upper Twelve Mile topography and cannot, therefore, offer an opinion as the practical feasibility of this scheme. A heavy expenditure for pipes, siphons and tunnels would be necessary as in the other schemes.

It will be seen from the foregoing statement that while it is possible to obtain water for hydraulicking the Klondike gravels from streams flowing from the Ogilvie range, the installation of an adequate supply system on account of the irregular character of the topography must necessarily be a costly undertaking, and in addition to the high initial expense, the shortness of the season and the rapid deteriora-

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tion of the plant, due to the severe climatic conditions are taken into consideration, it follows that cheap water as it is understood in other regions cannot be expected in the Klondike.

Q. What are the nature and characteristics of the gold-bearing gravels?

(a) What are the alluvial deposits of the region, and which of them are workable by hydraulicking?

A. The alluvial gravels of the region, beginning with the youngest, consist of:—

1. *The creek and gulch gravels.*—These gravels bottom all the creeks and gulches of the district. Their thickness varies from 5 to 15 feet, and they are always buried beneath an overburden of black muck from 5 to 20 feet thick.

2. *Creek terrace gravels.*—The terrace gravels occur on narrow benches cut into the sides of the valley between the level of the creek gravels and the high level bench gravels. The terrace gravels are not continuous along the valley and occur at irregular heights. The area they cover is comparatively small, and they have been mostly worked out.

3. *High level river gravels.*—These gravels occur on the hills near the junction of Bonanza, Bear and Hunker creeks with the Klondike river at an elevation of from 400 feet to 700 feet above the present valley bottoms. They consist mainly of rounded pebbles, of slate, chert, quartzite granite, diabase, etc., mostly derived from the Ogilvie range, embedded in a matrix of grayish sand. They overlie the high level creek gravels near the mouths of the creeks. These gravels have not proved rich enough to work by the old methods, but in selected spots might pay to hydraulic.

4. *The high level creek gravels (White channel gravels).*—This important deposit is described farther on.

The relationship of the various gravels can be readily understood from the following diagram drawn across the valley of Bonanza creek and the plateau between Bonanza creek and Klondike river.

The terrace gravels and the high level creek gravels are workable by hydraulicking. The high level river gravels are not generally auriferous, but as they cover the auriferous White channel gravels in places they will require to be removed before the latter can be worked.

(b.) Describe, and if possible, subdivide the older high grade gravels.

The principal high level auriferous gravels consist of the deposit variously known as the quartz drift, white wash, or White channel gravels. I will use the latter name.

The White channel gravels are ancient creek deposits laid down in the wide, flat-bottomed valleys which characterized the region previous to the last general upraise. After their deposition the country was elevated 600 to 700 feet, and the increased grades acquired by the streams enabled them to cut down through their old gravel beds into the bed-rock beneath and to excavate the steep-sided, trough-like valleys in which they now run. The old gravels now occur on wide benches bordering the present valleys, and at elevations of from 150 feet to 300 feet above them, the elevations decreasing generally up stream. The distribution along the valley is irregular, as they were partially destroyed during the deepening of the main valley and the tributary valleys and gulches.

The White channel gravels occur on benches along Bonanza and Hunker creeks and some of their tributaries, and are also found on Bear, Quartz, All Gold and Nine-mile creeks. The distribution of the various areas in the Treadgold concession is shown on the accompanying map.

The White channel gravels consist essentially of a compact matrix of small, clear, little worn and often sharply angular grains of quartz, and scales of sericite, thickly packed with rounded quartz pebbles and rounded and sub-angular and wedge-shaped quartz boulders often 2 to 3 feet in diameter. Flat and sub-angular pebbles of sericite schist, the principal country rock of the district, are also present, but in much smaller numbers than the quartz constituents. The schist pebbles are usually more or less decomposed and often crumble away when thawed out. The deposit is always more or

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less stratified, but except in rare instances there has been no sorting of the various constituents into separate beds, and the composition is very uniform throughout. The colour is characteristically white or light-gray, due to the preponderance of the quartz constituents and the leaching out of the iron.

In some places the white gravels are overlain by what are known as yellow gravels. The latter consists mainly of flattened schist pebbles, lying in a sandy often iron-stained matrix. Quartz pebbles are also present, but are relatively much less important than in the white gravels, and the gold values are also much less. On Gold Hill, Chechako Hill, and other places, the white gravels are heaped up in a wide ridge near the present valley, with the yellow gravels filling the depression behind in the manner shown in the following section.

The White channel gravels taken as a whole almost rival in importance the creek gravels of the district. They are everywhere more or less auriferous, and in places a pay streak a thousand feet or more in width has paid to work by the expensive drifting method. Some of the richest places are reported to have averaged over whole claims a yield of over \$60 to the superficial yard, while values of from \$20 to \$40 per square yard of surface were common.

The distribution of the gold in the White channel gravels follows the usual rule. It is mostly concentrated in the lower three to five feet of gravel and the underlying one to two feet of bed-rock. The bed-rock is not shattered so badly as in the present creek channel, and the gold does not descend so far. The bed-rock is usually more or less decomposed, and the schist pebbles in the gravel are affected in the same way. This probably means that the deposit was laid down in an unfrozen condition and continued so for a long period. The decomposition of the schist and the leaching out of the greater part of the iron must be attributed to the circulation of surface waters, a process which necessarily stopped when the deposit became frozen. The upper surface of the pay gravels is more irregular than in the case of the creek gravels and in some instances the pay has been followed upwards 8 to 10 feet or more above bed-rock. The gravels in the principal claims on Paradise Hill on Hunker creek are barren, or nearly so, on bed-rock, and the principal pay is found in the gravel 6 to 10 feet above it. The lower barren gravels at this point consist almost entirely of quartz pebbles, and the overlying pay gravel of quartz and schist pebbles showing two periods of deposition.

The principal pay in the White channel gravels, as stated above, is found at, or near, bed-rock; but gold in some quantity occurs throughout the whole formation, and it is this fact which gives it such great importance. It costs at least \$4 per cubic yard to mine and sluice the hill gravels in the ordinary way, but Mr. Coffee has shown on Fox gulch that even with a small plant the cost of hydraulicking them is less than one-tenth of this amount. With a larger plant and a steady supply of water this cost could be greatly reduced. Under present methods only the richer part of the pay streak yields enough to cover mining expenses; and these are already largely worked out. If water at reasonable rates, and in sufficient quantities for hydraulicking on a large scale could be obtained, enough work has already been done to show beyond reasonable doubt that a large proportion, if not the whole mass of these deposits would pay to work, and a lasting industry be established.

(c.) Which of the subdivisions are of the greatest economic value?

The White channel gravels are the most important of the high level deposits. These gravels, as described in a previous paragraph, consist of two divisions, namely,

The White gravels proper, which are always more or less auriferous and the overlying yellow gravels, which contain some gold, but have not so far proved of economic value. The latter have a limited distribution principally along the central portion of Bonanza valley, and have not been separated from the white gravel on the accompanying map. The high level river gravels are barren, or nearly so, where they overlie the White channel gravels near the mouths of Bonanza and Hunker creeks, but contain some gold in spots at least along the lower part of the Klondike valley.

(d.) Give the approximate extent of the older high level gravels on Bonanza and Hunker creeks.

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The White Channel gravels, including both the white gravels and the overlying yellow gravels, cover a total area on Bonanza creek and its tributaries of approximately 257 square miles. The thickness of the deposit is very variable, ranging from a few feet to 140 feet. The average thickness along the whole creek probably exceeds 90 feet.

The white gravels near the mouth of Bonanza valley are buried beneath an old deposit of high level river gravels 160 feet thick over an area of about half a square mile.

On Hunker creek and its tributaries the auriferous White channel gravels cover a total area of approximately 325 square miles. The deposit is not so thick as on Bonanza creek; it will probably average over 60 feet. It is covered near the mouth of the valley with a patch of high level river gravels about half a square mile in extent.

Q. To what extent would the installation of an efficient permanent water supply reclaim by hydraulic mining low grade ground at present unworkable and lying idle throughout the gold fields?

A. This question cannot be answered in figures, as it is not known at what price water can be delivered, and no systematic prospecting of the whole field with this end in view has been done or indeed can be done except at great expense. The values are everywhere irregular, so much so that in one sense it can hardly be said that a claim is thoroughly prospected until it is all worked out. In places also the auriferous gravels are buried beneath an accumulation of barren material, which must all be removed before the former can be reached. The total volume of White channel gravel on Bonanza creek and its tributaries amounts to approximately 250,000,000 cubic yards, and on Hunker creek and its tributaries to 200,000,000 cubic yards. All of this gravel contains some gold, and in places along the rim it has proved rich enough to hydraulic with the small intermittent stream at present available, and even in exceptional cases with water pumped up from the creeks. If water can be delivered at rates even remotely approaching those of regions more favourably situated climatically there is little doubt that a large proportion of the whole deposit would pay to hydraulic. It is impossible, however, to assert just what this proportion would be, as there are still too many unknown factors in the case. The gravels are easily hydraulicked, the duty of a miner's inch even with a small stream amounting to nearly 7 cubic yards per day of 24 hours. At this rate 5,000 miners' inches working continuously throughout a Klondike season of 120 days would wash 4,200,000 cubic yards.

Q. What other conditions are necessary to establish hydraulicking of the low grade levels of the territory?

A. Besides the introduction of an adequate water supply, the only other conditions necessary are a consolidation of the claims into groups and possession of the valley bottoms for dumping grounds. The latter will, however, not be generally available for this purpose for some years yet, not until the creek gravels are thoroughly exhausted.

Q. Describe the evolution of mining practice in the Yukon gold fields.

(a.) What was the ordinary method (or methods) of placer mining in 1898?

A. Creek claims were worked in 1898 either by sinking and drifting, or by what is known as open cut work. In the first method, shafts were sunk to bed rock and the pay gravel drifted out around the foot of the shaft, hoisted to the surface and sluiced. In the second method the muck overburden, invariably present in all the valleys, was got rid of by diverting the stream usually during the spring flood and leading it by several channels across the claim. The muck thaws readily, and the streams soon cut through it down to the gravel, and then gradually widen their channels until they meet. The process was hastened at times by blowing down the sides of the muck channels with black powder. After the removal of the muck and the exposure of the underlying sands and gravels to the atmosphere, the latter soon thaws down to bed rock. The barren material was then removed usu-

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ally by hand and piled up where most convenient, and the pay gravel and bed rock beneath shovelled into lines of sluice boxes. The open cut method led to a more complete extractor of the gold, but was too expensive to be used where the barren overburden of muck and gravel exceeded 10 to 15 feet in thickness.

The general system of mining the creek claims employed in 1898 has changed very little, but the plant used is entirely different. In 1898 wood fires or heated stones were still largely used for thawing gravel. These have now been altogether superseded by steam thawers and small pumps. The hand windlass has been replaced by steam hoist, working with self-dumping buckets, and scrapers are used instead of the shovel and wheelbarrow of early days to remove the waste in open cuts. On many of the claims the water for sluicing purposes instead of being flumed from a point up the creek distant enough to give the required grade, is now pumped up, and the sluice boxes are placed high enough to carry the tailings where required. The employment of steam power and machinery in place of hand labour have reduced the ordinary expenses of mining nearly one-half and given value to long stretches of gravel on the various creeks formerly too low grade to work.

The equipment required to work a creek placer claim at the present time by the drifting method, where the water for sluicing is pumped up, consists of a 35 to 50 H. P. boiler for furnishing power, a hoist and self-dumping bucket worked by an 8 to 10 H. P. engine, a centrifugal pump, with a 6-inch discharge for elevating water for sluicing driven by a 15 H. P. engine, and a small Worthington pump with a 3-inch discharge, an inch nozzle for thawing, or a set of points when the thawing is done by steam. The installation of this plant usually costs from \$5,000 to \$8,000. The operating expenses on an ordinary claim, with one shift and night thawing amount to about \$100 per day, and from 50 to 60 cubic yards of material are mined and sluiced daily.

In a few claims in the district the mining methods are different from those described above. A dredge, originally intended for work on the bars of the Leves river, has been operating on Bonanza creek for the last three seasons. The work done has shown that where the gravels are completely thawed they can be worked very cheaply by dredging but where frost is encountered thawing, as in the other methods, must be resorted to. In dredging also the bed-rock is not seen, and there is always some uncertainty in regard to the completeness of the recovery of the gold. Where the bed-rock is hard and blocky the gold often sinks down along the jointage and bedding planes to a depth of from 3 to 5 feet, and part of it must almost necessarily be left behind. In soft-bed rock it is probable that the recovery of the gold is nearly complete, as it does not sink so deep and the material containing it is easily removed.

Steam shovels are being used on several claims in the district, and where the conditions are suitable they handle the gravels in certain kinds of bed-rock cheaply and effectively. The overlying muck requires to be sluiced off in the ordinary way, and the gravel must be thawed out.

Another attempt at cheap mining on the creeks worth mentioning introduces the hydraulicking principle, but is still only in the experimental stage. On Gold Run creek a couple of claims have been equipped with long, China pumps and bucket elevators. The pump, and gravel elevator, each about 70 feet in length, rest in a sump excavated 12 to 14 feet in bed-rock. The gravels are washed into the sump by a stream of water under small pressure and are carried up by the bucket-elevator and dumped into the sluice boxes. The China pump elevates the water used in hydraulicking, and it serves again to wash the gravels.

(b.) What was the practice on the hills?

The hill gravels in 1898 were worked along the edge of the valley from tunnels drifted along the bed-rock and farther back from shafts often over 100 feet deep sunk down to bed-rock. The pay gravels taken out were washed in rockers, except in a couple of places, where they were trammed down to the creek and sluiced. Mining on the hills has benefitted by the introduction of machinery and also by the utilization of several small tributary streams which furnish water for sluicing for a few weeks

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in spring and autumn. A number of attempts have been made to pump water from the creeks to sluice the hill gravels, but the high price of fuel has led, in most cases, to financial failure. The electric power company at the present time pump water up at several points and sell it for sluicing purposes at from \$7 to \$8 per sluice head per hour.

Hydraulicking in a small way has been attempted at several points on the hills, both with gravity water and water pumped up from the creeks. The pumping method has not, so far, proved successful, except where the gravels are extremely rich; but where cheap gravity water is obtainable the results have been very good. The Anglo-Klondike Company, under the management of Mr. Coffee, have been operating successfully for a couple of seasons two small hydraulic plants, one on Fox gulch and the other above Boulder creek, about 3 miles above its mouth. A supply of about 200 inches is available for a few weeks in the spring and fall, and is delivered under a head of nearly 200 feet. In Mr. Coffee's report to his company, for 1902, it is stated that in a run of 22 days, 29,000 cubic yards were sluiced, and that the actual hydraulicking cost was under 15 cents per yard. The total operating expenses, including cost of plant and cleaning bed-rock, amounted to 35 cents per cubic yard, or \$1.96 per square yard of bed-rock. In the same report it is stated that the actual cost of mining and sluicing by the ordinary drifting method amounted to \$5.85 per square yard of surface. No allowance is apparently made in the statement for the original cost of the water right and plume. This comparison is, however, scarcely fair to the drifting method, as the hydraulicking operations were carried on around the rim where the gravels are thin and the tailings easily disposed of. When the deeper portions of the deposit are attacked the cost per square yard of surface will necessarily be greater. The increased cost may, however, be compensated for by the greater amount of gold recovered, as it is known that the gravels contain some values throughout.

The demonstration of the feasibility of hydraulicking successfully the frozen hill gravels is important, but under present circumstances can only be taken advantage of to a very limited extent as the available local supply of gravity water is small and intermittent and only available at a few points.

(d.) Would the expensive systems of drifting, stoping and tunnelling now adopted in many mines be included in any definition of placer mining five years ago; or, in other words, has the practice of placer mining been extended by the methods of working adopted during the past five years?

This question is answered in the previous paragraphs. The actual mining methods, so far as the laying out of the work is concerned, have changed, speaking generally, very little, and the principal improvement has been in the substitution of machinery for hand labour. Several small hydraulic plants have been installed for working the hill gravels, the water being obtained in some cases by gravity and in others requiring to be pumped up; but operations by this method cannot be undertaken on a scale commensurate with the importance of the deposits until a large additional supply of water is available.

APPENDIX C.

ANSWERS BY A. J. BEAUDETTE.

I, Albert Joseph Beaudette, Government Mining Engineer for the Yukon Territory, having been sworn before the Commission appointed to investigate the Treadgold and other concessions granted in the Yukon Territory, give my answers as set out below, to certain questions relating to the Treadgold concession:—

1. Describe Rock creek.

Answer: Rock creek is a small stream flowing into the Klondike river, southward, at a point about 12 miles above its mouth. The creek has two forks, each containing small tributaries which are, as a source of water supply, to some extent important. The length of the north fork is about 24 miles, having its source in the

vicinity of the Twelve-mile river, between which streams there is a divide 800 feet high.

The amount of water flowing in the creek was, according to my measurements in the month of October, 1901, 4,862 miners' inches. (A miner's inch is taken to be one and a half cubic feet passing a point in one minute). The state of the creek at that time was considered rather less than normal. At a point on Rock creek below all tributaries there were over 7,000 miners' inches. All the water flowing into Rock creek from the small tributaries situated below the forks is at too low a level to be of use to supply the placer mining centres in the Klondike district. The only supply is that in the vicinity of the forks and upwards.

The grade of the creek is approximately 60 feet per mile. The altitude at a point near the forks is, according to the territorial engineer's readings, 2,190 feet, and at the mouth of the creek, 1,389 feet.

2. What placer mining operations are there, if any, on Rock creek and its tributaries?

Answer: There are no placer mining operations on Rock creek proper. There is, however, a placer claim in course of development on Lepine creek, a tributary of Rock creek.

3. Would the Treadgold grant affect this claim, provided the claim contained values to warrant operations?

Answer: No.

4. Describe the Klondike river between the two following points, viz.: Flat creek and Dawson.

Answer: The Klondike river is a large stream emptying into the Yukon river on its right side (facing down stream). Between these two streams the river has three important tributaries, viz.: Rock creek, Hunker and Bonanza creeks. Of these creeks, Rock is the most important from a water supply standpoint. According to my measurements, the amount of water in the Klondike river is as follows:—

On the 9th of May, 1903, there were 305,643 miners' inches. The state of the river was considered very high.

On the 15th of August, 1903, there were 54,281 miners' inches. The state of the river was considered very low; in fact, the lowest in the history of the camp.

The measurements were made at the Ogilvie bridge, a distance of one and a half miles above the mouth.

The grade of the river between Dawson and the mouth of Flat creek is 13'9 feet per mile.

The grade of the river between Dawson and the mouth of Rock creek is 15'7 feet per mile.

5. What is the difference in elevation between the point of diversion of the Rock creek water and the placer mining centres of the Klondike district, taking the point of diversion to be 20 miles above the mouth; and the distances between this point of diversion and the said mining centres?

Answer: The altitude at a point twenty miles above the mouth of Rock creek is, as near as can be ascertained from surveys, 2,565 feet. The difference in altitude between this point and the mining centres of the Klondike district, together with the distances, are as follows:—

Name.	Altitude.	Difference.	Distance.
Rock Creek.....	2,565 feet.		
Gold Bottom.....	1,688 "	877 feet.	30 miles.
Grand Forks.....	1,720 "	845 "	50 "
Bear Creek.....	1,299 "	1,266 "	26 "
Last Chance.....	1,434 "	1,131 "	26 "
Dominion Dome.....	3,400 "	835 "	38 "
Ogilvie Bridge.....	1,211 "	1,354 "	30 "

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It is impossible to conduct the water over the divide between Hunker and Dominion creeks, as the point of intake would be lower than the outlet.

Attached hereto is a sketch showing the gold-bearing creeks and elevations. (Elevations above sea level).

A. J. BEAUDETTE.

