REPORT

—OF—

ROYAL COMMISSION RE COAL

—IN—

BRITISH COLUMBIA

UNDER "PUBLIC INQUIRIES ACT"

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA

PRINTED BY
AUTHORITY OF THE LEGISLATIVE ASSEMBLY.

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ROYAL COMMISSION RE COAL.

To His Honour the Lieutenant-Governor of the Province of British Columbia.
Victoria, B.C.

SIR,—In accordance with the Commission under the provisions of the "Public Inquiries Act," issued to me of date February 7th, 1913, to inquire into the undermentioned matters respecting coal mined in British Columbia, namely: The cost of production; the cost of transportation; the cost to dealers in the Province; the cost to dealers outside the Province; the cost to consumers in the Province; the cost to consumers outside the Province; the profits made by persons or corporations controlling or owning coal-mines in the Province; the profits made by dealers in coal; the alleged shortage of coal for consumption within the Province, and if such shortage be found to exist or to have existed within the past five years, the cause or causes thereof, and whether and to what extent such shortage is due to the shipment out of the Province of coal mined in the Province; and generally to inquire into all matters relating to or affecting the price of coal in the Province, I respectfully submit herewith a report of the proceedings of the Commission, the facts found by me, and the opinions formed in relation to the matters aforesaid, and such recommendations as to me seem proper in the premises.

Upon being sworn to truly and faithfully execute the powers and trusts vested in me by Your Honour, under and pursuant to the "Public Inquiries Act," I appointed Henry I. Clegg as Secretary and Stenographer to the Commission, and Marwick, Mitchell, Peat & Co., Chartered Accountants, as Accountants to the Commission.

BRIEF HISTORY OF WORK.

Upon entering the work of the Commission, I deemed it best to get some direct information from the consumer of the lines of complaint and to get suggestions from him, and with this in view confined the first sittings of the Commission in Vancouver to receiving evidence from the consumer and from his point of view.

These sittings were fully advertised, and I also conferred with the City Council and the Board of Trade for the purpose of obtaining their aid towards eliciting as much information from the consumer as possible. The City Council appointed a committee with representatives from the different wards, and the city was represented by counsel at the sittings.

At first there was a dearth of attendance by consumers, but in the latter part of the sittings in Vancouver considerable evidence was given from the consumer's point of view.

Apart from personal experiences, general criticisms were given by representatives of the Central Ratepayers' Association and by others, whom I have to thank for suggestions which helped me in the later work.

Considered criticisms were also given me at North Vancouver by representatives of the Board of Trade and others, along the same lines, and having also reference to specific conditions pertaining to that community. And although I received very little further evidence from consumers in other places, the evidence referred to, in my opinion, fairly covered this ground.

The dealers were examined at Vancouver, North Vancouver, Victoria, New Westminster, and Prince Rupert; and by means of answers to questions, in forms supplied, information as to sources of supply, costs, tonnage, and prices was obtained from practically all of the other dealers in the cities and towns of the Province.

Statements of their businesses were obtained from the larger dealers in Vancouver, Victoria, and New Westminster; and I had the Accountants of the Commission investigate and report on these statements from three of the Vancouver dealers.

In the meantime a standard set of statements was devised by the Accountants and forwarded to the different operators in the Province, to be made up from their books. These statements will be referred to under the later heading of "Accountancy." Their purpose was to obtain from the different operators the particulars of their businesses in a form which would lend itself readily to comparisons and analyses.

Delays were incurred, on account chiefly of the fact that the systems of accounting in the offices of the different operators differed considerably. The information called for and repre-

sented by the statements submitted would appear upon the books of different operators in form differing from that of the statements as well as from the books of other operators.

I might say, in passing, that I have a sense of having been met in this investigation by operator and dealer, without exception in either class, with an attitude of complete and unreserved disclosure of their business details and methods; and in many instances have had the information desired anticipated and given before request.

Upon finally receiving the completed statements from the operators, I proceeded with the examination of the respective representatives upon the basis of the statements, and also obtained from them such other information as was, in my opinion, pertinent to the inquiry.

I proceeded to the Nicola Valley field, the Similkameen Valley field, and the Crowsnest Pass. Subsequently I took up the Vancouver Island field, but deferred my examination of the operators there as long as possible because of the strike conditions which existed in that field.

Besides going into accounts, I have endeavoured by personal investigation to familiarize myself with the handling and delivering of coal by dealers, principally in the Cities of Vancouver, Victoria, New Westminster, Prince Rupert, and Nanaimo; and also in the City of Seattle, State of Washington.

I have examined into the preparation of the different classes of coal, particularly at different mines on Vancouver Island, and have visited some of the mines in the Province of Alberta, with a view to obtaining any information which might be helpful.

COMPLAINTS OF CONSUMERS.

Briefly summarized, the principal complaints made to me by the consumers are: First, high prices; second, inferior quality; third, shortage in weight; and fourth, shortage of the coal-supply. And I have endeavoured to obtain evidence and material from the different sources at my disposal to get as full information along these lines as possible.

In this report I shall endeavour to keep these features in view while dealing with the subject, divided as much as possible under the headings of the inquiry as given in the Commission itself.

ACCOUNTANCY.

As mentioned above, some of the dealers, as soon as the matter was taken up with them, went to the extent and expense of having a special audit made of their whole business by chartered accountants, showing tonnage dealt in, the revenues made, and detailed costs of the handling of the coal.

I had the Accountants of the Commission investigate the businesses of three of the dealers of Vancouver fully and make reports thereon.

In the case of the operators, what with the statements furnished me and the examination of representatives, and the obtaining of further material and details of cost, and the inspection of auditors' reports and of books, I became convinced that for the purposes of this inquiry and at the present time it would be an unnecessary proceeding to have all these businesses audited by the Accountants of the Commission.

The condition of the accounts of the business in each case was reviewed, and financial documents and in many cases the regular and complete balance-sheets were obtained; and, generally speaking, I am of opinion that the true state of the business was in each case represented to me, so that the actual costs, sale prices, revenues, and earnings could be reviewed.

Besides this, there was the fact that after the statements had been produced, if complete audits of the businesses represented thereby were to be undertaken, months of time would have to be occupied in so doing, thereby incurring further delay with no immediate benefit.

All the papers, statements, and documents received, besides the completed statements of the Commission, are submitted with this report. And if it is thought fit to have an absolute verification, by special audit, of any or all of the statements produced, this could be done.

I reached the same conclusion with reference to the statements submitted by dealers in the Province, other than the three businesses in Vancouver on which I had the Accountants' report, namely: Evans, Coleman and Evans, Limited; Macdonald, Marpole Company, Limited; and The McDowell-Mouat Coal Company, Limited.

In the case of the dealers I paid particular attention to the cost of coal, cost of transportation, methods and cost of handling and delivery, and sale prices. The methods used by the

different dealers, in so far as the Coast cities are concerned at any rate, are practically identical, and by comparison of the various costs, whether estimated, contracted for, or actually established in the business, reasonably accurate conclusions can be arrived at.

With reference to the operators, the statements produced in two instances are not complete, in that they do not give information of capital accounts. The head office of the Canadian Collieries (Dunsmuir), Limited, is in Toronto, and that of the Western Fuel Company is in San Francisco; and the business of each is divided so that only the operative accounts are kept here. But as these are complete in both instances, showing costs, sales prices, and earnings based on tonnage, the trading results can be reviewed without reference to the accounts kept in the head-office books.

SCHEME OF REPORT.

It is not my intention in this report to take, discuss, and analyse the businesses of the operators seriatim, nor of the dealers nor classes of dealers, but rather to endeavour to describe and discuss the cost of the different processes and methods employed in the industry as briefly as possible, giving figures and ranges of figures of costs found to exist, so that a general understanding thereof may be gathered. Throughout, I shall make such comments as appear to me pertinent and follow with recommendations or suggestions.

The material obtained from operators and dealers and the evidence adduced are naturally of a voluminous and complicated character, and their production herewith will enable such details to be worked out and such other lines to be followed as may be desired.

DESCRIPTION OF METHODS.

While I realize that many are familiar with the manner in which coal is mined and produced and dealt in in the Province, and that the Governmental reports are open to all, still I believe a brief outline of the methods employed would aid the consideration of the material of this inquiry and of this report.

The coal produced in the Province is of the bituminous class or of the lignite class, both of which, as is well known, are of a varying soft or friable nature; and to this fact is largely due the methods which are in vogue, both by the operator and dealer, in the different handling which the coal receives before it reaches the consumer.

Up to date the operator has had to look to the large or lump coal for his profit, making such saving as he can in the smaller coal. The dealer has had in turn to look forward to and absorb a loss on the smaller coal and slack created in transit and in handling from the lump coal.

(1.) METHODS OF OPERATORS.

Generally speaking, the coal is mined by the "long-wall" and "room-and-pillar" or "stall-and-pillar" systems; the first generally employed where the seam being worked is of a lesser thickness. Roadways are driven into the working-face on a lower level than the seam. At stated intervals along its working-face the seam is undercut by means of various kinds of machines to an extent of about 5 feet, the cutting being about 4 inches in height. Then, generally by small charges of powder put in along the top of the seam, the coal is broken down and loaded on cars in the nearest roadway. The cutting may be done in the middle of the seam where impurities occur, the top half being then broken and loaded and the bottom half follows. This method, where it can be employed, gives better results in respect of breakage.

The "room-and-pillar" system is used where the seams are thicker and consists generally of straight mining by powder or hand of alternate sections of the seam, leaving the other sections to sustain the weight. When the seam peters out or is lost and no further mining in a given direction and in a given extent can be done, the coal in the pillars is then taken out in the same manner, usually commencing at the farthest point, the mine being allowed to cave as the pillar coal is taken away. The coal thus mined is loaded on mine-cars, brought as near as can be to the working-faces.

Some variations in these systems are found in different mines, made necessary because of different physical conditions.

The coal is loaded on the mine-cars by the miners, and these cars are collected and brought to the surface, the coal-contents weighed and then dumped by various methods at different tipples into chutes carrying on to screens. The larger coal carries on to conveyor picking-tables, where rock and other foreign matter are picked out and cast aside as the coal passes. It is

then dumped off the end of the picking-table, either into bunkers and from there chuted into railroad-cars, or direct into the car. The car is then shipped to its destination by rail; or in case of most of the tonnage of the Vancouver Island mines, the car is brought down to the shipping wharf and its contents dropped into bunkers, and from there chuted into the scow or vessel or directly into the chute.

In the case of one of the Island mines, the dump is made from the cars loaded at the mines into bunkers, and from there chuted into other cars which take it down to the shipping wharf and there dumped into bunkers, and from there chuted to the scow or vessel.

Every drop or disturbance of this coal has the effect of creating a certain amount of smaller coal and slack by breakage or crushing; and in view of the conditions above referred to, it is needless to say that different schemes have been devised, more, of course, in some mines than in others, to lessen the disturbance as much as possible, thereby obviating as far as can be the making of the smaller coal and slack. For instance, devices in respect of the initial dumping; in respect of raising and lowering the end of the conveyor picking-table over which the coal drops into the car; in respect of different chutes for different stages of the tide on the shipping wharf; and also in raising and lowering the chutes used for loading the scow or vessel.

The screens, above mentioned, over which the lump or large coal goes, contains round apertures of 1½ inches in diameter in most of the mines and 1¼ inches in others; and the screenings which pass through these holes are conveyed to a washery, if the mine is so equipped, and then through other screens for the purpose of sizing the smaller coal; or if the mine has not a washery, direct to these other screens. The purpose of the washery is to take out from among the coal the rock-contents, which is done by agitation of one form or another of the coal in water in a large receptacle or vat. The rock, by reason of its greater specific gravity, becomes deposited at the bottom and from there removed by means of gates or valves. The water containing the coal is lipped over and the coal conveyed by chute or belt into smaller screens, which will produce slack or "sludge," pea, or nut coal. These are the only classes of small coal which have as yet been established by the industry in this Province; and there is variation in the different mines in the respective sizes. So that the classes of coal, having reference particularly to the Vancouver Island mines, which are being produced for the market are as follows: Lump, meaning everything over a 1½-inch screen in some cases and 1¼-inch in others; nut, through a 1½-inch screen or 1¼-inch, as the case may be, and over a ¾-inch screen or a ⅝-inch screen, as the case may be; pea, through a ¾-inch or ⅝-inch, as the case may be, and over a ¼-inch or ⅛-inch, as the case may be; slack, through a ¼-inch or ⅛-inch, as the case may be, and in the latter case it is sometimes called "sludge."

The market for slack or "sludge" has, as yet, not become very extensive; and although sale is made of some of it, and some is used under the boilers at the mine, yet in most cases the loss is considerable. In some cases, owing to the washery and sizing apparatus for the small coal being at the shipping-point and not at the mines, the original screenings are used under the boilers, with, of course, an added incidental loss.

In passing, I might say that in Eastern bituminous mines far more elaborate sizing of small coals is made. Different and distinct grades of nut, pea, "buckwheat," "rice," and "barley" are made, and the residue contains only the smallest particles, each class having about two grades. Then, also, different grades of "egg" are prepared from the larger coal. These grades have been established in the trade, with consequent benefit to all concerned; and to this feature I shall refer later. It is apparent that the handling of these smaller classes in transportation and by the dealers does not materially create slack-contents.

The occurrence of rock in the product, as will be seen, is a matter of difficulty from the first. The miner is supposed not to have any rock in his car-load; he is paid by weight, as will be afterwards seen. There are certain limitations under which he labours. For instance, the proportion of small coal in the product can only be roughly dealt with, and in respect of the large pieces there is some difficulty by reason of the fact that the rock immediately adjoining the seam or included therein is so affected that sometimes it is difficult to differentiate in the circumstances.

The matter has to be regulated, however, as rock-contents have to be paid for by the mine, not only in the initial price to the miner, but also in their proportion of the cost of all the other handling in the mine and at the tipple, and the full cost of picking, washing, and of making away with it.

So far as the miner is concerned, the system generally in vogue on Vancouver Island is what is known as the "court-house" system. If, at the tipple, a car is found—either by weight or inspection—to contain excess rock, it is diverted and dumped. And in a typical example, the miner is docked in double the weight up to and including 50 lb., his car is confiscated if the weight is over 50 lb. and including 100 lbs., and if over 100 lb. it is in the hands of the mine to dismiss, which would be liable to follow if, after investigation, deliberation is evident. This system is only an endeavour to meet the difficulty, and actually in cleaning the coal that goes through the tipple a proportion of the contents is lost.

I was able to obtain a record of this loss from the Western Fuel Company. During the year, May 1st, 1912, to April 30th, 1913, 12,862 tons of rock were thrown away from the picking-tables and washers in the two operating mines of that company, which is an average of 42½ tons per working-day and amounted to about 2 per cent. of the total output. In March, 1913, there were 804 tons taken from No. 1 mine and 338 tons from Northfield mine.

The physical conditions, which, of course, differ in different mines to a greater or less extent, have quite a bearing upon this feature; and also have a great bearing upon the amount of slack or small coal brought to the surface, in establishing in some cases of necessity the method of mining; and also in respect of the character of the coal itself, which in different mines is of a more or less friable nature. It is, of course, the aim and object of the mines, under present conditions, to bring the coal to the surface with the least possible proportion of slack and fine coal, and to carry it through the tipple with the least possible breakage; and the success of the different mines in this varies considerably. In fact, the proportion in the same mine, and even in the same seam, varies.

In the above discussion I have paid particular attention to the Vancouver Island mines, because they are the mines supplying the greatest portion of the Province. And, as a matter of fact, the other mines in the Province upon a permanent producing basis deal more largely in mine-run than in the other different grades of coal. Some sale of lump is made by the Crow's Nest Pass Coal Company, Limited, but its principal business is practically confined to mine-run, from which the slack is taken out and used in the production of coke. The Princeton mine and the Nicola Valley mines, until they can reach the Coast market, are also confined to dealing with mine-run principally.

(2.) METHODS OF DEALERS.

The coal is purchased by the dealers in the Province almost universally by scow or vessel f.o.b. at the mine shipping wharf, or f.o.b. railroad-cars at the tipple or at some near point of diversion. And this is also so in respect of coal purchased outside the Province.

In some cases, owing to the strike conditions which prevailed on Vancouver Island during the past year, coal from mines in the State of Washington has been purchased by Coast city dealers f.o.b. scow at Seattle or Tacoma, and, in fact, sometimes at a delivered price from a broker. Vancouver, North Vancouver, Victoria, and New Westminster dealers purchase by scow-load from the Vancouver Island mines, with the exception of a small amount purchased in cars and brought over by the transfer barge from Ladysmith.

From the scow the coal is discharged, with one exception, by wheelbarrows and deposited on the floor of a shed on the wharf. The pile so made is shovelled direct into sacks, fixed by means of a board rack on weigh-scales; or where it is screened it is shovelled against a propped-up framed wire screen, and then into sacks. The screens in use vary as to size of hole with different dealers, and range approximately from ⅜ to ¾ inch square.

With reference to the screening, I have concluded that, as a general rule and under normal conditions, the portion of the coal shipment containing slack and fine coal is screened in this way; but I have no doubt at times the coal has not been screened. This would be so during a rush of business, and particularly during last winter and spring, when the demand exceeded the supply on account of strike conditions. This very possibly would not apply to every dealer.

The sack and wooden rack sit on weigh-scales and the scale is made neutral at their weight, and the sack is then filled by shovel and balanced at 100 lb., swung off and set aside. A fresh sack is put on the rack, and the same process follows. The sacks are chiefly of the same kind, but undoubtedly weigh less or more according to whether they are in a dry or wet condition. This feature is met by instructions to the men from the shed foreman to watch and regulate the tare by reweighing at intervals, and particularly if wet sacks are observed. Carefulness in weighing may or may not continue to be exercised, according to the efficiency of the

service. I am of the opinion, however, that even if it is reasonably attended to, variation to some extent must necessarily occur; and that variation, whatever it is, in a ton of coal is multiplied twenty times. It may be in favour of or against the dealer. If the difference in the weight of sacks by reason of water-contents is not carefully and frequently adjusted, then the weight of the ton will vary considerably. This again may be in favour of or against the dealer, but it is only natural to suppose that the chances would not favour the consumer. The exact extent of the variation, of course, it is impossible to obtain, but I think it is a natural incident to the system used.

The coal is delivered to the consumer by horse-drawn wagons for the most part, although motor-trucks have lately been introduced as an auxiliary. The teaming is largely done by the dealer himself, but is also contracted for by some dealers altogether, and by others when their business demands require additional service. The usual load of a wagon is 2 or 3 tons, but some wagons carry 3½ tons, and even up to 4 tons, in special cases of near hauling. The load of a motor-truck runs from 3 to 5 tons. The teamster gets as near to the house with the wagon as he can, and then packs the sacks on his back into the house, to the coal-bin, and dumps them. The time consumed in this discharge of course varies with the pack and also with the teamster.

Speaking generally, and in reference to the Coast cities, practically no attempt has been made in house-building towards arranging for the convenient and economic reception of coal; and this is one of the features to which I shall later refer in criticizing the present system of delivering to the consumer. During the time of pack an expensive apparatus stands idle, and this enters most definitely into cost of delivering.

Having in view the fact that every process of handling the coal makes slack and small coal to a certain extent, it will readily be seen that with careful preparation by the mine in the first place, the coal that arrives at the dealer's yards in railroad-cars is in a cleaner condition; and this coal is not as a rule screened. It is either sacked and weighed in the car itself, where the use of the car is permitted, or shovelled from the car and then sacked.

I have seen scow-loads loaded at the different mines and received by dealers with the proportion of slack-contents running all the way from approximately 3 to 25 per cent. A variation in car-loads is present but upon a lesser scale; there is always the accompanying proportion of coal smaller than the 1½-inch lump originally produced.

It will be seen that the screens of the dealer are supposed to take out the slack thus made and the fine coal up to sometimes ¾ inch in size. In the sacking process also an attempt is made to segregate with the shovels what is colloquially called "nut" coal and sold as such, apart from the regular nut obtained from the mine. This practice of segregation is, however, indefinite and not followed continuously nor strictly.

In the case of one dealer in Vancouver a power unloading plant is used. The scow is unloaded by means of a scraper drawn across, the coal being conveyed to screens, and then passing over the screens is deposited on the floor by a chute. The hand-shovel and wheelbarrow method is being adhered to by most of the dealers, with the claim that there is less breakage and that the extra cost is more than thereby made up.

The ultimate result is that where these different handlings and processes are carefully and continuously attended to, the consumer buying lump coal gets a commodity made up of that coal which will pass over a 1½-inch or 1¼-inch screen, with a certain varying proportion of smaller coal down to approximately ¾ to ⅜ inch in size. This would obtain over the whole range of coal delivered, but a particular load to a consumer might have a greater quantity of the large coal than another, because, as mentioned before, generally speaking, the coal shovelled direct to the sack is composed almost entirely of the larger lumps, and that thrown against the screen is smaller. And some loads might very well be all or for the most part composed of large coal, as against other loads having greater quantities of sacks containing smaller coal.

I met with some attempts to equalize, but do not think that they are effective. So that there is, in my opinion, even when the best results are got from the present system, an absence of a specific character or a definite class of the commodity purchased. Where any slack-contents are allowed to occur, this feature is, of course, accentuated.

COST OF PRODUCTION.

The cost of production per ton varies considerably in different mines. This is a natural incident in any class of industry, on account of a difference in management and methods and

what we might term natural conditions. But more particularly so is it a fact in the coal-mining industry, because of the great variance in natural conditions and the direct action of such variance upon costs. Without doubt this is so to such an extent that, without detailed examination of the physical conditions in which the coal is found; of the character of the coal itself; of the methods of mining employed; their necessity and adaptability; of the work underground outside of the mining and bringing the coal to the surface rendered necessary by the conditions in each case; of the natural shipping conditions; of protective measures rendered necessary in coping with gas and fire; and of the extent of the coal unraised (in other words, the life of the mine), it would be absolutely impossible to arrive at any definite conclusion by comparison of figures from different mines as to what the cost of production ought to be in a given case. Such an examination would have to be made by experts, and even at its end opinions only could be given as results.

In considering these features of the industry, there arises also the thought that the prices of coals where there is a ready market are within a certain limit fixed by the mines which are not so happily situated in respect of some or all of these conditions.

The statements submitted show the cost of production, going back as far as ten years in one case, and in other cases ranging from two to five years back.

In all, I have examined into the affairs of the following companies: The Canadian Collieries (Dunsmuir), Limited; The Corbin Coal and Coke Company, Limited; the Crow's Nest Pass Coal and Coke Company, Limited; the Hosmer Mines; the Inland Coal and Coke Company, Limited; the Pacific Coast Coal Mines, Limited; the Princeton Coal and Land Company, Limited; the Nicola Valley Coal and Coke Company, Limited; the Vancouver-Nanaimo Coal Mining Company, Limited; and the Western Fuel Company.

The Diamond Vale Collieries, Limited, has only been operating intermittently, and in respect of this mine I examined the president of the company generally upon conditions of the field.

The costs of production are given in each case for the various years designated, and worked out upon the tonnage basis. And it may be in order for me to comment upon some salient points which I must confess were not in my mind when I took up the work of the Commission, and which have a bearing upon the popular ignorance of or inattention to those costs of the industry outside of the actual amount paid to the miner who cuts the coal.

In the first place, it must be understood that all the underground costs are applicable to the smaller coal and slack produced, as well as to the lump; and by reference to the mine prices referred to in this report under "Cost to Dealers", it will be seen at a glance the lower prices obtained for these lesser grades. To this is added the fact that in all the mines a proportion of this slack is absolutely lost, which is greater in some mines than in others.

The costs of handling the screenings at the tipple and in their sizing are greater than those in respect of the lump; and the subsequent costs would be approximately the same. When it is considered that the percentage of the total production of screenings made at the tipple ranges from 30 to almost 50 per cent. in some cases, the importance of this phase of the situation is established.

Besides this is the feature of rock-contents to which I have already called attention, and which are paid for right through the costs with no return.

The cost of labour is, of course, the greatest cost of production. Throughout the Province labour is divided into "contract" and "company". The contract labour is generally confined to that of miners who actually cut and load the coal on the mine-cars. The cutting in some mines is not all done by contract, and particularly is this so in "long-wall" work, where, however, the loading of mine-cars is generally contracted. The price of the contract labour varies with different mines and with different seams in the same mine, being based upon the conveniences with which the coal can be mined, in view of the existing conditions and the methods employed.

These contractors purchase their necessary supplies from the company at prices fixed by agreement. The prices paid to the contracting miner are for the gross or long ton of 2,240 lb., and a minimum wage is also fixed. The prices paid to the contracting miners for actual mining alone range from 68 cents to $1.10 per ton on Vancouver Island; from 65 to 75 cents in the Nicola Valley; and from 55 to 62½ cents in the Crowsnest, with a deduction of 5 cents where pillars are being extracted. The contracting miner is also paid yardage and allowances upon a fixed scale for all work that he does incidental to but outside of the actual mining itself.

All other labour in the mine, either underground or above ground, is paid for at daily rates fixed by existing agreements. Such other labour is extensive, and briefly is represented under-

ground by such as firemen, shotlighters, bratticemen, timbermen, timbermen helpers, tracklayers, roadmen, driver-boss, drivers single, drivers double, pushers, winch-drivers, rope-riders, door-boys, stablemen, pumpmen, linemen, machine-runners, drillers, muckers, cogmen, pipemen, loaders, motormen, cagemen, and other labourers. Above ground are blacksmiths, blacksmith helpers, machinists, machinists' helpers, carpenters, carpenters' helpers, engineers on the slope or shaft, engineers on compressors, firemen, teamsters, tipplemen, and other labourers.

These are simply cited to give a running idea of the many classes of employees in and about the mine, outside the miner himself.

The proportion of the amount expended in company labour to that of contract labour varies, for many reasons. It becomes less, I should say, as the output is increased beyond a certain limit, as a certain organization would be necessary even if the output is very low. Speaking roughly, I should say that the number of company employees underground and in and around the tipple would ordinarily be considerably more than the number of miners. These are paid fixed wages, ranging from approximately $3 up, excepting a small number of boys and Chinamen. The average earnings of the miner is, of course, greater than those of the company employee. But, again speaking roughly, the total amount paid for company employees would ordinarily work out to be slightly over the total amount paid to the miners.

Underground there is also the cost of materials and supplies for the mine used by the company employees and the cost of dead-work, in the nature of development, the greater portion of which must necessarily be absorbed in mining costs.

And on the surface there is a considerable organization and at the shipping wharf, where such is used. The cost of haulage, which, in the case of where the mine owns the mine railroad (which generally obtains), is made up of all the costs which are incident to railroading. The business calls for a complete and efficient organization of officials, and the office expenses and salaries must needs amount to a considerable item.

Then there are the insurance costs, both as to fire and accident, and various other costs, such as repairs and maintenance, surveying and engineering department, live-stock department.

Besides these, wear and tear on the buildings, plant, and machinery has to be taken care of by writing off a percentage for depreciation, which must enter into mining costs.

And depletion of coal-areas by production has also to be cared for in the same manner, as by the time the properties are worked out the capital invested in their purchase and in equipment and development has to be represented from the fund created from the earnings, otherwise the investment could not be contemplated.

A consideration of the items above referred to in connection with the extensive and complicated business will give one a little understanding of what goes to make up the composite item of "average cost per ton." And it will be understood that the amount paid to the miner for cutting coal and loading his car must relatively lose the importance with which it has been considered by those unfamiliar with the business of coal-mining.

The difference in local physical conditions, already referred to, plays a most important part in so many ways in connection with the expenses of mining, that it is not surprising to find a considerable difference in the average cost per ton in the different mines, even in the same field. Besides what has been already indicated, we find in one mine a great amount of timbering has to be done, while in another this is reduced to a minimum, owing to the solid character of roof and floor structures. One mine is subject to great expense in looking after gas accumulations, while another mine is singularly free from this. In one mine ventilation is the cause of considerably more cost than in another mine. The cost of fire-protection is also greater or less in different mines.

Then we have the occurrence of costly accidents from fire, water, and other causes, and the cost of strikes. Examples of these are really numerous; and all these expenses have to be absorbed with judgment in the cost of mining, and form a component part of the "average cost per ton," and vary in different mines. When we come to consider the prices of coal in other countries or in other parts of Canada, there is also to be added the fact that more distinct differences exist in respect of the cost of labour and material.

The mine operators, as already intimated, met me with a free disclosure of their business methods, records, books, and documents; and I was given full opportunity for examination, although I was putting them to great inconvenience and some expense. At the same time, it was desired that the details of their internal business, for obvious reasons, should not be made public; and while these are set out in the statements and documents submitted, I shall in this

report confine myself to mentioning the range of figures, without applying them to individual concerns. This also applies to the businesses of the dealers.

The average cost per long ton of the mines upon a permanent producing basis in the Province for the year 1912 range from $2.44 to $3.46, and for the year 1911 from $2.78 to $3.36. The fiscal year of the mines ends at different periods; and in the case of those which do not end with December 31st, the figures are given for the year having a greater proportion of the mine's fiscal year included. From some of the mines, on account of the recent changes in management, I was not able to get details in prior years; but of those from whom I did obtain such, the range in 1910 was from $2.56 to $3.34; in 1909 it was from $2.68 to $3.21; and in 1908 it was from $2.71 to $3.19.

On Vancouver Island the mines sell by the long ton; the mines in the Interior, on the other hand, sell by the short ton of 2,000 lb. And in these cases, for grouping purposes, the figures are adjusted to the long ton.

COST OF TRANSPORTATION.

As the mines sell at prices f.o.b. mines, transportation costs were obtained in the first instance from the purchasers. As to railroad carriage, rate schedules were obtained and the figures checked over. The existing railway rates are being investigated before the Railway Commission of Canada; and it is not necessary for me to enter upon a discussion of them, save only to refer to the complaint of the Merritt Board of Trade and the Nicola Valley mines as to rates to near points, which appear to be excessive and out of proportion.

The Nicola Valley mines, owing to a rate of $1.80 to the coast, are prevented from entering seriously into the Coast coal trade. On the other hand, they are encumbered with disproportionate rates to those nearest points which at present should be their natural and legitimate market. The result is that at the present time they are more or less in the hands of the purchasing railways to keep up their output. The completion of the Kettle Valley Railway to the Coast is expected to relieve the situation, but at present the rate to the Coast is the best rate those mines have. To all points in the Nicola Valley, even to Nicola, a distance of six miles, the rate is $1. To Golden the rate is $3.85, as against the rate of $3.10 from Taber to Golden, a greater distance.

The water transportation from the Island mines and the Washington mines to the lower Coast cities is done by scows and towing tugs, the scow-load containing approximately 400 long tons. There are different towing companies and individual tug-owners in the trade. The dealers in some cases do their own towing, the tugs, scows, etc., being owned by subsidiary companies, the towing being done at specified rates which are charged up in the coal business. The rates to the different cities are pretty well established; those paid by the dealer to its subsidiary company are approximately on a par with competitive rates.

The transportation to Prince Rupert is by barge-load sometimes, but principally by the steamers plying to that port. In cases where coal has been obtained by Prince Rupert dealers in barges, the load has run from 1,500 to 2,000 tons, and a reduction of the rate is thereby obtained.

An incident of the cost of transportation is the cost of insurance. The coal is insured while in transit by scows against total loss; insurance against partial loss cannot be obtained, and in the absence of a legal claim against the towing concern on account of negligence, such loss has to be borne by the purchaser. The going rate for insurance between Vancouver Island and the Coast cities is 1 per cent. of the purchase price, and runs to 1½ per cent. when two or more scows are towed. That between Puget Sound and Victoria is the same. And between Puget Sound and Vancouver it runs from 1½ per cent. in the case of one scow and up to 2 per cent. where two or more scows are towed. This insurance cost is sometimes absorbed by the towing rate.

The cost of transportation to the different cities may be given as follows, all rates by water being on the long ton and by rail on the short ton:—

Victoria.—From Vancouver Island mines by water, 50 cents per long ton; insurance, 1 per cent. in winter ¾ of 1 per cent. in summer. This is extra to the freight in the majority of cases, but in one case it is absorbed in the rate of 50 cents.

From Suquash mine, on Vancouver Island, near Hardy Bay, owned by the Pacific Coast Coal Mines, Limited, a mine which is only in the development stage, coal has been towed to Victoria, the rate being $1.25, with insurance additional.

One dealer gets his coal by rail, and another did so for a time, the freight rate per short ton being 90 cents from Ladysmith and $1 from Nanaimo, with an added charge of 10 cents for switching.

The prevailing towing rate from Puget Sound is 75 cents per long ton, although one dealer was able to get a 50-cent rate on coal which he purchased in Seattle during the recent shortage. The insurance rate runs from 1¼ to 2 per cent.

The only coal towed from Vancouver to Victoria has been some briquettes manufactured in Vancouver, and the towing rate was 75 cents.

Vancouver.—Coal is brought in to Vancouver from many mines.

From Vancouver Island mines, comprising the Canadian Collieries (Dunsmuir), Limited; mines at Extension (shipping-point, Ladysmith); mines at Cumberland (shipping-point, Union Bay); the Pacific Coast Coal Mines, Limited; mines at South Wellington (shipping-point, Boat Harbour); mine at Suquash; the Vancouver-Nanaimo Coal Mining Company, Limited; mine near Nanaimo; Western Fuel Company mines at and near Nanaimo.

From the Nicola Valley mines, consisting of the Nicola Valley Coal and Coke Company, Limited, and the Inland Coal and Coke Company, Limited.

From the Princeton Coal and Land Company, Limited.

From the Crow's Nest Pass Coal and Coke Company, Limited. The coal from this company, however, was diverted to railroad contractors and did not enter into the domestic market.

From the Bankhead mines, near Banff, Alberta.

From the Carney mines at Carneysville, Wyoming, and from mines in the State of Pennsylvania.

From mines in the State of Washington (shipping-points, Seattle or Tacoma); such mines comprising the following: Grand Ridge, Mendota, East Creek, Issaquah, Newcastle, Tono, Lady Wellington, Roslyn, and Pennsylvania.

Coal has also been brought into Vancouver from Australia and Japan during the past year, particulars of which were obtained, but this coal was principally for use by the Vancouver Gas Company, Limited. One dealer, however, brought Australian coal into the local market.

By Water.—The towing from Ladysmith and Union Bay is done by a subsidiary company of the dealer handling the coal of the Canadian Collieries (Dunsmuir), Limited, a flat rate being charged from the two points of 50 cents per ton, which includes insurance. The rate paid from Boat Harbour is 45 cents, with insurance additional, and from Suquash about $1. From the shipping-point of the Vancouver-Nanaimo Coal Mining Company, Limited, the rate paid is 45 cents, including insurance. From Nanaimo the rate charged by the subsidiary company doing the towing for Evans, Coleman and Evans, Limited, who deal in coal from the Western Fuel Company, is 50 cents, including insurance. From Seattle and Tacoma the rates are approximately 60 cents and 70 cents respectively; insurance additional. And with an additional charge in case of False Creek dealers of approximately 5 cents for transferring in from English Bay.

By Rail.—From Ladysmith the rate is 80 cents; from Nanaimo and South Wellington, $1, with an additional charge in each case for switching of approximately 10 cents per ton.

From Merritt, the shipping-point of the Nicola Valley mines, the rate is $1.80. From Princeton, Crowsnest, and Bankhead the rate is $3.50. From Carneysville, Wyoming, the rate paid was $7.55. Coal from mines in the State of Pennsylvania is purchased f.o.b. Western Lake points, the rate being $8.

New Westminster.—The rate by water from Boat Harbour is 55 cents, with insurance additional. From Nanaimo, 60 cents, including insurance; and in the only case where a subsidiary concern does the towing, the rate charged is 50 cents from Ladysmith and 70 cents from Union Bay, including insurance. The rate from Seattle by water is 75 cents, with insurance additional generally, but sometimes absorbed.

Prince Rupert.—The going rates from Vancouver Island points range from $2 to $2.50, according to quantity, with the insurance absorbed or not written in some cases and additional in others. The rate from Seattle is $2.75.

In the following other places in the Province the following rates obtain, with an additional switching charge, where such service is required:—

Ashcroft.—From Vancouver Island mines, $3; from Merritt, $1.55.

Armstrong.—From Vancouver Island mines, $4.30; from Bankhead, $3.50; from Merritt, $2.50.

Golden.—From Merritt, $3.85; from Taber, $3.10; from Bankhead, $2.25.

Grand Forks.—From Princeton, $2.25; from Lethbridge, $3.95; from Crowsnest, $3.20; from Bankhead, $4.

Greenwood.—From Lethbridge, $4.10; from Taber, $4.25; from Crowsnest, $3.30.

Kelowna.—From Pennsylvania State mines (shipping-point, Fort William), $8; from Merritt, $3.30; from Taber, Alberta, $5.30; from Vancouver, $4.50; from Bankhead, $4.20.

Kamloops.—From Merritt, $2; from Lethbridge, $4.80; from Vancouver Island, $3; from Bankhead, $3.50.

Nelson.—From Lethbridge, $3.10; from Bankhead, $3.50; from Princeton, $2.25; from Crowsnest, $2.40.

Penticton.—From Bankhead, $4.20; from Lethbridge, $5.20; from Merritt, $3.30.

Revelstoke.—From Bankhead, $3; from Vancouver Island, $4.30; from Lethbridge, $3.80; from Hillcrest, $4.80; from Merritt, $2.50.

Rossland.—From Princeton, $2.50; from Bankhead, $3.50; from Lethbridge, $3.35; from Crowsnest, $2.60; from Carneysville, $5.05.

COST TO DEALERS.

Under this heading I shall discuss the selling-prices of the operators for the different classes of coal; the cost of transportation and the incidental insurance; the cost of discharging, screening, sacking, weighing, wharfage, duty, and other fixed costs; cost of delivering, and such other costs as are incident to the business of the dealer, which may be termed general costs.

The intermediate costs will be discussed, eliminating the proportion of overhead or general costs applicable to the various items. In other words, the bare costs or payments out will be dealt with, leaving general costs to be taken up at the end.

I have found that the discharging and delivering in some instances are done by the dealer himself, and in others they are contracted for, as in the case of transportation as already indicated. I have endeavoured to obtain as definitely as possible the actual costs in the different cities and places, getting considered estimates in the evidence and such actual figures as records could afford. One would reasonably suppose that the actual costs of the definite processes could be got at with fairly accurate results. In the case of the larger dealers this is so to an extent. The smaller dealers could only give rough estimates, which in the case of shed expenses differ considerably. Even with the larger dealers the shed expenses of one business must differ from time to time, because of the greater or less amount of screening which has to be or is done in respect of different shipments.

The other costs of doing business are more or less indefinite, and vary amongst the dealers considerably, as would be expected. In cases where other businesses are being carried on in connection with the coal business the difficulty of segregation or proportionment is met. Most of the larger dealers do a wholesale coal-agency business, receiving from the mines a commission on direct sales of scow-load or car-load, ranging from 3½ to 5 per cent. For this commission they make the sales, attend to deliveries, and guarantee the accounts. An arbitrary proportion of the general costs applicable has to be made against this business.

(1.) MINES' SELLING-PRICES.

Since 1907 the selling-prices of the Vancouver Island mines have remained the same, the coal being sold by long ton. At that time there was a general increase of 50 cents a ton on lump, and from 25 cents to 50 cents on the smaller coal.

The prices of lump coal of these mines, save that of the Vancouver-Nanaimo Coal Mining Company, Limited, is $4.50; that company sells lump at $4.75. These prices are fixed and apply to every purchaser, save in respect of the Northern or Alaskan trade, and in the case of some large contracts to which I shall refer later.

The prices of the smaller coal, with the sizes, in the Vancouver Island mines are as follows:

Canadian Collieries (Dunsmuir), Limited.—Washed nut through 1¼-inch and over ½-inch, $3.50; washed pea through ½-inch and over ⅛-inch, $2.50 and $3. The residue from the washery is not sold. Raw screenings are used under the boilers, and from them is deducted the proportion of the residue as found in the washery and treated as unsold. In this way from 20 to 25 per cent. of the output is lost to the operator.

Pacific Coast Coal Mines, Limited.—Washed nut through 1½-inch and over ¾-inch, $4; washed pea through ¾-inch and over ¼-inch, $3.25; washed slack made through ¼-inch, $2, although most of this is not sold.

Vancouver-Nanaimo Coal Mining Company, Limited.—Raw nut through 1½-inch and over ¾-inch, $3.65; raw pea through ¾-inch and over ¼-inch, $2.75. The raw slack through ¼-inch is flumed away. Some sales have been made at the price of $1 to $1.35, but it is mostly unsold.

Western Fuel Company.—Washed nut through 1½-inch and over ¾-inch, $4; washed pea No. 1 through ¾-inch and over ⅝-inch, $3.50; washed pea No. 2 through ⅝-inch and over ⅜-inch, $3; washed slack through ⅜-inch and over ⅛-inch, $1.60. Raw slack when made through ⅜-inch has a price of 50 cents. The residue from the washery through ⅛-inch (termed "sludge") is mostly used under the boilers of the mine, with no outside sales.

The reason, I presume, for these differences in prices is that the great bulk of the trade is as yet in lump, rendering its incidents more stable, and also the differences in the sizing of the smaller coal.

Interior Mines.—At the mines of the Interior, as mentioned before, the bulk of the coal sold is mine-run, which is sometimes screened over ¾-inch screens and sometimes not screened at all. Lump is not dealt in extensively and the screens used are not uniform. The prices are all based on the *short* ton, and are as follows:—

Nicola Valley Coal and Coke Company, Limited.—Lump, $4.50 to $5; raw nut through 2½-inch and over ½-inch, $3 to $4; raw pea through ½-inch and over ¼-inch, $2 to $2.25; mine-run, $2.80 to $3; raw slack, $1.

Inland Coal and Coke Company, Limited.—This mine is as yet in the development stage, with no equipment for preparation of different classes. They have been selling mine-run at $3, screened coal at $4, and screenings, which would include nut and pea, at $1.50. Most of the output is being sold as mine-run to the Canadian Pacific Railway Company at a reduced price.

Princeton Coal and Land Company, Limited.—Lump, $3.50; mine-run, $3; and as to the smaller coal, in view of market conditions the prices have not been fixed.

Crow's Nest Pass Coal and Coke Company, Limited.—Lump, $3 to $3.25; mine-run over ¾-inch screens, $2.75; screenings, $2.

The Hosmer Mines.—Owned by the Canadian Pacific Railway; do not enter into general market conditions, as the coal produced is used exclusively by the railway.

Corbin Coal and Coke Company, Limited.—This mine is as yet in the development stage. No screening is done, the coal produced being sold as mine-run to the railways, and some of it is handled by the company in Spokane, being shipped also as mine-run. Owing to undeveloped conditions it contains approximately 75 per cent. slack.

The prices of the coal from mines in the State of Washington were obtained f.o.b. scow at the shipping-point on Puget Sound, generally. These prices varied even in respect of the same class of coal from the same mine, and in some instances in Vancouver it was purchased at a delivered price.

The reason for the variance is chiefly due to the fact of agents or brokers in the Sound cities and here acting in or being eliminated from the trade. I did not go to the respective mines and investigate the sizes.

Prices were paid by dealers per long ton as follows:—

Grand Ridge.—Shipping-point, Seattle. To Victoria: Lump, $4.15 and $4.35; nut, $3.25 and $3.40; pea, $2. To Vancouver: Lump, $4.55; egg ex cars (shipping-point, the mines), $4.15 per short ton. Delivered price of lump, $6 and $6.25; nut, $5.25 and $5.50.

Mendota.—Shipping-point, Seattle. To Vancouver: Lump, $4.75; nut, $4.05; mine-run, screened, $4.80.

East Creek.—Shipping-point, Seattle. To Vancouver: Lump, $4.75, $4.55, and $4.50; egg, $4.25, $4.15, and $4.10.

Issaquah.—Shipping-point, Seattle. To Vancouver: Lump, $4.50; nut, $3.50 and $3.15; pea, $1.60. At a delivered price at Vancouver: Lump, $6.25; nut, $5.25.

Tono.—Shipping-point, Seattle. To Vancouver: Lump, $4.50; nut, $3.50; mine-run, $4.35. Delivered at Vancouver: Lump, $6.35.

Newcastle.—Shipping-point, Seattle. To Vancouver: Lump, $4.65; nut, $3.75.

Lady Wellington.—Shipping-point, Seattle. To Vancouver: Lump, $5.25 and $5.15; nut, $4.25. Delivered price: Lump, $6; nut, $5.15; pea, $4.

Roslyn.—Shipping-point, Seattle. To Victoria: Lump, $4.74. To Vancouver: Lump, $4.70 and $4.50; nut, $3.50.

Pennsylvania (Washington).—To Vancouver: Mine-run, $4.35.

Carney Mines.—Situated at Carneysville, Wyoming. Shipping-point, Carneysville. To Vancouver: Lump, $2.25.

Mines in Pennsylvania.—Shipping-point, head of the lakes. To Vancouver: Grate, egg, or stove, $6.50; nut, $6.75; pea, $5.50; buckwheat, $4.

With reference to the different mines outside the Province supplying Interior points, the different prices I have obtained, besides those already given, are per short ton as follows:—

Bankhead Mines.—Shipping-point, Bankhead. Lump and broken egg, $5.50 and $5.75; nut, $4 and $4.25; briquettes, $4; pea, $2 and $2.50.

Lethbridge Mines.—Lump, $3.85.

Hillcrest Mine.—Shipping-point, Hillcrest, Alberta. Mine-run, $2.35.

Canada West Mine.—Shipping-point, Taber, Alberta. Lump, $4.15.

(2.) COST OF TRANSPORTATION.

This has already been dealt with under its own heading.

(3.) COST OF DISCHARGING.

This cost sometimes is based on the long ton, sometimes on the short, generally according as the purchase is made.

In Victoria the discharging of coal from scows into the shed is done invariably by the towing concern under contract at a price of 25 cents per long ton. The dealer receiving by rail estimates the cost at 10 cents per long ton.

In Vancouver I have estimates from the larger dealers running from 17½ to 30 cents. From one of the large dealers I have actual figures from records covering the period September 17th, 1912, to May 2nd, 1913, in connection with each scow unloaded, and the cost ranges from 14 to 31 cents per long ton. The greater bulk of the figures show a range of from approximately 17 cents to approximately 25 cents. From another of the larger dealers I have the actual cost for the year 1910 of 25 cents per short ton; for the year 1911, 22½ cents; and for the year 1912, 22½ cents.

The estimate of this cost given me by the dealer who unloads mechanically, above referred to, is 15 cents per long ton. With this has to be taken into consideration that his method undoubtedly makes more slack and small coal than by the old wheelbarrow method.

Amongst the smaller dealers in Vancouver estimates only could be obtained, and these gave greater variations, running from 18 to 35 cents, with a comparatively less cost where the coal is discharged from cars.

In the remaining places of the Province I have only been able to obtain estimates.

In New Westminster two dealers gave 30 cents and two dealers gave 35 cents per long ton.

In North Vancouver the estimate given was 25 cents per long ton.

In Prince Rupert the discharging is done by the carrier and is absorbed in the cost of transportation.

In the Interior I have estimates given me of 15 and 25 cents, which, of course, has to do with the short ton. In some of the Interior points, as already mentioned, the discharging cost is absorbed by the screening and sacking cost on account of the latter operations being done in the car itself.

As this cost is being treated as confined to labour, the variations shown must occur in the class and prices of labour and the distance of the dump from the scow, which no doubt varies from time to time.

(4.) COST OF SCREENING, SACKING, AND WEIGHING.

Loading the sacks of coal on to the wagons or trucks is done by the teamster aided by the shedman, and the actual cost is absorbed in the costs now being considered or in the delivery cost. The only segregation of different items in the cost of screening, sacking, and weighing which can be made is that in respect of the cost of sacks, which will be dealt with under a following subhead.

Some actual figures were obtained as to these costs, but in the main they could only be given in the shape of estimates. The figures are in all cases based on the short ton.

In Victoria these costs have been given at 25 cents. In the case of the dealer who received his coal by rail it is placed at 20 cents. And in the cast of nut coal—in connection with which there is no screening—the sacking and weighing cost is placed at 20 cents. The figures given me in every case were estimated. For one thing, the labour is practically all Oriental, but even at that I am inclined to think the figures given have been underestimated.

In Vancouver the figures run from 27 2-3 to 50 cents. Actual figures have been given me in one instance for December, 1912, 27 2-3 cents; January, 1913, 30 cents; February, 1913, 31¼ cents; and March, 1913, 30 cents.

In one case the preparation and delivery of the coal is run as a separate department; and in this case actual figures have been given me which would include, besides labour costs, the other costs directly applicable to this part of the business, such as salaries, maintenance, rent, light, water, telephone, stationery and printing, insurance, taxes, office expenses, and the like. For the year ending August 31st, 1910, these costs amount to 69 cents per ton; for the year ending August 31st, 1911, 80 1-10 cents per ton; and for the year ending August 31st, 1912, 71 3-10 cents per ton.

In the case of the dealer already referred to who discharges and screens by mechanical methods, the cost of discharging, screening, sacking, and weighing is lumped at 40 cents; the cost of sacking and weighing being placed at 25 cents.

From the smaller dealers in Vancouver and surrounding district I have received estimates ranging from 25 to 50 cents.

In New Westminster estimates have been placed at 30, 35, and 40 cents. At North Vancouver, 30 cents. At Prince Rupert, 40 to 60 cents.

At the Interior points I was not able to get any definite estimates in this connection. From the figures submitted, however, some reasonable understanding can be obtained as to these costs. As is too often the case in smaller businesses, no reliable records are available. I found in one case a margin of $2 worked to between the receiving cost and the delivered price.

(5.) COST OF SACKS.

The sacks generally used are made of heavy jute, and a sack, it is generally estimated, can be used about twenty times, so that the cost of a sack approximately equals the cost per ton of sales. The price paid for sacks ranges from about 8 to 14 cents, according to the market conditions. Second-hand sacks and sugar and grain sacks have been used in some instances at a less initial cost, but the life of such is much shorter. Roughly speaking, the above estimate might hold where loss is sustained by sacks not being returned.

I find from actual figures from the larger dealers this cost ranges from 6 1-10 to 11½ cents per ton.

(6.) COST OF COAL LOST.

In all cases the coal is purchased from the mines at the mine weight, which is accepted as final. Where agency contracts exist, each contains a stipulation to this effect. No agent keeps a representative at the mine of his principal to check the weights of the coal purchased by him; and for various causes, none of which need necessarily be intentional, discrepancy in the weights might very easily occur.

Any carelessness or inattention on the part of the employee has its result, and where such results do not have to be checked up and cannot be interfered with, I should think there would be quite a probability of inaccuracies occurring in the shipment.

When the coal is shipped by rail there is a railroad check on the weights, which makes the situation somewhat different.

There is also the fact that the weighing of washed coal is sometimes done very soon after it has left the washery. Unless the rain keeps up the same amount of moisture, the dealer must lose when he weighs the coal; and if the moisture is kept up or increased, the consumer is buying a certain amount of water.

One dealer in Victoria estimates that his loss on the washed grades of coal in this respect is equal to 2 per cent., and a dealer in Vancouver approximates this figure.

Then there is the loss of a certain amount of coal in transit, which must amount to something from the dropping of coal off the scow and off wheelbarrows into the water. Generally speaking, dealers estimate that they lose 1 per cent. of the coal they buy by these minor leakages, but I have no doubt that the percentage could be quite easily larger than that.

So far as the shortage in weights is concerned from all causes, it could be a very serious item. In fact, the books of one dealer show a discrepancy between coal bought and the coal delivered and on hand of nearly 5 per cent. for one year. In some cases where the floor and shed has been clean enough and it has been convenient, a scow-load has been weighed at once, and in one case a shortage of nearly 20 tons was found. In other cases the shortage has been less; and in some cases the weight has been approximately correct, or even over the invoiced weight.

This is evidently a feature which has to be considered in working out the cost of coal to the dealer, for where 60,000 or 70,000 tons are being dealt with in lots of 400 tons each, it does not require much of a discrepancy in each lot to total a considerable amount.

(7.) COST OF LOSS BY SCREENING.

I found an idea prevalent amongst the dealers that an adjustment of the long ton which they buy to the short ton which they sell is practically made by the loss sustained on screenings, which are sold for approximately half the price of lump.

They roughly estimate that the slack-contents would average about 10 per cent. or the 240 lb., and figure that they sell the slack at less than cost, and therefore the results practically eliminate the difference between the two tons. This is really a popular idea in the trade, if we might so speak.

The figures in a large business where complete records are kept are lost in the final results. The idea, however, is erroneous, as granting the slack-contents to equal the 240 lb., the price paid for the coal is eliminated so far as that poundage is concerned, as the price is carried on in full against the short ton. And the costs against the screenings are only the towing, insurance, discharging, sacking, and weighing, with the delivery cost, which in many cases would be less than the regular delivery cost, because screenings are almost universally sold to consumers inside, necessitating a short haul.

Besides this, screenings are more often than the larger coals sold in bulk, which would eliminate the sacking costs. Added to this, of course, are the overhead charges. It will be seen, therefore, by reference to the sale prices that such screenings are sold at a profit.

There is, however, considerable loss made on account of the fact that the lump coal purchased is screened. What that loss amounts to where the proper adjustment between the long and short ton is made is very difficult to ascertain. The percentage of screenings is not even approximately constant under present conditions.

One dealer estimates his screenings at 10 per cent. and his loss by leakage at 1 per cent., bringing down his long-ton costs to the basis of the short ton, and gives credit for the screenings at a price of $2.50 a ton at his wharf. This is a rough method, but fairly accurate, provided the percentages of screenings and leakage are correct.

As said before, however, in the case of the larger businesses which have been fully investigated, this cost affects the receipts and average sale price in the statements submitted.

(8.) COST OF WHARFAGE.

In most cases the use of the wharf is absorbed by the overhead costs, particularly where the coal business is the only business of the dealer.

In Victoria, however, one dealer is charged 20 cents per long ton, which could be regarded as rent. Another dealer segregates the rent of his wharf premises from overhead costs and works it out to approximately 25 cents per long ton of the coal handled.

In New Westminster 25 cents per long ton is given as the wharfage charge by all the dealers.

In Prince Rupert a straight wharfage of 50 cents per long ton is charged for all coal going into that city. No dealer owns or rents his own wharf. In fact, it is not possible to purchase or lease wharf accommodation. For this 50 cents a ton the dealers get the use of the wharf as a yard, although they are subject to some liabilities.

In Vancouver, by the dealer who segregates a certain part of his general costs in dealing with the wharf and yard separately, the wharfage cost is absorbed by the figures given for shed expenses under "Cost of Screening, Sacking, and Weighing." Another dealer owning his own wharf charges up "depreciation of wharf buildings" only, amounting to 2½ cents per short ton of sales.

(9.) COST OF PUBLIC WEIGHING.

Rossland is the only place where the use of city weigh-scales is in force in connection with the coal business. The cost is 15 cents per short ton.

(10.) COST OF DUTY.

The duty on bituminous coal coming into British Columbia from the United States, Australia, or Japan, 95 per cent. of which will not pass through a ¾-inch square screen, is 53 cents per short ton. On bituminous coal, 95 per cent. of which will pass through the screen, it is 14 cents per short ton. Anthracite coal of all grades is free.

(11.) COST OF DELIVERING.

The delivering is sometimes done by contract and sometimes by the dealer himself as part of his coal business, and again by a subsidiary company owned by the dealer; and the figures will be given with explanation in each case.

A scale of prices or costs has been established in each city, based on the length of haul.

In Victoria the delivery costs are all the same within the city limits, the dealer or contracting teamster depending on the short hauls to average up the longer. Outside the city limits the prices are more or less indefinite, depending upon the length of haul, their only regulation being competition.

In New Westminster the city is divided into two parts, the dividing-line being Fourth Avenue.

In Vancouver complicated boundaries exist and are practically the same with each of the larger dealers, the different boundaries giving rise to five or six different prices. These prices are all mirrored in the price of coal to the consumer, the additional price to the lowest price at which the coal is sold being represented by the additional amount paid for teaming.

In the evidence given it would appear that the present scale of teaming prices was established by the coal-dealers, in association, inspecting the city from the point of view of teaming costs and fixing the different prices for the different sections. This inspection occurred in November, 1911; and the condition of streets, besides the length of haul, was taken into consideration. Since that time no adjustment of these various sections has been made; and I think the reason of this is that during the winter of 1912-13 and subsequently on account of the active demand for coal, it was not brought home to the dealers that an adjustment was necessary. Competition to supply the demand, which I take it would be the real inducing factor towards an adjustment, was absent.

In the meantime, as everybody knows, street improvement has not stood still in the city. While I agree that there is a limit within which the minimum price should prevail, still I think that where a complicated scale of prices has been established having to do with condition of streets, as well as length of haul, a periodical adjustment should be made. As a matter of fact, I do not see why there should be such a complication of sections and accompanying prices as exist in the city.

The introduction of motor-trucks has undoubtedly reduced the cost of delivering to those dealers using them.

In Victoria teaming is contracted for at 85 cents per ton, or estimated at that figure, within the city limits. One dealer contracts at 75 cents per ton, but has the extra cost of about 10 cents per ton for helping the team off the wharf. One dealer has by the introduction of motor-trucks reduced the cost of teaming within the city limits to 60 cents a ton, which figure includes interest, depreciation, tire, and other costs connected with the trucks.

In Vancouver the cost with the larger dealers ranges from 62 cents to $1, covering the inside section. And in each case the addition to the minimum price of coal made for intermediate and outlying sections is, according to the evidence, represented by the extra cost of teaming, where the teaming is done by the dealer or is actually charged the dealer by the contracting teamster.

Amongst the smaller dealers, one has a contract for 72½ cents and another at 75 cents, but most of the smaller dealers that are at present in the business are builders' supply concerns, sawmills, and contracting firms who have been getting coal mainly from the mines in the State of Washington for the purpose of filling out their business in the winter months. Most of them have a large equipment of teams and wagons and have gone into the business in an endeavour to keep this equipment busy. From these I have been unable to get any definite figures.

In North Vancouver I have not been able to work out a delivery cost for a certain haul. All the delivering is done by teams hired by the day, and I could not get records which would give me definite figures per ton.

In New Westminster the teaming is contracted to independent teamsters by two of the dealers. One contract is 70 cents per ton up to Fourth Avenue and within the city limits, and $1.20 beyond Fourth Avenue within the city limits. The other contract is $1 and $1.25 for the same services. A careful estimate of another dealer in this city puts the figures at 75 cents and $1.25.

In Prince Rupert close-in deliveries are fairly estimated at from $1.25 to $1.50 per ton. The cost of delivering outside the central part of the city is very indefinite. The price of a team and man is $11 a day, as against $6.50 and $7 in the lower Coast cities. There was some evidence given as to these prices being the result of an arrangement amongst the teamsters of the city. I would not think it a price which would continue.

At Interior points I was able to get such figures as $1 per ton at Ashcroft; $1 per ton in bulk and $2 sacked at Armstrong; $1 to $1.25 at Grand Forks; 75 cents to $1.50 at Kelowna; 75 cents in bulk and $1.50 in sacks at Revelstoke; $1.25 at Rossland; $1 at Nelson; and 75 cents to $1 at Penticton.

At Kamloops coal is sold at a margin of $2 per ton to cover cost of handling, delivery, and profit.

(12.) GENERAL COSTS.

These are all the other costs incidental to doing business, and, needless to say, they are very hard to segregate. They will include management, rent, insurance, taxes, office salaries, office expenses, advertising, travelling expenses, commissions, stationery and printing, scales and tools, light and water, repairs, telephone and telegraph expenses, donations, bad debts, depreciation, interest, discount and exchange, and the like.

These costs depend so much upon the character of the management and upon occurrences sometimes beyond control of the management that it is a difficult thing to arrive at anything less than an approximate idea of what they are or really should be. It is only in the case of the larger businesses that accurate figures could be obtained.

In Victoria one dealer's books work out these costs at 63 cents per short ton sold for the year 1912. This is after showing the wharfage cost of 25 cents per long ton before mentioned.

In Vancouver these costs are shown by three of the larger dealers in a form more or less capable of being investigated, and from these an approximate idea of their proportion may be obtained. Worked out on the basis of short-ton sales, they run from 49.9 to 83.5 cents per ton, the range being taken in one instance over three separate year periods.

From the above discussion may be gleaned an understanding of the different items that go to make up the cost to dealers, and a general idea, though approximate, of the respective costs. I find that where a saving is made by one dealer along one line, in another instance he is probably higher than his competitor.

COST TO DEALERS AND CONSUMERS OUT OF THE PROVINCE.

The mines of the Western Fuel Company at Nanaimo sell lump coal to the company itself for transhipment to San Francisco at a flat rate of $3.75 f.o.b. vessel at Nanaimo. It is carried under the company's own charters.

The coal sold to Seattle or other Puget Sound points is at the regular selling-prices. That for Alaska points is sold for about 50 cents a ton more.

In the bunkering of ocean vessels, a shade on the regular price is made by some mines owing to the quantities contracted for.

British Columbia Wellington coal is sold at Seattle to teamster or consumer at the prices of $8 for lump and $7 for nut at the yard per short ton; and in San Francisco to dealers at the yard at the price of $8 for lump per long ton.

There is no duty now levied.

COST TO CONSUMERS.

The prices at which coal has been sold to consumers in the lower Coast cities have remained practically the same since 1907, when a raise of $1 a ton on lump and an adjustment on the prices of smaller coal was made. The prices are for delivered coal, which means that the coal

is carried in from the wagons and deposited in that part of the consumer's cellar, basement, or house where it is kept.

Within the minimum delivery zone in Victoria, Vancouver, and New Westminster, the price for lump from the Vancouver Island mines is the same, with the exception of the coal from the Vancouver-Nanaimo Coal Mining Company, Limited, which has recently been sold at 50 cents a ton of an advance—a condition upon which I shall comment under the later head of "Miscellaneous Differing Conditions".

In North Vancouver lump is sold generally at 50 cents advance over the prices in the other cities; and this condition will also be discussed under the same heading.

The prices of the smaller coals have a similar difference running through them, relative to the difference in the different mines' selling-prices.

In the importation of coal from the State of Washington, the dealers have generally worked to the existing prices on lump coal, and roughly to the prices of the other grades in the respective cities, although, as has been seen, the definitely fixed costs are considerably greater.

There are different features connected with this situation which I might mention here, which lead me to the conclusion that this situation is not as significant as would be indicated at first sight.

In the first place, this importation has grown up during the winter of 1912-13 and the year 1913 mainly on account of the fact that the output from the Island mines has been in these periods decreased to a very large extent by the prevailing strike conditions. And the situation has a consequent temporary aspect. The larger of the regular dealers, when faced by the cutting-off of all or part of their supply, obtained coal from different places in order to meet the demands of their customers, dealing in some of it undoubtedly at a loss and in some cases at little or no margin.

The period has not been sufficiently long to bring about any permanent adjustment. The unsatisfied demand caused other concerns, whose regular business lent itself to dealing in coal, to get into the coal trade. The fact of the falling-off in the businesses of builders' supplies and contracting induced many to enter the coal trade with a view to supplying extra work for their equipment. The readiness of the consumer to take anything in the shape of coal had a tendency towards the elimination of some of the costs of handling.

In giving the prices to the consumer of the different classes of coals in the different cities and places which I have investigated, I shall also give the prices of the coals from the mines, whether in or out of the Province. The prices will be given in each case for the zone of close-in deliveries, or minimum zone, as it may be termed.

Victoria.—All lump is sold at $7.50, with the exception recently of the lump from the Vancouver-Nanaimo Coal Mining Company, Limited, which is sold at $8. Nut from the Canadian Collieries (Dunsmuir), Limited, and from the Western Fuel Company, $6.50; from the Vancouver-Nanaimo Coal Mining Company, Limited, $7; and recently the nut from the Pacific Coast Coal Mines, Limited, made by shovels from the lump, has been sold at $7. The reason given for this is that owing to strike conditions the company is working under difficulties, and as a result there is a larger proportion of small coal in the shipments.

Very little pea coal has been sold for domestic use. The prices are $3.85 to $4.

The standard delivered price of screenings is $3.75, but it has ranged from that down to $2.75. Lump and nut coal is sold by one dealer at the yard for $1 less. The prevailing reduction, however, is 50 cents a ton.

Vancouver.—The prevailing prices are: Lump, $7.50; nut, $6.50; smaller pea, $5.25; screenings, $3.75. The principal variations of these prices follow: Coal from Vancouver-Nanaimo Coal Mining Company, Limited, lump, $8; nut, $7; pea, $4.50; screenings, $4. Western Fuel Company, No. 1 pea, $5.75. The Canadian Collieries (Dunsmuir), Limited (Ladysmith), nut, $5.75. By one dealer Lady Wellington and Grand Ridge lump is sold at $8 and nut at $7. By another dealer East Creek and Grand Ridge lump ranges from $7.50 to $8, and egg $6 to 7. By two dealers Inland lump is sold at $8 and nut at $7; and the same prices occurred in respect of Nicola coal. By still another dealer East Creek, Grand Ridge, and Tono lump is sold at $8; nut, $7; and screenings, $4.

The prevailing reduction for coal purchased at the yard is 50 cents per ton. One dealer gives as a reason for this reduction, not at least equalling the cost of delivery, that such sales would interfere with the economic handling of the teams.

Australian lump was sold for domestic purposes at $10 a ton, and Pennsylvania large anthracite at $17.50 and $18.

New Westminster.—The prevailing prices are: Lump, $7.50; nut, $6.50; pea, $4.75; and screenings, $3.75 to $3.50. One dealer sells lump at the wharf for $6.75 and the coal unscreened at $6.50.

North Vancouver.—Lump ranges from $7.75 to $8.50. Most of it, however, is sold at $8.

Prince Rupert.—The prevailing price for lump is $11. There are two exceptions—one dealer sells at $10.50, and another dealer who does very little screening sells at $9.50. Very little nut is sold, but the price runs from $8 to $10. Slack is sold at $5 a short ton and $6 a long ton. Price at wharf for sacked lump, $9.25.

At Nanaimo the Western Fuel Company and the Vancouver-Nanaimo Coal Mining Company, Limited, sell to teamsters at the mines for retail trade, lump coal at $4.50 and $5 per ton; and the delivered prices to the consumer are such prices, with teaming charges ranging from 50 cents to $1 added in the one case, and from $1 up in the other.

Interior Points: Ashcroft.—$9 to $11, according to quantities.

Armstrong.—Lump, egg, and briquettes, $12 delivered. At car, lump, $9; egg and briquettes, $10.

Grand Forks.—Lump and egg from Princeton coal-mines, $8 a single ton; $7.50 for 5 tons; $7 per car-load. Lump from Lethbridge mines, $10 a single ton; $9.50 for 5 tons; $9 a car-load; Crowsnest lump, $8.50.

Greenwood.—Lethbridge lump, $9.75.

Kelowna.—Pennsylvania anthracite, $17.50; Nicola Valley lump, $10; Canada West lump, $12; Western Fuel lump, $13; Bankhead lump, $11.70; Bankhead briquettes, $10.25.

Kamloops.—Nicola Valley lump, $8.50; mine-run, $7; Lethbridge lump, $10.65; Canadian Collieries lump, $9.50; Bankhead lump and briquettes, $9.50; pea, $6.

Nelson.—Lethbridge lump, $8.75; Bankhead nut, $9.50; Bankhead briquettes, $9; Bankhead lump, $11; Princeton lump, $8; Crowsnest lump, $7.50.

Penticton.—Bankhead lump, $12.50; briquettes, $11; Lethbridge lump, $11.75; Nicola Valley lump, $10.50.

Revelstoke.—Western Fuel lump, $11; Lethbridge and Taber lump, $9.50 to $10; Vancouver Island lump, $11; Bankhead lump, $10.50; briquettes, $8.75; Hillcrest mine-run, $7.50; Pennsylvania large anthracite, $16; Nicola Valley lump, $9; nut and mine-run, $8 and $7 in large quantities.

Rossland.—Princeton lump, $8; Bankhead briquettes, $9.50; nut, $10; egg, $11.25; Lethbridge lump, $9.25.

In the districts surrounding Vancouver, by means of diversion of car and scow shipments, coal is sold in parts near the dealer in South Vancouver, as follows: Lump, $8; nut, $7.50.

Cedar Cottage.—Lump, $8 nut, $7.50 and $7.75.

Kerrisdale.—Lump, $8.75.

For comparison purposes and nothing more, I append the prices to the consumer of different coals in Seattle, Washington. The prices are all per short ton at the yard. The delivery charge starts with $1 for the minimum zone and grades up for outer sections.

Lump.—Carbonado, $7.25; Washington, $4.50; Gale Creek, $7; Issaquah, $5; B.C. Wellington, $8; Black Diamond, $7; South Prairie, $7; Newcastle, $5; Renton, $5; Coal Creek, $5; Roslyn, $6.25; Mendota, $5; Grand Ridge, $5.

Nut.—Washington, $4.50; Issaquah, $3.50; Black Diamond, $5; Newcastle, $3; B.C. Wellington, $7; Renton, $3.75; Grand Ridge, $3.50.

Pea.—Washington, $4.75; Newcastle, $2.25.

Mine-run.—Gale Creek, $4.25; Black Diamond, $4.25; South Prairie, $4.25.

PROFITS.

I have had the Accountants of the Commission report upon all the statements and material obtained from the different operators; and I am submitting with this report a statement of sales, average price received, average cost, and average trading profit or loss, which covers all the active operators for the years 1912 and 1911, and three of them for the three preceding years; the figures not being available from the records of the other mines on account of change of hands or management.

As has already been intimated, full reports of the Accountants are also submitted with reference to three of the largest dealers, and these set out the same information; as also statements received from and evidence given by other dealers.

Generally speaking, I cannot say that unreasonable profit is being made in any branch of the industry. Trading profits are shown, but the finances of some of the companies, by reason of lack of capital and consequent borrowings and other indebtedness, have more than absorbed these trading profits. Dividends have only been paid by three operating companies up to the end of 1912. These dividends in no case have averaged more than 10 per cent. over the period of operations.

In arriving at the trading profit, so far as the operative accounts are concerned, there appear to be no extraordinary reserves made. In some cases the reserves for depreciation and depletion of coal-areas are greater than others. In the case of one of the operating companies, this is fixed at the head office, and the information was not available at the office in the Province. With this exception, having in view the investigation of conditions I have made, I do not think in any instance these reserves are abnormally high.

No abnormal surplus or general reserve appears to exist in any of the companies whose complete affairs have been examined.

QUESTION OF SHORTAGE.

Practically no storing of coal is done by any of the mines, nor is any done by the dealers, save that during the summer months there is a certain amount of accumulation of stock with the larger dealers, in an attempt to get ready for the increase of business as the colder weather approaches. The stock on hand has hardly ever been as large as would equal an average month's business in a colder period of the year. The dealer depends upon receiving his regular shipments from the mine in order to keep his customer supplied.

The costs incident to the actual handling that would be required, to the outlay of money, to the danger of fire, and the fact that deterioration in the coal itself would occur to a greater or less extent, have been the features accounting for the absence of storage methods.

The fact is that from time to time during the last five years there has been, on account of abnormally cold weather, a shortage of supply for the increased demand to a more or less degree. Of course, any disturbance in the normal conditions of the mines, by reason of strikes or other general causes, has produced a like result.

The strike of 1911 in the Crowsnest field and the strike conditions on Vancouver Island, dating from last fall and even up to the present time, have created shortages in Interior points in the first instance, and on the Coast in the second, of a very serious nature. Such conditions the establishment of storage conditions could not be expected to prevent.

In view of the difficulties mentioned, under present conditions, I cannot say as the result of my investigation that the establishment and maintenance of any greater storage facilities by the dealers could be required. The dealers have in several instances been active in different ways in an endeavour to increase their deliveries to consumers during the summer, and to induce the consumer, where possible, to lay in the winter supply or a great part of it during that time.

In the case of a small householder, the plan has been suggested of having two bins, with a ton of coal in each, and an order placed for the third ton when the first ton is finished, and so on. Certainly I feel that if those consumers who were able to attend to their coal needs in this way did so, there would be very little difficulty, even during the worst cold snap, for the dealers to supply that portion of the public who could not keep themselves supplied in advance.

The cost of delivering must necessarily be somewhat less in the summer-time than in the winter, taking it on the average. And keeping the business of the dealer up to its normal capacity during the summer, instead of it then slackening down, ought to mean a saving of something to the dealer. And I think it might well be conceived that a discount on the running prices could be given as an inducement to the consumer to lay up his winter coal in the summer. One dealer in Victoria has a standing discount of 5 per cent. in this connection.

The Vancouver Island mines are chiefly dependent upon the lower Coast cities for their sales, and as a consequence they have had always a difficulty, in the absence of storage provision, of keeping the mines to capacity during the summer. They have entered other markets such as Puget Sound, San Francisco, and Alaska, besides the bunkering of steamers; and as

the local demands have increased from year to year, adjustments have been made. The difficulty of adjustment has been accentuated because of the increase of the local demand being concentrated upon one portion of the year.

The contracts with reference to the bunkering of steamers principally, and also in connection with sales to other markets, certainly do present a great deal of difficulty when, on account of abnormal conditions, the demand from Coast cities is suddenly increased beyond expectations and the estimates submitted periodically by the agents.

I am told in their evidence by managers that their instructions are and policy is to subordinate other demands to the demands of the local market. Instances are cited where coal to other markets has been refused to a contractor by virtue of a clause which was construed to enable the coal to be used to satisfy the demands in the Province, when, as a matter of fact, the construction was questionable, and the chances of a lawsuit were taken.

With reference to the shipment of coal to San Francisco by the Western Fuel Company, I am told that steamers chartered in that business were turned aside by the company and every attempt made to satisfy local demands during the period the Nanaimo mines were operating and while strike conditions prevailed elsewhere.

In my opinion, the shortages which have existed in the coal trade in the Coast cities have been due to abnormal conditions such as indicated, and that *bona-fide* attempts have been made by the operators to meet the abnormal demands. Given a policy on the part of the operators to serve local demands first, consistent with the demands and incidents of their business relative to uniformity of output, the remedy for the shortages caused by weather conditions lies in a combination of dealer and consumer for the purpose of spreading the business of the coal trade more evenly throughout the year.

COMMENTS ON CONDITIONS.

(1.) MISCELLANEOUS DIFFERING CONDITIONS.

(a.) North Vancouver.

For the most part, the operators have regularly constituted agents in the different cities. These agencies are exclusive in their character as to the selling and the purchasing within a given territory. The idea of the contracts is undoubtedly to promote steadiness and definiteness in the business. Most of the contracts are of long standing, and in reference to the City of Vancouver, cover that city and surrounding territory. And since the establishment of the agencies the outlying districts have made great strides in population. So far as South Vancouver and Point Grey are concerned, there is no geographical line of demarcation and no definite centre, but North Vancouver is a definite city of itself.

I find that the existence of these agencies has the effect that the dealers in North Vancouver have to purchase their coal from the Vancouver agents, paying 25 cents a ton tribute. Sometimes the coal is shipped direct from the mine to North Vancouver. In other cases less than scow-load lots are purchased and towed over from the Vancouver agent's wharf. Possibly in connection with this business there is a *quid pro quo*, but so far as the purchase of lots direct from the mine are concerned, I see no reason why the conditions existing should not bespeak an elimination of North Vancouver from the Vancouver agent's territory, so that North Vancouver dealers could purchase direct from the mine as agent or otherwise.

The additional amount paid is, of course, in the price to the consumer. Altogether I found conditions existing in North Vancouver and its surrounding districts in a very indefinite shape in respect of the cost of coal to the consumer. The extra price per ton paid by the dealer would have its bearing on this indefiniteness, and should not continue to exist.

(b.) Vancouver-Nanaimo Coal Mining Company, Limited.

It will be noticed that the coal from this company is now sold at 50 cents more than coal from the other mines on Vancouver Island. This extra 50 cents was recently placed on the coal by the agent as the result of an agreement between him and the mine; and the moneys are divided, 40 cents to the mine and 10 cents to the dealer. This is practically an advance of the price by the mine, with a percentage thrown in to the dealer for carrying it through.

The mine was one of the mines whose employees went on strike on May 1st, 1913, in sympathy with the strike which existed in respect of the mines of the Canadian Collieries (Dunsmuir), Limited.

On August 21st, 1913, the company signed up with the United Mine Workers of America (the organization which induced and is behind the strike), and reopened their mine, the strike still continuing, as it still continues at this writing to a greater or less extent in all the other Vancouver Island mines. The wage agreement signed by the company differs from their former one, apart from the recognition of the United Mine Workers of America, and does set out an increased scale of wage, and in some other respects is more onerous.

The agreement made by the mine with the agent was to the effect that this increase in price was to obtain until the other mines on the Island were operating to their capacity. The reason of the increase given is that it is to offset the strike expenses of the mine and the more onerous conditions in the wage agreement.

I merely make mention of this, as the old and new agreements are submitted and the evidence given on the situation.

(c.) Prince Rupert.

A very great difference appears in the prices of coal to consumers in this city, as has been seen. The teaming prices charged, in respect of which there is some evidence of arrangement amongst the teamsters, are largely responsible for the $11 price. The negligent manner of dealing with sacks has also something to do with it. The cost of coal on the wharf, including wharfage, does not, in my estimation, justify the margin for handling, delivering, and legitimate profit.

(2.) GENERAL CONDITIONS.

In reviewing conditions obtaining in the coal industry, I could not but come to some conclusions in respect of the methods which are in vogue in the Province. And while I approach the matter with diffidence as a layman, still I should think I should give such criticisms and conclusions as have occurred to me; so, that if any of them are deemed of merit, by their further development a betterment of some of the conditions may be brought about.

(a.) Sizing and Quality.

As has been already referred to, there is an absence of standard for the various classes of coal and grades of classes, both as to size and quality.

As has been seen, the sizes of smaller coals dealt in only approximate each other; some are freed from impurities by washing and some are not. A consumer is not in a position, except upon inquiring from each dealer or by experimenting, to know whether the class of coal he is getting from a particular dealer is the best he can get for his purpose or for the price. Some of the smaller coals I examined have a perceptible amount of slack-contents; others have not.

With reference to the lump coal, practically the only large coal known to the market, there is no standard size of screen over which the same should be made; nor is there any standard as to quality in reference to rock-contents and percentage of slack and small coal in the product. As the market develops, other classes of coal will undoubtedly be created out of the present lump.

It is pretty well developed in the evidence that, granted that the lump is made clean in the first place and given proper handling, Vancouver Island lump could be delivered to the dealer with not more than 10 per cent. of slack-contents.

Lump coal is used by the majority of householders for furnace, grate, and stove; and with proper understanding of the merits of smaller coal, I think that its use will tend to be confined to furnace and grates. And from what inquiries I have made, I am convinced that a certain percentage of slack-contents is an economic benefit in the consumption of lump coal in furnaces. The larger furnaces of apartment-houses and offices adapted for its use are now more generally burning slack or pea or screenings, which is a mixture of both. But, so far as the ordinary householder is concerned, 10 to 15 per cent. of slack-contents used for banking fires is a benefit economically as compared with clean lump coal.

So that if by means of regulation and inspection lump could be standardized in the making and protected by the best methods of handling, it ought to be delivered to the consumer with no greater percentage of slack-contents, even under the present methods of the dealer, than would render the coal for use in furnaces as good if not better than clean lump, the extra costs of which the consumer now pays.

This would mean the elimination of the screening by the dealer and a saving thereby of at least 50 cents a ton, made up of the cost of the operation and of the loss in screenings. This

cost is admitted by the dealers, in the evidence taken, practically generally. Apart from the agreement of dealers to this proposition, as set out in the evidence, there is the proof of it in practice in connection with nut coal. This coal is not screened, but is handled otherwise by the dealer, the same as the lump. The prevailing prices are $1 less than the lump prices, and yet in most instances the mine price is only 50 cents less.

It seems to me that the use of a certain percentage of slack in the furnace of the householder stands to reason, and that the use of clean lump is a matter of improvidence and is done from want of knowledge. It is only a question of the approximate percentage of slack-contents that a ton of lump coal should carry.

The same elements are involved in the picking of the coal clean of rock and other impurities, and without inspection or a check of some kind, generally speaking, these impurities enter into the commodity as traded in.

During the great demand for coal during the past winter and year, and indeed up to the present time, this feature has been very apparent. The Island mines have been working under difficulties, and that coal and the coal coming in from the other side would appear to have been handled, generally speaking, with a view to satisfying the feverish demand incident to the situation rather than with carefulness.

The testimony from the consumer's point of view is replete with evidence of how this has worked out. A certain amount of rock is picked out and thrown aside by the dealer in the shovelling. In one instance during the last year this rock has amounted to nearly 400 tons. Allowing for the fact that this is largely due to abnormal conditions, we get back to the point where, even under normal conditions without an inspection or a check of some kind, a certain amount of impurities gets past the pickers and ultimately gets to the consumer. Or if it does not get to him, costs are added to it to the point where it is picked out and it has its effect on the existing prices.

(b.) Mine Weights.

I have already mentioned the fact of shortages in weight to the dealer caused by leakages of one kind or another, and have referred to the one-sided arrangement which establishes the weight of the coal sold by the mine. There is no check on mine weights, and, besides this, it is agreed that they are to be taken as final. In some instances the discrepancy shown by the dealer between the coal purchased and that sold and inventoried is astonishing.

The inaccuracies of the sack method of weighing out the coal to the consumer may very possibly have something to do with this, because the consumer ordinarily is not in a position or takes no thought to make any check. I do not think that the sack method, inaccurate as it is, can answer for the discrepancies found, because the chances are, in the first place, there are not great amounts involved; and, in the second place, as I said before, the balance would not be in favour of the consumer.

I wish to be understood as criticizing the methods generally, as in my examinations I was struck with the care that was taken by the operators. As a general principle, the inaccuracies of human nature must necessarily appear more or less in operations of this character; and without a check there must be some results.

(c.) Sacking System.

I have examined very carefully this system from many points of view, and feel satisfied it is uneconomical, antiquated, and results in a cost to the consumer which is unnecessary.

When it is considered what a pound of coal per sack, under or over weight, means on a turnover of 50,000 or 60,000 tons, and when it is considered what the average actual difference might be in the rough methods of weighing and "tareing" which are in vogue, it may be realized how indefinite this condition of the trade is.

No matter how carefully the weighing or "tareing" is done, discrepancies there must be. I examined the process at different times, and will say that I cannot question the *bona fides* of the dealer. But he cannot get away from the fact that a ton of coal delivered to the consumer is really only an approximation, and that the difference in weight is greater by reason of the fact that the ton is weighed out in twenty different parcels. If the most extreme care is not given to the process, the difference can be of considerable proportion.

Added to this is the convenience with which a dishonest teamster can switch sacks upon an unsuspecting consumer. I do not mean to infer for a moment that teamsters are dishonest,

but as a class they would carry their normal percentage of dishonesty; and the temptation is there to a marked degree.

Referring to the description of this method and cost to the dealer, an idea will be given of the cost to the consumer as an integral part of the price he pays.

With some dealers, and principally in Prince Rupert, a system is in vogue of leaving the sacks with the coal at the house of the consumer to be picked up and returned when empty at a later time. This creates cost of extra organization and work, with a percentage of loss, due to not redeeming the sacks. This last item I found to be very considerable in Prince Rupert, and has quite a deal to do with the excessive prices charged by some dealers.

The sacking system, to my mind, is a relic of early days. It has been continued, so far as I can understand, for three reasons which are cited in its favour,—viz., less breakage, difficulties of getting coal into the house, and ability to make a greater load for a given wagon.

To work out the difference in breakage between a sacked load and a bulk load carried into the same place by a receptacle or receptacles, filled from the wagon, would be difficult, but I think there would be a difference in favor of the sacking system. That difference, however, I think would be inconsiderable. So far as the second reason is concerned, the coal could be packed in by basket or barrel as well as by sacks. And in respect of the third reason, doubtless with the present wagons a larger load could be carried in sacks than in bulk. I should say that a wagon capable of carrying 3 tons in bulk could carry about 4 tons in sacks, but in course of time wagons more adaptable for bulk deliveries would be procured. But, apart from that, I think this advantage would be lost in the points in favour of the bulk deliveries.

Undoubtedly the houses in the Coast cities have not been adapted for the convenient reception of coal. Possibly one of the reasons is in this very sacking system. There is, however, a percentage of houses where coal could be received direct from the wagon. There is also a percentage of the smaller consumers who could carry in their coal themselves in off-hours from lane, yard or even street (if permitted), where a saving in the price of coal was thereby achieved. And if that saving were an established fact, I have no doubt that present houses, where possible, would gradually be adapted to receive the coal from the wagons. And this feature would be developed in the construction of new houses.

The Seattle method of delivery has been developed upon bulk lines; and by reason of the entrance into the Tacoma trade of a Seattle dealer, the sacking system which was in vogue there has been gradually pushed out.

The wagons or trucks are loaded by hand or from chutes after first being weighed. The whole load is then weighed, the coal being adjusted to the required weight by taking off or putting on coal to or from side-bins. If the coal is to be delivered in bulk it is shovelled off the wagon or dumped, and the time required for discharging by shovelling is, of course, considerably less than that of discharging by sack.

If the coal is to be packed in, a packer is picked up and the receptacle used is generally a tin can carrying anywhere from 125 to 175 pounds. These packers are, generally speaking, so adept that the time of delivering by this method is approximately less than the time of packing by sacks. The teamster generally fills the tin whilst the packer carries. The cost of packing in this manner to the consumer is 50 cents for the first ton of the load, and 37½ cents for each extra ton.

The cost of delivering in bulk, where the coal is discharged directly from the wagon, I feel satisfied would be reduced approximately 50 cents a ton. This would certainly be so if a receiving and loading equipment could be devised to do away with the wheelbarrow and floor-shovelling methods, so that the wagons could be loaded from chutes.

The question of breakage making slack and small coal to a greater percentage than should go to the consumer presents a difficulty in this respect, and I hesitate to discuss this, as it is a somewhat difficult problem. It seems to me that an equipment could be so devised wherein the skip could be raised or lowered at will, the coal shovelled into the bucket from the scow or even picked up by clam-shell and lowered into the bunker to the bottom or top of the pile, and an easy method of chuting employed.

On the other hand, on the bottom of the chute there could be a screen. The coal delivered then being clean lump, a certain saving of cost would be made in the method of handling and delivery, having in view the loss on screenings and saving in method. And the consumer, realizing the benefit of the screenings, could lessen his cost still more by taking a certain proportion of straight screenings.

It seems to me, however, that by proper methods and careful handling the proportion of small coal and slack in the purchase would not be excessive. There is a difficulty in equalizing the slack and small-coal contents amongst the different deliveries. I am of the opinion that under present methods an equalization is not made of the smaller coals in the lump where it is screened, and of the slack-contents where it is not screened. This should be considered, but, of course, where greater contents are created the difficulty is correspondingly greater. Arrangements at the bottom of the bunkers and attention to the loading, from that point of view, might very well overcome it, however.

(d.) Dealers' Weights.

With bulk deliveries, difficulties connected with weights at present existing could be minimized and civic regulation and protection could be introduced quite readily.

The system in vogue in Seattle is giving fairly good satisfaction and is based on the principle of civic regulation and inspection. Scales exist at each dealer's yards and are inspected periodically by the civic department of weights and measures, the machinery of which not only has to do with coal, but also with other commodities sold to the consumer by weight or measurement.

Besides the inspection of the scales, the officials of the department have power to stop any delivery in transit upon complaint or otherwise and test out.

The weighman of each dealer is bonded to the city in a penal sum of $500 for the faithful discharge of his duties. Upon a load being weighed, a certificate is issued showing the gross weight, the tare and the net weight, and that certificate is delivered to the purchaser with the load.

In comparison with the weighing under present conditions, the Seattle system does not need to be commented upon. It gives the opportunity to the consumer to call upon the department to investigate any suspected violation, and the machinery is at hand for the purpose.

In my opinion, if the only advantage in bulk delivery was the introduction of this or a similar weighing system, I would strongly favour the change. When to this is added the reduction of cost which I have suggested, I am convinced that steps should be taken to bring about the change immediately.

RECOMMENDATIONS.

(1.) The establishment of the sizes and quality of the various classes and grades of coal known to commerce as applicable to all of the different coalfields of the Province.

(2.) The establishment of a method of supervision or inspection, governmental or otherwise, of classes and grades of coal sold and dealt in with accompanying incidents of enforcement. This object might be accomplished by the natural working-out of the opposing interests of buyers and sellers in the trade if sizes and quality were standardized.

(3.) The establishment of a method of supervision or inspection, governmental or otherwise, of mine weighing and weights.

(4.) Consideration of the advisability of adjusting conditions in the industry at present upon the long-ton basis to the short-ton basis.

(5.) The establishment of bulk deliveries to the customer, in the larger places at least, either by means of legislation or by arrangement with the civic authorities, with accompanying inspection and regulation of weighing methods. In connection with this, steps should be taken to ensure that reduction in prices to the consumer which the elimination of costs established would warrant.

(6.) Consideration of the advisability of steps being taken to afford, if possible, a sufficient reduction in rates on coal from the Interior to the Coast, to enable the Interior mines to compete in the Coast trade.

DOCUMENTS ACCOMPANYING REPORT.

Submitted with this report are the following:—

(1.) The evidence.

(2.) The exhibits filed in the taking of the evidence, together with a full explanatory list thereof:

(3.) All statements and documents obtained otherwise than with the evidence:

(4.) Reports from the Accountants of the Commission.

Dated at Vancouver, B.C., this 21st day of January, 1914.

Respectfully submitted,
W. E. BURNS.

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