ALBERTA'S OIL INDUSTRY

The Report of a Royal Commission appointed by the Government of the Province of Alberta under The Public Inquiries Act to inquire into matters connected with Petroleum and Petroleum Products.

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Alberta.

Royal Commission appointed by the Gov't of the Prov. of Alberta under the Public Inquiries Act.

Report, "Alberta's Oil Industry"

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COMMISSIONERS

THE HONOURABLE MR. JUSTICE A. A. MCGILLIVRAY
(Chairman)

L. R. LIPSETT, ESQ.

Commission Counsel
J. J. FRAWLEY, K.C.

Commission Accountant
F. G. COTTLE, C.A.

1940

FOREWORD

Under a Commission issued October 12th, 1938, by The Honourable J. C. Bowen, Lieutenant-Governor of the Province of Alberta, The Honourable A. A. McGillivray and L. R. Lipsett, Esq., were appointed a Royal Commission under The Public Inquiries Act of the Province of Alberta to inquire into and report on a diversity of matters concerned with petroleum and petroleum products. After a most exhaustive study of all phases of the oil industry in Alberta and the hearing of a large body of evidence, the Commissioners completed their report on April 17th, 1940.

In the formulation of this report the Commission was "not unmindful that a magnificent compilation of information concerning the oil industry should not be lost sight of with the conclusion of the work of this Commission" and that: "the record of the proceedings before this Commission cannot but be of interest to the industry, the public and any department of government which has to do with this industry."

Therefore, in the interests of a more complete understanding of the oil industry and that it may be made more readily available to all interested parties, Imperial Oil Limited publishes the report of the Royal Commission in its entirety.

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COMMISSION

J. C. Bowen,
Lieutenant-Governor.

GEORGE THE SIXTH, by the Grace of God, of Great Britain, Ireland, and the British Dominions beyond the Seas, King, Defender of the Faith, Emperor of India.
To all to Whom these presents shall come, or Whom the same may in any wise concern.

GREETING.

Whereas at the Sixth Session of the Eighth Legislative Assembly of the Province of Alberta it was resolved that in the opinion of the said Assembly the Government should be requested to give consideration to taking over the wholesale and retail distribution of petroleum products in the Province and/or to undertake a thorough inquiry into the spread between the field price of crude oil and the wholesale and retail prices of refined petroleum products with a view to bringing about a reduction in the consumer price of the said products; and

WHEREAS under the provisions of The Public Inquiries Act being Chapter 26 of the Revised Statutes of Alberta, the Lieutenant-Governor in Council may whenever he deems it expedient and in the public interest to cause an inquiry to be made into and concerning any matter within the jurisdiction of the Legislative Assembly, either connected with the good government of the Province or the conduct of the public business thereof or which he shall by his commission declare to be a matter of public concern, appoint a Commissioner or Commissioners to make such inquiry and to report thereon; and

WHEREAS it is expedient and in the public interest to cause inquiry to be made pursuant to The Public Inquiries Act into and concerning the matters hereinafter mentioned;

NOW KNOW YE that by and with the advice of Our Lieutenant-Governor in Council we do by these presents nominate, constitute and appoint the Honourable Alexander Andrew McGillivray, a Justice of the Supreme Court of Alberta Appellate Division, and Lewis Richard Lipsett of Ardley, in the Province of Alberta, the said the Honourable Alexander Andrew McGillivray to be Chairman of such Commissioners, to make inquiry into the matters hereinafter

mentioned and to report thereon to the Lieutenant-Governor in Council:

1. Declaring the matters hereinafter mentioned, being matters within the jurisdiction of the Legislative Assembly, to be matters of public concern, namely:

(1) The production, refining, transportation and marketing of petroleum and petroleum products in the Province of Alberta, the cost and price thereof, and without derogating from the generality of the foregoing, the following matters:

(a) The field price of crude petroleum in the Province of Alberta, the factors which enter into the determination of the said price, and the fair and equitable field price which should be paid for crude petroleum in the Province of Alberta.

(b) The cost of importing crude petroleum and refined petroleum products into Alberta and the laid-down cost of the said crude petroleum and refined products.

(c) The cost of refining and processing crude petroleum in the said Province and particularly the adequacy and efficiency of present refineries and the reasonableness or otherwise of depreciation and other charges included in existing refining costs, and what the fair and equitable cost of refining and processing crude petroleum in the said Province should be.

(d) The cost of gathering, handling, and transporting in Alberta of crude petroleum and of refined petroleum products and without limiting the generality of the foregoing—

(i) the rates charged for the gathering, handling and transporting of crude petroleum by pipe-line or otherwise from Turner Valley to Calgary in the said Province, and what the fair and equitable rates for such gathering, handling and transporting should be.

(ii) the adequacy and efficiency of present pipe-line facilities, and

(iii) whether existing pipe-line facilities result in or tend toward an unwarranted control of the price of either crude petroleum or refined petroleum products.

(e) The cost of distributing and marketing petroleum products in the Province of Alberta, (a) by wholesale to jobbers, dealers and consumers, and (b) by retail, and without limiting the generality of the foregoing:

(i) the factors which enter into the determination of the said cost,

(ii) the following matter, namely: whether any plant, equipment or other investment of any kind now used in the distribution and marketing of petroleum products in the said Province, whether by wholesale or by retail is or is not in the opinion of the said Commission reasonably required for the purpose of adequately distributing and marketing petroleum products in the said Province, and should or should not in his opinion be taken into account in arriving at fair and equitable prices to be charged by wholesale or by retail for petroleum products in the Province;

(iii) what the fair and equitable cost of distributing and marketing petroleum products in the Province of Alberta should be.

(f) The operation of the Ethyl Corporation in this Province and the effect of the licensing system of the said Corporation upon the refining, distributing and marketing of petroleum products in the said Province.

(g) The price and/or cost of petroleum products sold to jobbers and dealers in the said Province and the factors which enter into the determination of the said price and/or cost and what the fair and equitable price and/or cost of petroleum products sold to jobbers and dealers in the said Province should be.

(h) The price and/or cost of petroleum products sold to consumers in the said Province and the factors which enter into the determination of the said price, and what the fair and equitable price and/or cost of petroleum products sold to consumers in the said Province should be.

(i) The profits of persons, firms or corporations engaged in the importation of crude petroleum and petroleum products into the Province of Alberta or in the refining, producing and supplying either by wholesale or retail of crude petroleum or petroleum products in the said Province and the reasonableness or otherwise of the said profits.

(j) The factors which ought properly to be taken into account in fixing the price of crude petroleum and any refined petroleum product.

(k) The fair and equitable price, maximum and/or minimum, which should be charged by wholesale and by retail for refined petroleum products in the Province of Alberta.

(l) (i) Whether any charges of any description made in respect of the production processing, handling, gathering or distribution of crude petroleum and refined petroleum products or any of them is excessive or unreasonable having regard to the matter or thing for which the charge is made.

(m) Whether any expenditure is incurred in or incidentally to the production, processing, processing, handling, gathering or distribution of crude petroleum and refined petroleum products or any of them which is either wholly or partially unnecessary or which is not essential or is not in the public interest.

(n) The advantages and/or disadvantages to the people of the Province in the Government of the Province taking over the wholesale and retail distribution of petroleum products in the Province.

(o) Such further matters as the Commission may consider properly and reasonably incidental to any of the foregoing matters of inquiry;

AND WE DO DECLARE the matters referred to Our said Commissioners to be matters of public concern, and under authority of the Act aforesaid, confer upon Our said Commissioners the power of summoning witnesses before them and requiring such witnesses to give evidence on oath, orally or in writing, or on solemn affirmation (if they are persons entitled to affirm in civil matters) and to produce such documents and things as the said Commissioners may deem requisite to the full investigation of the matters with which they are appointed to inquire.

IN WITNESS WHEREOF we have caused these Our Letters to be made Patent and the Seal of Our Province of Alberta to be hereunto affixed.

WITNESS:

His Honour the Honourable John Campbell Bowen, Lieutenant-Governor of Our said Province in Our City of Edmonton, this twelfth day of October, in the year of Our Lord, one thousand nine hundred and thirty-eight and in the Second year of His Majesty's Reign.

BY COMMAND:

ERNEST C. MANNING,
Provincial Secretary.

TO: HIS HONOUR,

The Lieutenant-Governor of the Province of Alberta.

We think it not amiss that at the outset of this, our final report with regard to petroleum and petroleum products, we should express our deep appreciation of the effort which has been put forward by all concerned in this inquiry, to place before us information that would be helpful in coming to conclusions in respect of those matters which we are directed to inquire into. Whether or not our report be considered of value, there cannot be any question in the mind of any intelligent person that the great mass of information now gathered concerning the petroleum industry will be of value to anyone who may hereafter have occasion to interest himself in petroleum or petroleum products. All mystery surrounding every branch of the industry has been removed; all suggestions as to unfair or unethical practices have been explored; the basic principles upon which the whole industry operates throughout the world in general and in Alberta in particular have been examined into; and so the record of the proceedings before this Commission cannot but be of interest to the industry, the public and any department of Government which has to do with this industry.

We think we should make particular mention of the assistance rendered to us by the oil companies carrying on business in Alberta. We would not have been wholly surprised if their attitude had been that the inevitable result of the sittings of a Government-appointed Commission would be recommendations for higher taxation or lower prices, and that this was a type of inquiry from which they might well stand aloof except in so far as they were forced to participate. On the contrary these companies showed a desire to make full and complete disclosure of that which the evidence would indicate was all of their activities; they also showed a willingness to collaborate, by the attendance of their principal officers before us, by throwing open their books for examination, and by providing at great cost to themselves every conceivable kind of statement which the accountant to the Commission required. So that there may be no misapprehension as to our being deceived, we may add that in our view there is no oil company in Canada which can boast of a more capable petroleum accountant that we had the benefit of having as accountant to this Commission. It is fitting to add that without the hearty co-operation of the major companies in the industry, we could not possibly, without years of inquiry and the assistance of other

provinces and probably the Courts of other provinces, have obtained the data which is now before us, and which we repeat is in our opinion of inestimable value to this province, regardless of the value of any report predicated thereon.

We would also like to make particular mention of the assistance rendered us by the Counsel to the Commission. We at first questioned in our own minds the wisdom of a member of the Attorney-General's Department in the province acting as Counsel to the Commission because we felt there was a possibility that he might be subconsciously influenced in leading evidence to incline towards witnesses whose evidence would be in consonance with any views which the Government might have as to what should be done about the petroleum industry. It is pleasing to be able to say, at the conclusion of this inquiry, that Counsel to this Commission carried himself not only with very great ability but also with conspicuous fairness. He explored every branch of this industry through the medium of witnesses who were best able to speak upon the subjects upon which they were asked to speak. He has been concerned to produce witnesses with knowledge; he has not been concerned to predetermine the effect of their evidence before putting them into the witness box; he has gone into the United States of America and procured men entirely independent of the industry, who yet could speak with a voice of authority concerning the industry, men whose reputations as petroleum experts are international and whose integrity cannot be called into question. We recognize that all of this could not have been done by him without the expenditure of money and so it could not have been done without the concurrence of the Government of the day in this effort to bring about a fair and untrammelled inquiry without regard to what the results of that inquiry would be. We may add that, long though this inquiry has been, it could easily have been as long again were it not for the extraordinary capacity for work which has been displayed by both Counsel and accountant to this Commission.

In expressing our thanks to those who have assisted us, we cannot conclude without a word concerning the distinguished Counsel who appeared before us for their respective clients in the industry. They have served their clients faithfully, efficiently and fearlessly, and in so doing they have thrown much light upon the activities of the industry and have been of very great assistance to us.

It will be observed that in the course of this report we have on occasion quoted from the evidence at some length when it would be seemingly simpler and certainly more artistic to summarize the

evidence. We have done this in order that there may be no question of misinterpretation of evidence by us and in order that views expressed by leading witnesses upon important technical matters may not by any chance lose weight by being clothed in our words.

Our Commission as written, which is very much more comprehensive than the resolution of the Legislature which preceded it, in effect directs that all phases of the Petroleum Industry be inquired into. It doubtless will be well remembered that the hearings of this Commission were spread over a long period of time. It may not be as well understood, or as well remembered, that the Petroleum Industry is a competitive industry; that it is world-wide in its ramifications and that the Petroleum Industry in Alberta, in any of its branches, including production, refining and marketing, cannot be viewed except as part of a world picture. This may be emphasized by reference to the opening remarks of Dr. J. W. Frey of Washington, in speaking of the field price of crude oil. Dr. Frey said:

> "A thesis that I want to develop is that the price of crude oil in Turner Valley is not an isolated fact but is related to the price of crude oil in various other parts of the world, and that world crude oil prices tend toward equilibrium. We have what is sometimes spoken of as dynamic equilibrium. In order to carry this thesis along it is necessary for me to consider either Turner Valley first, working out towards the world, or the world first, working back towards the part that Turner Valley plays in it. I have chosen the method of starting with the larger element and working back towards the smaller."

If it be remembered that the industry is world-wide in its ramifications, that it permeates the whole economic structure of present-day society, and that witnesses who have worked all their working days in connection with the Petroleum Industry have repeatedly declined, on the ground of incompetence, to state facts or express opinions in relation to any other branch of the industry than that with which they were personally concerned, it will be understandable that a Commission which had spent years in a study of this industry might still be diffident, even as we are, in attempting to speak with authority upon the economic and social problems involved.

The first problem which confronted us in connection with the making of this report was as to whether or not we should endeavour to summarize the verbal testimony given before us (which when transcribed covers some 15,674 foolscap pages) and the 747 somewhat lengthy exhibits. Notwithstanding that we have occupied all working time when public hearings were not being gone on with, in reviewing and discussing the evidence introduced to that date, it has of course been impossible to enter upon the preparation of a report

until such time as all of the evidence was in and we had heard the arguments of Counsel with respect thereto. The arguments by Counsel were completed on the 30th of December, 1939. Since then there has been excluded from the time which we could give to this report, several periods during which the Chairman has necessarily been engaged in the performance of judicial duties. At the commencement of the preparation of this report, and during a good part of the time occupied in its formulation, it seemed to us important that we should present our report as early as possible so that it might be considered by His Honour in Council and, if thought fit, presented to the Legislature at the then next sittings of that body. We were not unmindful that a magnificent compilation of information concerning the oil industry should not be lost sight of with the conclusion of the work of this Commission. Our great difficulty was to make such a report as would serve to preserve in the form of a report, the material parts of the evidence submitted, and at the same time to formulate such a report within the short time at our disposal. We decided that, since in the course of our report we would have recommendations to make dealing with the preservation and use of that which is of value in the material before us, we would best serve the interests of all concerned if instead of attempting a summarization of the evidence of the lengthy character before mentioned, which we estimated would take at least six months of our time, we should adopt a middle course of dealing at any length only with those matters which we conceived to be of primary importance and upon which we were prepared to found recommendations. We think that the reason given for pursuing this course remains a good one, notwithstanding the dissolution of the Legislature in the course of the preparation but after a good part of this report had been completed.

It may not be amiss to point out that neither of the members of this Commission makes any pretence to having had any knowledge of the Petroleum Industry prior to entering upon this inquiry, and that in so far as we discuss that industry and make findings or recommendations with respect to it, we do so on the evidence before us which in our opinion is of value. It may be that a prior knowledge of the industry would have given us a more ready understanding of the evidence; equally it may be that if we ourselves had been experts, the evidence before us would have had value in our eyes only in so far as it was in accord with our own previously formed opinions, with the result that the inquiry as an inquiry would have been a somewhat farcical proceeding; but however this may be, we emphasize at the outset that this report is based upon the evidence which, after balancing and weighing all evidence, we are prepared to accept.

As a premise to that which we have to say concerning the different activities of the Petroleum Industry in its several branches, we think that we should point out that following upon the declaration of the war now in progress, it was announced by this Commission that the inquiry would be completed, but that changes due to war conditions would not be taken into account as this might have involved starting the inquiry *de novo*, and that our report would speak as of September 1st last. We mention this so that it may not be thought we have overlooked that war leads to changes in the rate of exchange and to many other changes which affect every industry.

The Petroleum Industry rests upon the use of the natural resource, Petroleum. It was once thought that petroleum was formed entirely from inorganic reactions under the earth's surface; this view has been modified during recent years, and the better opinion would now appear to be that petroleum has been formed from organic material such as the remains of marine life buried in the muds of shallow sea floors. This is only of chemical and geological interest. However formed, the fact is that the product, petroleum, has given rise to an industry which holds a position of the first magnitude in national life throughout the civilized world.

While world production, world requirements and world contests for dominance in oil fields, undoubtedly have had, and will continue to have, their effect upon the Petroleum Industry in this province, because our contacts are more direct, we are more directly affected by the activities of those in the industry in the United States of America than elsewhere, and so we shall have more to say about the Petroleum Industry in that country than in other countries.

Petroleum was first produced commercially in the United States in 1859. Its rise to its present importance in the commercial world has been within the last thirty years, paralleling the rise of automotive transportation. It is said, probably with good authority, that of the proven resources of oil in the world to-day, at least one-half are within the United States and that over fifteen billions of dollars are invested in the industry in that country. The rapid growth of the industry has been but a successful attempt to keep pace with ever-increasing demand for petroleum products. Rapidly expanding markets and keen competition have given rise to the objective of mass production at low cost. This objective has affected the corporate structure of the industry with a tendency toward large companies in integrated form. It is only right to say that, in our view, there could have been no support for the present-day range of activities of the industry, and of the other industries

dependent upon it, without the dynamic technology which has been developed in every branch of the oil business through the unstinted expenditure of money by companies who were in a financial position to make large expenditures in support of scientific endeavour. The development of the technique, and the bringing into being of devices for discovery of oil, and the advancement in methods of transportation and in the processing and marketing of crude oil have been extraordinary, and are largely attributable to the efforts of those large corporations whose right to exist has been so frequently called into question by the small unit within and members of the public without the industry.

EXPLORATION

Exploration for oil must be conducted in advance of production requirements so that refineries may have dependable reserves in sight with which to supply the nation's current needs for processed products; but oil has proven to be elusive; the search for it is as costly as it is fascinating and so, thus far, it has not been found practicable for the industry to map out the reserves of oil that may be necessary to the industry during a very extended period of time.

There are two methods of approach in exploring for oil; the one the scientifically planned campaign and the other the unorthodox search which has not infrequently led to oil discoveries in places ignored by the scientist. It is, however, clear that present-day production requirements could not be met without the scientific technique in exploration which the oil industry has developed and turned to practical use. Micropaleontology, seismic phenomena, electrical conductivity, and soil-gas analysis; the core barrel, the electric log, the torsion balance, the magnetometer, the aerial camera and the seismograph, all mark the progress of the industry in oil exploration.

In speaking on wild-cat drilling before the American Association of Petroleum Geologists in 1937, Mr. F. H. Lahee said that out of every 100 "wild-cat" wells drilled, 82 were located on the basis of geological or geophysical work, whereas 18 were located without technological logic. The former category yielded one strike in 6.5, whereas the latter resulted in only one strike in 17.

While the development of the technique and the bringing out of devices for discovering oil may have been largely the work of great corporations, the small investor has undoubtedly played a great part in the search for oil and because discovery has been effected not only by qualitative but by quantitative effort from the standpoint of maximum discovery, he should not be discouraged.

Exploration, as distinguished from drilling in proven areas, is induced in the case of integrated companies primarily by the need of their refineries to have an assurance of supply of crude oil. In the case of explorers who are not refiners it is largely motivated by price and the speculative reward for success. One fact stands out, and that is that the search for oil, even with the most modern devices and methods, must be proceeded with upon the lottery principle; there is always the hope of finding gusher territory; there is always the chance of losing all money expended in any particular exploratory adventure.

The importance attaching to the search for oil in the United States is readily appreciated when it is known that a Committee of prominent geologists, under the auspices of the American Petroleum Institute, made an estimate of the proven reserve of crude oil in the United States as of January 1st, 1939, as being 17.3 billion barrels. Having regard to the 1938 levels of production this reserve would only have a life of something less than fifteen years.

As to the Province of Alberta, we may point out that in making a pipeline report this Commission, after hearing higher and lower estimates made by engineers, estimated the life of the Turner Valley field, at a rate of withdrawal of 6,000,000 barrels per year, to be eighteen years. The fact is that the withdrawal in the year 1939 was 7,250,000 barrels and so if withdrawals should continue at this rate the total of Alberta's known reserves of oil as estimated by us will be used up in, at most, fourteen years, unless in the meantime the discovery of more oil is made.

Whether our estimate be right or too high or too low the fact remains that we now have a source of supply that will be exhausted even at the present rate of withdrawal, in a limited period of time. This gives rise to the thought that those who are anxious to drill out the Turner Valley field in the shortest possible space of time and are not concerned with discovery to take care of depletion, are thinking of to-day rather than of to-morrow.

It would appear that there is every possibility of discovering pools of oil within the confines of the Province of Alberta over and above the discoveries thus far made; it would also appear that exploration has not yet fixed with any absolute certainty the limits of the pools thus far found, and insomuch as the discovery of great reserves of oil in Alberta is of importance not only to the Province as lessors of oil lands from which revenue may be derived but also to the Dominion and the Empire from the standpoint of having known sources of supply that are untrammelled, against which no artificial barriers may be raised, it seems to us that the Government of Alberta should in every way encourage exploration, whether by public or private interests. As to this we put forward the following views.

First as to exploration by private interests.

It is our view that the Government of the province should assure itself that its petroleum engineers are fully informed as to the most modern methods employed in seeking out oil; that these engineers and field men keep careful record of all data which would be of

importance to explorers for oil, and that all such knowledge and information, together with the information gathered by this Commission, should be made readily available at a definite place to any person or corporation who is engaged in a search for oil.

It is also our view that as a spur to exploratory effort, the Minister who is charged with responsibility in connection with the Petroleum Industry should be given power to agree to reduce or even forego Royalty payments in respect of a specified number of acres adjacent to a well which is deemed to be and declared to be a discovery well as distinguished from a well drilled in proven territory.

It is also our view that the Minister mentioned should have full authority to waive any provisions in any lease which call for drilling in proven territory on pain of forfeiture or other penalty, upon a lessee establishing to the satisfaction of the Minister that he is doing a corresponding amount of exploration work.

It is also our view that, from the standpoint of exploration alone, the Government should at all times keep a watchful eye upon the field price of crude oil because price in relation to cost, in our opinion, must in the long run either deter or give stimulus to exploration.

When exploration by private interests results in discovery, the first thought of the explorer naturally is, production. Now as we see it, the first thought of the Government on such new discovery being made, should be national reserve, provided always that the pool or pools already in operation are able to serve the market which can be economically reached, and are able to take care of depletion in existing wells. It is evident that the two thoughts are in conflict and that Government refusal to allow immediate production to the discoverer of a new field might well remove the incentive for exploratory effort, and so, in order to have both continued exploration and untouched reserves, it is necessary to devise some means for rewarding the successful explorer; some method which would leave discovery attractive to the man who, as Dr. Frey says, has the "oil man mind" and who is willing to undertake the risks of exploration because of the hope of reward.

We have ample evidence before us to support the conclusion that national reserves are of vital importance as such to the nation and as a stabilizing factor to the industry. We quote from Exhibit 637, as follows:—

> "The industry has long considered the advisability of building up an adequate crude-oil reserve as a stabilizing factor in the business. Of late years the advances in the technique of search have led to a marked acceleration of discovery and consequently to the creation of a sizeable reserve.

> But because of competitive drilling requirements, this reserve has taken on the nature of a drilled-up potential instead of a true reserve, and therefore is proving dis-serviceable. The proper objective would be a reserve without a potential. The elimination of the potential with its whole train of unfavourable influences can scarcely be accomplished without a new method of production that will permit discovery without involving the immediate necessity of overdrilling."

We also have ample evidence to show that over-production has brought about chaos in the industry.

We have not, however, any evidence before us which would serve to support or to deny the view that exploration can be made attractive even if production after discovery is deferred, and so, we can only say it seems to us entirely probable that if national reserves ever assume proper importance in the eyes of Governments, then, with the expert advice at their command, a way will be found to compensate the successful explorer for deferring the exercise of his right of production in a new field.

Turning to exploration by public interests, we may say that if it were not for the financial risk involved to the taxpayers in making a thorough exploration of likely oil country, we would think that the ideal in exploration would be exploration by Government. We say this for the simple reason that unless a means of rewarding a successful private explorer, other than by production, be worked out, it is generally speaking necessary for him to forthwith produce the oil discovered, regardless of market demand, in order that he may get back his exploration expenses; and in the result, subject to what may be said as to proration methods (with which we will deal) there is the ignoring of the nation's need for reserves and the flooding of existing markets in such a way as to undermine economic stability. If there were great reserves of oil discovered by a Government, these reserves could be, as we think they should be, developed by private interests but this would be allowed only as and when required. It is not probable that a Government would be fully reimbursed in respect of exploration cost by Government discovery, followed by sale or leases, but in this connection it is to be remembered that the oil industry bears a great burden of taxation in one form or another and so it is perhaps not wholly unreasonable to suggest that it should not be left entirely to individual initiative to tap the earth with a view to the discovery of, and the fixing of the boundaries of pools of oil. However, after giving the matter some anxious thought, we have come to the conclusion that with the limited number of taxpayers there are in Alberta, the Provincial Government would not be justified in alone taking the risks of exploratory effort in a large way. We cannot lose sight of the fact

that great expense is involved in any large exploratory undertaking and that the history of private exploration is interwoven with examples of financial collapse on the part of explorers. None the less this does not in our view lead to the conclusion that nothing should be done by the Alberta Government concerning exploration.

If we are right in the view that there is every possibility of discovering great reserves of oil in Alberta and if we are right in the view that reserves of oil in the ground as distinguished from present production to create over-production is of vital importance to the country, then it would seem important to exhaust every practicable means of bringing about government exploration work for the mapping out of oil reserves. The importance to a nation of available reserves of oil is emphasized by the following quotations. Mr. Coolidge, a former president of the United States, said:

> "It is even probable that the supremacy of nations may be determined by the possession of available petroleum and its products."

A memorandum to the French Government after the last Great War, of its wartime Oil Commissioner, Mr. Berenger, is said to have contained the following passage:

> "He who owns the oil will own the world, for he will rule the sea by means of the heavy oils, the air by means of the ultra refined oils, and the land by means of petrol and the illuminating oils. And in addition to these he will rule his fellow men in an economic sense, by reason of the fantastic wealth he will derive from oil—the wonderful substance which is more sought after and more precious to-day than gold itself."

As stated, in our view the Government of Alberta cannot afford to carry the burden of exploration alone, and so we suggest that it should encourage private exploration, while at the same time exploring the possibilities of reward for deferred production. We have the further suggestion to make, that in addition to encouraging private exploration, the Government put forward its best endeavour to secure the collaboration of the Governments of Canada and Great Britain towards a scheme of joint exploratory work, with a view to a present determination, in so far as it is humanly possible to determine such a question, as to whether or not in the one province in the Dominion which gives promise of oil production in a large way, there are the large reserves of oil which so many people confidently expect will some day be discovered.

The Dominion has made valuable geological surveys and doubtless the Province has concerned itself with field work, but the fact remains that no vast oil reserves may be said to have been definitely mapped out. Canada is probably the second largest per capita consumer of petroleum products in the world. Its importations are

largely from the United States of America. It can have no assurance in the years that are to come that an oil scarcity in that country might not greatly limit, if indeed not prevent, the importation of oil therefrom. It is surely, then, of importance to the Dominion as a whole that there should be some assurance of supply within the Dominion, if that assurance can be provided. The advantage to the province, of oil discoveries within its boundaries, is obvious. We need not, we think, enlarge upon the importance of an adequate supply of petroleum and petroleum products to Great Britain which may not be denied at the will of any foreign country, and so it seems to us the suggestion that an effort be made to arrange that the three governments collaborate in the drilling of test holes as a means of determining whether there are or are not great reserves of oil within the confines of this province, which may be definitely mapped out, is both a feasible and a reasonable one.

We may summarize what we have said as to Exploration as follows:

1. That there are two methods of approach in exploring for oil, the one the scientifically planned campaign, the other the unorthodox search.

2. That of these the planned campaign has been more generally successful in yielding oil strikes.

3. That because discovery is effected not only by qualitative but by quantitive effort, the unorthodox search has led to oil discoveries in places ignored by the scientist and so should not be discouraged.

4. That without the extraordinary development of scientific technique in exploration with which the oil industry must be credited, present-day production requirements could not be satisfied.

5. That true exploration is motivated either by the need of refiners for a backlog of supply, or by price and the speculative reward for success.

6. That, while exploration must be conducted in advance of refinery requirements, it cannot be said that the industry has mapped out reserves of oil which, having regard to present-day demand, will cover a very extended period of time.

7. That, in Alberta, if the rate of withdrawal of crude oil continues as it was in 1939, all of our known reserves of oil,

according to our estimate, will be used up in at most fourteen years.

8. That it appears there is every possibility of making discoveries of new pools of oil within the confines of the Province of Alberta.

9. That in our view discovery of oil is of importance, not only from the standpoint of financial advantage to the private explorer who strikes oil, but also from the standpoint of national reserves for the Province, the Dominion and the Empire.

10. From the standpoint of private exploration we think it important:

    (a) That Government engineers be fully informed as to the most modern methods employed in seeking out oil.

    (b) That these engineers keep careful record of all field data which would be of importance to explorers, and that such information and knowledge as they may have, plus the information gathered by this Commission, should be available at a definite place to any person or corporation who is engaged in a search for oil.

    (c) That the Minister who is charged with responsibility in connection with the Petroleum Industry should be empowered to reduce or forego royalties in respect of a given number of acres adjacent to a well which is deemed to be, and declared to be, a discovery well.

    (d) That the Minister mentioned have authority to waive drilling requirements in a proven territory upon a lessee establishing to the satisfaction of the Minister that he is doing a corresponding amount of exploratory work.

    (e) That the Government, through the agency of those who are competent to do so, should keep a watchful eye on the field price of crude oil because field price will either deter or incite exploration.

    (f) That because great reserves of oil in the earth are of national advantage and because great reserves of oil in steel containers are uneconomic and tend towards a lack of industrial stability and chaos, the Government should devise some means of rewarding the discovery of a new pool other than by allowing immediate production there-

from in those cases in which production could only add to over-production for a market already glutted with oil.

11. That from the standpoint of exploration by public interests, it is our view:

    (a) That the ideal in exploration is government exploration and that, were it not for the risks involved, all exploratory work should be done by the Government.

    (b) That under existing conditions it is not practicable, in a financial way, for the Alberta Government alone to carry the burden of exploratory effort.

    (c) That the Government of Alberta should do its utmost to obtain the collaboration in exploration of the Governments of the Dominion and of Great Britain who should, for the reasons given, be interested parties.

PRODUCTION

We turn now to the cost of production of crude oil in Turner Valley, which by the Commission issued to us, we are directed to inquire into and report upon.

Since this subject was explored at some length by Dr. John W. Frey, of Washington, D.C., and since we have attached great weight to his evidence, it may not be unimportant to make mention of his qualifications as an expert witness. Dr. Frey became a Bachelor of Science of the University of Chicago in 1919 after which he was a member of the faculty of the University of Wisconsin. In 1922 and 1923 he was a student at the London School of Economics in London, England. In 1926 he received the Degree of Bachelor of Philosophy in geology, economics and world politics. In 1925 and 1926 he was secretary of a Round Table at the Institute of Politics, Williamstown, Mass., on minerals in their political and economic world relation. In 1928 he became chief of the Petroleum Section of the Bureau of Foreign and Domestic Commerce. With the coming of the Code, an incident of the National Industrial Recovery Act, he became advisor on marketing and later, under the Secretary of the Interior who became the administrator of the Code, he was a member of the Petroleum Administrative Board in charge of Marketing. Thereafter he became an associate director of the Petroleum Conservation Division under the Secretary of the Interior in the United States Government, the position which he occupied at the time of giving evidence.

As an associate director of the Petroleum Conservation Division, Dr. Frey's duties may be best stated in his own words:

> "The Petroleum Conservation Division is the administrative office created by an executive order, that is an order of the President, at the request of the Secretary of Interior, to assist the Secretary of the Interior in the enforcement of the so-called Connolly Law, sometimes referred to as the 'hot oil law,' a law which prohibits the transportation in interstate commerce of oil that has been produced, or the products of which, in violation of State law. In addition to that duty, we are the economic advisors of the Secretary of the Interior on petroleum matters and we are also co-ordinators of the various activities of the Department of the Interior as they affect oil. We have three agencies aside from ours that have problems in oil. The United States Geological Survey, especially through its Conservation Branch, which is the regulator of production on Federal land; the Indian office, which takes care of the welfare of the Indians' rights as they may be affected by oil; and the United States Bureau of Mines, which is a fact-finding agency in both economic and technical matters. We assist the Secretary in co-ordinating the activities of those agencies."

The following extracts from Dr. Frey's evidence with regard to cost of production are illuminating.

"In the history of economic theories it is doubtful whether any subjects have received more attention than value and price, and numerous economists have at one time or another advanced the idea of the cost theory of price. So common is the association of the fair price being determined by cost that in common parlance it is often assumed that price must be a result of cost in spite of the fact that almost every industry has had some experience in operating at a loss. In appearing before this Commission it is my object to point out that even were it possible to determine the cost of producing crude petroleum, and that could be done if one were willing to accept enough arbitrary allocations of various items, nevertheless the field price of petroleum and the cost arrived at do not necessarily have any correlation at any given moment and furthermore it may be questioned even in the long run that the amount of money received for the production in an oil field equals the expenditure in that field.

"A study of oil fields reveals that there have been many that have not paid out and that thousands of dry holes have been drilled by persons who have not been in a position to influence prices by development costs—in other words, drilling dry holes, not uncommon in wild-catting, has dissipated the funds and bankrupt the company, which, of course, means all development cost and no production against which to charge it. The extent to which unproductive development costs are a factor in oil development is indicated in the United States Bureau of Mines Minerals Yearbook, 1937, page 1000, under the heading (oil) wells. I quote:

> " 'Of continued interest was the decrease in the ratio of failures. Although the number of dry holes increased from 4,911 in 1934 to 5,296 in 1936, the percentage of total completion declined from 23 percent in 1935 to 21 percent in 1936. The ratio was the lowest in 20 years.'

"Although thousands of dry holes are drilled that cannot be charged against the cost of producing crude oil it does not follow that there is no relationship between the price of crude oil and the drilling of dry holes because discovery is the result not only of the degree of activity in drilling but also the quality of technology back of the effort. These factors are variable and seem to be influenced by the price of petroleum. To be specific, if the price of crude oil advances materially the chances of a higher reward—that is price—tends not only to stimulate drilling but also to the taking of greater risks.

"If the intensity of the search for oil and the quantitative result were closely geared there would be no question about future reserves, for were such correlation a fact, price stimulation would produce the required effort and result, but unfortunately oil fields are hidden, elusive and to personify, quite individualistic in physical characteristics.

"The fact that the development of each oil field is a problem, that is to say, the physical conditions of each oil field must be given consideration as a producing unit, makes it difficult to generalize concerning the cost of production even in such an ordinary consideration as out-of-pocket costs

for these costs must change during the life of the field and are commonly progressively upward as higher percentages of the reserve are produced.

"However, before I go into the problem of the variables in making cost of production studies, I want to add another observation concerning discovery as related to price, namely, that while there is at any moment little or no relationship between the costs involved in producing and the field price, that in the long run the cost of replacing the produced oil by new discoveries should have a strong effect upon the price of crude oil. I have used the words "should have" advisedly, because there is no present assurance—and I might add, no indication—that they will."

Some of the variables and uncertainties in cost of production studied to which Dr. Frey refers are the physical conditions of the field, the ultimate yield, methods of production, the problem of depletion, depreciation and amortization with uncertainty as to the reserve, the uncertainty concerning the production of any given well under any type of production control and the percentage of reserve that is likely to be brought out at different price levels. Emphasis is placed upon the following as to which Dr. Frey feels that he cannot be sure:

1. (a) The outline of the producing horizon.
   (b) The water contact line, if any.
   (c) The gas and oil contact line.
   (d) Any structural conditions, such as faults, that may delimit the field.
   (e) Economic conditions that may delimit the field.
2. Volume of oil in cross section.
3. Volume of oil that can be lifted to the surface by gas present in the structure and any other physical condition, if operative.
4. Effect of release of gas pressure upon ultimate recovery.
5. Volume of oil that will be left in the structure when natural flow ceases.
6. Method of secondary recovery and lifting costs, if a secondary method or methods proves feasible.
7. What will happen in the movement of oil to the wells when the gas pressure is reduced to the point where the gas breaks out of solution.
8. Extent to which the gas cap should be closed in—if at all—should merchantable gas be recovered from the oil producing

section of the field. What would be the effect upon ultimate recovery of pumping non-merchantable gas back into the structure.

9. What optimum rate of flow would be most satisfactory from the standpoint of conservation.

10. Likely drilling programme not only in Turner Valley but in other possible competing fields.

11. Is the conservation programme of the present government likely to become the long range policy.

12. Would restricted production continue if the market would absorb more oil than the field could produce efficiently.

We think that no useful purpose is to be served by reviewing Dr. Frey's interesting discussion of the experience in the United States in which country an attempt was made by the Petroleum Administrative Board to make a country-wide survey of the cost of production. Dr. Frey points out that the result was but an estimate of cost which was arrived at by a number of arbitrary assumptions and is of limited value. Dr. Frey emphasizes that without the historical background and the great number of samples that the United States was able to provide, a similar survey in Alberta would be without value. The following extracts from Dr. Frey's evidence serve to make his position clear:

> "I now propose to state a conclusion and then to follow it with a discussion that will indicate how I have come to this conclusion. In 1935 the Petroleum Administrative Board of the United States Department of the Interior, of which I was a member, published a report on the cost of producing crude petroleum."
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> . . . . . .
>
> "I stated at the beginning of that paragraph I was going to state a conclusion that since the fact that I was associated with that report, which is the one which you have just received, might lead one to believe that I would recommend to you similar procedure to that which we used. However, instead of recommending such action to you I recommend the opposite, namely, that you do not attempt to use the methods employed in making the report used by the Petroleum Administrative Board. It is my judgment that the method employed by the Petroleum Administrative Board is of no great value in determining the reasonableness at any given moment of individual field prices of petroleum in the United States although the composite result is strongly suggestive of the prices necessary to produce various percentages of the reserves and valuable as an index of operating costs."
>
> . . . . . .
>
> "It is my opinion that with as little history and as few wells as exist

in the Turner Valley oil field that a cost of production study would be too inaccurate to be of any real value to anyone except for historical purposes or as the basis for future comparisons of changes in operating costs."

. . . . . .

"THE CHAIRMAN: Dr. Frey, I will not keep you long, but there are just a few things I want to ask you about. As Commissioners, we are answering questions put to us by His Honour in directing this Inquiry, and these call for our consideration of the problems of different classes of people. First of all we are asked questions concerning the producers, and, as I understand you, you say that the sample is not large enough and we have not the historical background which would permit of our saying, or rather, of our intelligently estimating the cost of production. This is, tritely put, as I understand your position?

"A. Yes sir."

Producers in Turner Valley were called before us. One company showed a cost of $1.25 per barrel, another $1.35, another 63c., another $1.63, another 45c., another $1.16, another $1.52, another $1.57, another $1.01187. Still another company shows variations between the years 1933 and 1938 inclusive as follows: 1933, $1.30; 1934, $.8335; 1935, $1.199; 1936, $1.099; 1937, $1.6756; 1938, $ .7876. Some of these producers did, and some did not, take into account the cost of leases, cost of drilling, monies lost in dry holes, income tax, royalties, depletion, and different accounting methods were used in respect of depreciation. None took into account the cost of replacing produced oil with new discoveries.

We think that we can safely adopt the language of Dr. Frey in speaking of producers in Turner Valley when he said:

". . . they do not know what the cost of producing is in Turner Valley except the out-of-pocket costs and in that connection you will find as many opinions as oil producers."

It is understandable that different companies may have different costs; there are differences in the cost of leases which must be amortized; in the cost of holding leases not utilized in current production; in costs of drilling; in royalties; there are also different production methods at different costs; there may be differences in the extent to which government control is a factor in increasing costs; there are differences in the number of dry holes that have been encountered in seeking production, etc., but it is not understandable that each company should not know its own true position.

In view of what we have said and quoted it is obvious we must report that upon the evidence before us it is impossible to form an opinion as to what is the cost of production of crude oil in Turner Valley.

One thing emerges, however, and that is that the Turner Valley producers are in great need of an adequate and uniform system of cost accounting.

We think that (through government agency) the Government would serve a useful purpose in preparing and insisting upon the use of a proper and uniform system of cost accounting, which would at the very least serve to indicate the nature of the cost movement. This has been the subject of study by the American Petroleum Institute and is, in the opinion of the accountant to this Commission, possible of accomplishment. In our view such a course, if adopted, would be of great value to the producers themselves; it would be important to any government body which passes upon the sale of shares or securities to the public and it would be of value for statistical purposes to any body charged with responsibility in connection with the Petroleum Industry.

It will appear to anyone not connected with the oil industry more than passing strange that there should be such uncertainty as to production costs, such seeming disregard of production costs and such a condition of affairs in the production branch of the industry that Dr. Frey is able to say:

> ". . . the field price of petroleum and the cost arrived at do not necessarily have any correlation at any given moment."
>
> . . . . . .
>
> ". . . I want to add another observation concerning discovery as related to price, namely, that while there is at any moment little or no relationship between the costs involved in producing and the field price, that in the long run the cost of replacing the produced oil by new discoveries should have a strong effect upon the price of crude oil. I have used the words 'should have' advisedly, because there is no present assurance — and I might add, no indication—that they will."

In view of this we think it fitting that we should give our views as to how this situation has come about and as to whether or not anything can be done about it.

Disregard of production costs is, whether sound or not, at least understandable from the standpoint of the refiners. We think that there is no doubt that Imperial Oil Limited and other local refiners are showing a laudable desire to make use of Turner Valley crude oil in preference to foreign crude oil but let it be clear that this desire will be manifested only so long as these refineries can get Turner Valley crude oil to their refinery doors at the price at which they can place foreign crude at the same points. It is not to be thought that the refiners, as refiners, are in the least concerned with whether

or not the cost of producing crude oil is greater than the price of crude oil so long as there is an available supply of this product with which to satisfy the needs of their refineries.

The production of crude oil at a cost which, if truly set forth, is greater than the price obtained for the crude oil, is something which, from the standpoint of the producer, is difficult to understand since it would seem reasonable that production would cease where experience showed that it was unprofitable to produce. This is not the case, however; the evidence before us would lead to the belief that, at least so long as the marginal producer in a field can survive, oil production will continue. By "marginal producer" is meant that producer who is getting bare out-of-pocket costs to the point where he can just keep going and who, of necessity, would close his doors if the price for crude oil were reduced.

We quote from Dr. Frey's evidence as follows:

> "If he is a small operator, he must get his out-of-pocket expenses as he goes along. If he is a large operator he may have other fields that are productive in which the returns from these fields may offset the losses he takes in the immediate development but he is not unmindful of the future possible profits. He is always concerned with his future possible profits. There is another thing about it. If, let us say, he finds he has made an unfortunate investment and there is no possibility apparently of a price that will return to him more than his out-of-pocket costs, well now under the circumstances you might say that he should stop operating in that field because he will never get his return on the investment, but since he has got his out-of-pocket costs and maybe with a break in the market he may get a little bit more some time, that he will continue to produce in that field ordinarily in spite of the fact that he is never going to get a return on the investment."

This seeming disregard of production cost may be in part explained by what Dr. Frey calls the "oil man type of mind". His views as to this may be best put forward by the following extracts from his evidence:

> "The oil industry is not a 'corner grocery' at all. It is a highly speculative venture. The man or company that is not willing to venture much with the possibility of ultimate profit has not an oil man type of mind. The oil man must believe in himself, he must believe in his judgment, he must be willing to take a chance, a long chance, he must not be discouraged by failures, he must look ahead to the ultimate future. If he drills 18 wells in a row that are dry holes, he still has his mind on the 19th one which is going to turn out to be a well. It is that highly speculative nature that puts the oil industry in a category very different from any other type of industrial activity with the possible exception of its closely allied speculative operation, mining, especially mining for the metals and particularly the metals, non-ferrous metals."

. . . . . .

"A man who is engaged in the mineral industry must be willing to take a long chance and that is the type of mind that you do not find in the ordinary merchandising operations that we know about in most industries. I think it is definitely a type of mind. Some one has described an oil-well driller as a man who produces a hole in the ground with an optimist on top."

. . . . . .

"There is room for men who are willing to take a chance. Of course, the more that a company has back of it the less each individual failure hurts. But failures hurt anybody. You have got to make provision for that. There is room for the man who is willing to take a chance. This is again a type of mind. This thing gets to be very subjective. It is not clearly an objective situation in which the sum of two and two equals four minus one equals three. We are dealing with human emotions, with aspirations, with ambitions, with that quality that puts one man over the top and makes the other man say 'I prefer to take things as they are and sit by my own fireside'. This thing is not clearly objective. It is subjective. We are dealing with human emotions when we are dealing with the oil man mind."

We think, however, that the gambling instinct alone does not account for the striking disregard of cost of production which has been so noticeable in times past. In our view, other factors have played a part in the production of oil regardless of the cost of production and of its relation to price.

We have already mentioned the need of those not well financed to get back some of the money which was used in drilling by the immediate production of oil, even though this be done at less than true cost. In addition we may mention the following factors as inducing a disregard of cost of production.

In the first place, the rapidity with which the industry has grown, in the exceptional circumstances, in the early life of the industry, of a demand at high prices that was almost equal to supply, led to a habit of disregard of the cost of production because, so long as the producer was making a good profit, he was not greatly concerned to find precisely how much that profit was.

In the second place, because no vast reserves of oil have even been blocked out by the industry, there seems to have been in the minds of oil men a constant fear of oil scarcity which has led to production without regard to the cost of production and to storage of oil in tanks of steel before others could get it, rather than leaving it in nature's container, on the theory that whatever present prices might be, oil would become of tremendous value in the future.

In the third place, government and other leases have made it a condition precedent to the holding of the lease, that drilling be done in order that government or other royalties be paid quite regardless

of market requirements or the relation between price and the cost of production.

In the fourth place, oil has been produced under the "Rule of Capture" which legally ascribes ownership to oil only when reduced to possession. In the result, oil producers, to avoid encroachment by their neighbours and of course to procure as much oil as possible from underneath their neighbours' lands, have drilled and produced oil at a speed that outrages good engineering practice and without regard to the proper relation between cost of production and price.

Perhaps a disregard of production costs is primarily the concern of the person or company that gets a price which is less than cost but it is also a matter of public interest from the standpoint of discouraging drilling operations necessary to meet depletion and effect discovery; furthermore, it is a matter of public interest in that production regardless of the relation between cost and price inevitably leads to over-production and over-production leads to prices which in time may result in the undermining of the industry's economic structure and chaos. As to this Dr. Frey gave evidence as follows:

> "Q. Yes, and in the absence of some measure of control—I am not talking about methods now, I am not talking about whether it be by government or by the industry itself, but unless there be some method of control of production, that is in some measure in consonance with present demand, there is very little hope for the producers?
>
> "A. I think that the history of the oil industry will demonstrate, without any question, that an absolutely uncontrolled production leads to chaos?
>
> "Q. Yes.
>
> "A. And that such chaos has visited the oil industry many, many times in its history. Oil was found in the United States in 1859 I think was the year—it was either 1858 or 1859—and we had our first chaos in 1861 and we have had repeated periods of chaos ever since.
>
> "Q. And probably the present war may have saved another one right now?
>
> "A. It is possible but even the war has not saved us from the chaos of Illinois."

A question of course arises as to whether or not, having regard to the variables and uncertainties in production, the production branch of the industry may reasonably expect a closer relationship between cost and prices. As to this, we quote from an article by Messrs. J. J. Wasson and Lucius W. Mayer, Consulting Engineers, in which

they deal with what they term the "oil scarcity delusion," and with production cost as a factor in oil economics:

"The underlying contributory cause largely responsible for the oil industry's present predicament can be traced to the influence of a delusion —the oil-scarcity delusion. Let us say then that it is of a psychological nature. We claim no credit for the diagnosis that the belief in the impermanence of our oil reserves was purely illusory. Perhaps there was even a time when some justification for it existed. We are here concerned with its results which, in a word, we conceive to have been the establishment of oil price on unsound principles wherein the cost of producing the barrel of oil was never a potent consideration. This does not imply that the price of oil has always been either too high or too low. In its fluctuations through the years oil has perhaps many times sold at a well-adjusted economic price. We, however, emphasize the point that such periods of proper price balance were accidental rather than the result of a freely working economic principle. In practically all other industries it is known that value has a close relation to the cost of production."

. . . . . .

"Intrinsic value—that is, production cost plus a normal profit spread—has not in the past been the unqualified and controlling influence in the price history of crude oil. The preponderant force has been the oil-shortage delusion."

. . . . . .

"It is not contended that the glamorous days of oil production are entirely at an end, but it is self-evident that the centre of gravity of oil production has been for some time shifting in a perfectly natural way toward the low-cost fields. This trend undoubtedly will continue. A striking example of such a shift has been in the copper industry, in which it has long been realized that cost is a more important factor governing profit than either price or volume, and for over a long period of years, as previously pointed out, the average distributed profit has remained fairly constant in relation to the average price of the metal.

"Fortunately, from a sociological standpoint the principle of oil proration, or artificial curtailment, is tempering the transition with mercy, for an abrupt elimination of all oil outside the low-cost brackets would bring about a calamitous train of results. The point to be emphasized is that in the future it will be insufficient to anticipate the successful development of an oil property merely because a quantity of oil can be obtained from wells drilled on it—for the cost factor must first be satisfactorily answered. That is, a careful computation of over-all costs must show a reasonable profit spread in the light of a future oil-price base determined rationally by the average production cost of all other oil, this being the factor which in combination with 'normal profit spread' establishes the intrinsic value over a period of time, and hence market value, of all non-monopolized raw materials.

"The authors have presented the foregoing notes in the hope that engineering thought may thereby be stimulated in the direction of the study of oil costs beyond merely the limited horizon of drilling, pumping, etc. Moreover, cost data should occupy its proper place in the annual

reports of oil companies. Stockholders thus far have provided the required money pretty largely on faith. They may possibly continue to do so, but the financial management of an oil company will more wholesomely fulfil the obligations of its trusteeship when it undertakes to inform its shareholders regarding the cost of obtaining the product upon which the industry is based."

We also quote from Exhibit 459 entitled "Economics of the Petroleum Industry," written by Dr. J. E. Pogue. In this article, after discussing the figures in the study of producing crude oil in the United States, by the Petroleum Administrative Board, to which we have hereinbefore referred, the author says:

"These figures reveal a wide amplitude in production costs, which is caused primarily by the greatly varying size of wells. This cost range, of course, constitutes a difficult problem in utilizing price alone as a regulator of production. Prices disastrous to stripper wells are required to render the flow of large wells uneconomic. A neglected element in the practice of crude oil accounting is the cost of replacing the produced oil by means of new discoveries; accounting systems in vogue do not resolve this question. In the long run, replacement cost must be the deciding factor in the price of crude oil."

These quotations would seem to indicate that for the producing branch of this industry to rest on a sound economic basis there must be a closer relationship between the cost of production and the price paid for the product, than has been evident in times past.

While we have said that a disregard of cost of production leads to over-production, it is not to be thought we are unmindful that there may be over-production at a profit to the pool that is the greatest offender in creating the condition of over-production. A new pool in which oil is obtained without deep drilling may at any time, particularly during a period of flush production, provide an example of creating a condition of over-production at a profit but this means that other pools which seek to maintain their position must produce regardless of cost.

It is not our desire to make the point that disregard of production costs leads to over-production any more than it is to make the point that over-production leads to a disregard of production costs. Our point is that these two are concomitants; that they are unhealthy ones; that they exist primarily because of the factors to which we have alluded; and that so far as may be, they should be eliminated by striking at those causes which make for their continued existence. In this connection it is worthy of note that those factors to which we have alluded as tending towards disassociating cost and price, are each and all factors in bringing about over-production.

The evil effect of over-production in times past in America is too well known to call for any lengthy discussion. One need only point to Oil Creek and Macdonald, Pennsylvania, Beaumont, Glen Pool, Cushing, Seminole, Smackover, Oklahoma City, East Texas, and, to bring the examples right up to date, Illinois, to provide instances of the over-production of oil and gas not only sacrificing natural resources in particular localities, but paralyzing the industry elsewhere.

It would appear to be a strange thing that this great oil industry that has made such tremendous strides in exploratory devices; that by means of improved drilling machinery has made it possible to reach producing horizons not before thought possible; that has brought about cheap transportation through great pipeline systems; that has produced a multiplicity of products from crude oil; that has, by improved technique in refining, made it possible to double the recovery of gasoline from a barrel of crude oil; that has created a marketing system which may be criticized, if at all, only because its thoroughness and completeness make it too costly, should not have been able to face the realities of production costs and production control, and to cope with them so as to avoid the over-production which, in times past, has well-night demoralized the industry.

It would not be true to say that the subject of over-production has not engaged the attention of oil men. It has long been generally agreed amongst students of the industry that there should be a more efficient oil field development to permit of a more conservative use of reservoir energy; to limit extraction to market demand and to in some way provide for an equitable distribution of oil and gas amongst the several owners of the pool; yet little has been done about it by the oil industry.

It is not to be thought from what we have said that there are no serious obstacles in the way of the industry, as an industry, dealing with over-production. In the first place, petroleum being of the migratory character which it is, it is difficult for the industry to formulate any substitute rule for the "Rule of Capture". In the second place, it is to be remembered that, whether for good or ill, the Anti-Trust laws in the United States and laws against combinations in restraint of trade and Section 498 of The Criminal Code in Canada, have cabined and confined the industry in the matter of making internal agreements which might have any direct or indirect effect upon the public interest.

But whether because of indifference or impotence, the fact is the oil industry, as such, has signally failed to efficiently systematize

the production branch of that industry and to deal with its major problems.

All that we have been saying would be but of historical interest if these conditions, which in our view have led to a disregard of production cost and to over-production with demoralizing effect, were past and gone, but as this is not the case, and as an Alberta oil field cannot be thought of as being different from all other oil fields, it has seemed to us necessary to have regard to the past in order to intelligently examine into the present.

We have then to consider how far and in what fashion these conditions, which have demoralized the industry in times past, have been dealt with, and to ascertain so far as may be, what more can be done in respect of such conditions as have continued and are of present-day concern.

We doubtless still have people with the "oil man mind" but we are inclined to think that past experiences have caused their enthusiasm to wane.

There is not now a demand at high prices which equals production and so there is not for that reason occasion to disregard cost or to over-produce.

We think it fairly well established by the evidence before us that although oil is far to seek and hard to find, the "oil scarcity bogey" no longer seriously influences the activities of oil producers.

Government leases and other leases of oil lands still contain clauses providing for forfeiture for failure to drill, without any provision being made for the waiver of that clause if it appears that the oil produced would but add to a surplus already existing as a source of supply for the markets which it is economically sound to reach. We are told that there is a tendency on the part of governments not to cancel for failure to produce if it appears that such production would add to the supply for a market which is already glutted with oil. Whether this be so or not, it is our recommendation that the Minister before mentioned be given concrete power to waive forfeiture and forego covenants to drill in all government leases; and that such Minister be given a further power to exercise the same right with respect to leases issued by other lessors who insist upon drilling being carried out in such circumstances.

We now come to a consideration of what has been done to do away with or to mitigate the evils arising from the operation of the "Rule of Capture".

As we have pointed out, because of the supposed analogy of oil to wild game, the courts have held that the land owner or lease holder may withdraw from a pool all of the oil that he can, regardless of whether or not it may in fact come from underneath his land. In the result, there has been a frantic effort to produce oil before it was taken by anyone else, even though there was a present surplus, and land owners and lease holders have felt forced to drill unnecessary offset wells to secure their share of oil in the pool.

Except for some instances of unit operation, of which we shall have occasion to speak, the only worth-while effort to cope with the evils of the "Rule of Capture" that has thus far been made, has been by government intervention in the form of statutory enactments dealing with conservation and proration.

Proration under rule of law was put in effect in Oklahoma in 1926 and is now in vogue in many important producing areas in North America. Proration has been defined as "a planned production measure designed to prevent waste, insure ratable takings and balance supply and demand."

We quote the following from an interesting article advocating effective laws to limit the production of oil, put forward in 1932 by Mr. Amos L. Beatty, then President of the American Petroleum Institute:

> "The oil industry can prosper only if crude production is not excessive."
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> . . . . . .
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> "I believe not only in the curtailment of production by voluntary action of the industry, but in curtailment by statutory enactments, in which commissions and umpires administer the law, see that all producers alike curtail their operations and that one pool is not discriminated against in favour of another.
>
> "The folly of taking oil from the earth too rapidly at the loss of propulsion energy is no greater than the folly of vacating the tankage that nature made and substituting expensive steel, and these follies combined do not compare with the idiocy of states that see their natural resources depleted without adequate return.
>
> "Our case is different from others. It is different not only on the theory that oil reserves are exhaustible. There is difference based on the nature of producing operation. An over-supply of cotton, wheat, pork or hides cannot be ascertained until after it has occurred and the damage done. In the production of cotton, wheat and other farm products acreage is not a controlling factor in forecasts. Without question oil production can be limited currently to consumption or market demand. It needs only legislation against economic waste, or, in other words, law which prohibits production in excess of consumption or market demand.

This is government control, but we need this kind of control. Time and time again we have seen the inadequacy of self-control. We need a system of state laws, effective in the oil-producing states, under which not only physical waste of oil and gas and the waste of propulsion energy but economic waste of these valuable products can be prevented."

. . . . . .

"The development of this idea of restraint by law against excessive crude oil production has been most interesting. First we had voluntary restraint. As this in some cases became ineffectual, due largely to the greed of minorities, restraint by law was evolved. It is making rapid progress and, I do not hesitate to predict, will soon become the bulwark of our industry in times like the present.

"Economic waste is seen in various industries. In this machine age, when over-production presents such serious problems in many lines, it would not be surprising to see various industries advocating this kind of legislation. It may not be practical in all industries, but in a natural resource industry, and especially in ours where nine times out of ten economic waste and physical waste go hand in hand, there can be no sound objection. When economic waste is prevented there is simultaneous prevention of physical waste and conservation of reserve energy, which differentiates our case from even that of other natural resource industries. We are in a position of vantage and should lead. We can help ourselves and at the same time help the whole country and the world at large. In my opinion few things would inspire more confidence or more decisively initiate a return to prosperity than for the production of oil in the United States to be limited by effective law to market demand.

"Instead of being a liability our proven reserves are a wonderful asset if properly husbanded. They should give stability rather than instability to the industry. The old fear of oil petering out is no longer present. Stocks in the ground are better than stock in steel."

Since the foregoing article was written, conservation and proration methods have greatly advanced. The article is, however, of interest in that it gives unqualified recognition to the need for government intervention and to the futility of voluntary effort in the industry by reason of the greed of some of its members. It is also of interest because it is in such marked contrast to the attitude of the industry ten years before when, as Dr. Frey points out in his very interesting historical survey of the growth of the idea of conservation and proration, the industry insisted that they were doing a good job and should be left alone.

We shall presently discuss conservation and proration in relation to the Turner Valley field. For the moment we discuss these subjects from the point of view of whether or not they have done away with the evils of the "Rule of Capture".

It has been suggested that where there is a spacing pattern and where there are ratable takings based on engineering findings, the

"Rule of Capture" automatically disappears. We cannot accept this view; it is our opinion that conservation and proration methods have done much to prevent grossly wasteful production practices in respect of oil and gas, yet, as Dr. Pogue has pointed out, "the problem of economic equilibrium in the petroleum industry in the interim is not wholly solved. The proration mechanism has not yet been perfected either in structure, range or application." Certainly the conservation and proration schemes which have been brought to our notice cannot be said to have defeated the workings of the "Rule of Capture". Without doubt much has been done to mitigate the evils of that rule but it still stands with many economic ills resulting from it. It is true that under a rule of proration to market, the bringing of the oil to the surface of the ground may be retarded but since the right to drill is in no wise altered, the opportunity of taking oil from underneath one's neighbour's land is still open, even though the speed with which it is taken away be diminished. In short, the evils of the "Rule of Capture" still exist, minimized though they be, and it may be added that, under proration, they do harm in new ways. For example, a person owning a well in a field of divided ownership which is prorated according to present methods, is limited in the amount of oil he may produce from his well, according to the number of wells in the field and the market demand at the time of production (of course having due regard to the other factors mentioned in any formula). If the market demand does not permit of such a person producing, as his share thereof, the maximum amount of oil which he can produce from his well consistently with efficient operation, his cost of production is obviously increased, because his overhead cost for producing the maximum amount of oil would be practically the same as the overhead cost for the production of the lesser amount of oil which he is allowed to produce. Furthermore, as more and more wells are drilled, that which has been termed "the allowable" is, of course, further reduced, and it is quite conceivable that in the end the oil producer in a limited market under a proration scheme, may not be allowed to produce enough oil to meet his operating expense, much less any allowance for depletion, amortization and a reasonable return upon capital investment. Another striking feature of present-day proration methods is that, although a person is restrained by law as to the oil which he may produce from his particular well, and so is deprived of the opportunity of making all the money which he could make by the efficient maximum operation of his well, that person is not protected by law against being forced to make further capital expenditure in offset wells when other people have drilled adjacent to his properties quite regardless of the lack of need for further oil to satisfy the market or

provide for depletion. Furthermore, a person who needs a given quantity of oil for his refinery or otherwise, may find his position changed because of the drilling by others, and he may be under the necessity of acquiring more oil lands and doing more drilling so that his ratable takings under the proration law will equal his needs.

In our view, that which we have said serves to show that the conservation and proration schemes now in vogue do not do away with all of the evils of the "Rule of Capture". So long as a person is at liberty to drill a well as and when he likes, and thus force the adjacent owner to the alternative of either losing oil under his lands or spending money to put down an offset well to produce oil which is not needed to serve the available market, then, in our view, the "Rule of Capture" is still in force. It has been said as against this view, that it is just unfortunate if the person called upon to drill an offset well or wells has not the money to do so and that conservation does not embrace the providing of capital for all operators in the field. With respect, we do not think that this touches the point made, that the "Rule of Capture" is in force just so long as people may withdraw oil from under the lands of other people, and that it takes on a peculiarly vicious aspect when there are already many more wells than are needed to supply the market.

It might seem that a strict limitation upon new drilling operations in a proven field, so as to eliminate all drilling not necessary for market demand and for the depletion of existing wells, might meet the objection of further increase in overhead cost and reduce the need for capital expenditure in offset wells and in new wells to meet oil requirements as before mentioned but on reflection it is seen that this gives a monopoly to those who have already drilled at the time of the limiting order and perpetuates the evil effects of the "Rule of Capture" in that those who have already drilled at this time are able to drain all of the lands from which oil will permeate to their wells and render it valueless to the adjacent owners. In other words, the adjacent owners, in such a case, have lost the option to drill offset wells and gained precisely nothing. This would, of course, apply to a new lot of wells allowed to be drilled to provide for depletion in existing wells.

It might be thought that more wells than necessary will not be drilled because it would be uneconomic to do so in the case of proration to a limited market. As this is contrary to the "oil man mind" and to the whole history of the industry wherever the "Rule of Capture" has had play, in our opinion the thought cannot be entertained.

It is of more than passing interest to note that, according to Dr.

Frey's evidence, there are no conservation or proration laws which have the validity of statutory enactment in the States of California, Illinois and Wyoming and that the law of Montana does not go to the length of limiting production to market demand. It is also worthy of note that no serious attempt has been made at proration to market as between pools. Dr. Frey points out that there have been inter-state oil compacts among six or seven states but that they have amounted to but little more than an agreement that they will work towards uniform conservation laws.

In the result, we say that, while the "Rule of Capture", sometimes well called the law of the jungle, has slowed down under existing conservation and proration schemes, it is none the less working and its evils still exist, and just so long as this is so, cost and price will not be in proper association and there will still be over-production, though not in the sense that oil is thrown upon the market to the full extent of the capacity of drilled wells as was once the case. None the less there will be over-drilling for oil and as a result there will be at all times a wholly unnecessary available supply of oil in a wholly unnecessary number of wells with a consequent wholly unnecessary capital expenditure for offset wells and a wholly unnecessary production cost in relation to each well, to say nothing of the possible danger to wells from over-retarding of flow which may be the case when a great number of wells are prorated to a limited market demand.

In our view there is only one complete answer to the "Rule of Capture" and that is unit operation.

The ideal setting for the "Rule of Capture" is the divided pool owned and operated by many competing owners. As has been pointed out, proration has been interpreted as a means of mitigating the evil effects of this rule but if it be desirable to mitigate its evils, it is even more desirable to eliminate its evils.

If it were possible to have an undivided pool under a single management we would then have the ideal both from an economic and conservation viewpoint. Self interest would dictate that there be the most effective utilization of the reservoir energy, that production be in all respects in accordance with the best engineering practices and that oil be not thrown upon the market until such time as the market could absorb that oil with a reasonable spread between the cost of production and the market price. In such case, no question of inequalities could arise; in short, there would be no room for the working of the "Rule of Capture".

Even in circumstances where it is too late to contemplate the

undivided pool, it would seem reasonable to suppose that as a matter of self-interest and self-preservation, owners might come to an agreement which would permit of unit operation. It would appear from the evidence before us, however, that there is no unanimity in the industry as to the approach to unit operation in the divided pool. Thus far the instances of unit operation in cases of divided ownership have been based on voluntary agreements between a few parties. That such agreements may be difficult to arrive at with people who are greedy for more than their fair share, goes without saying and for this very reason it may be if unit operation looms up, not only as the most advantageous means of producing oil from the standpoint of producers but also as the best means for avoiding waste, that governments will feel constrained to intervene and to insist upon such operation for the public good wherever practicable so to do, just as they had to do in bringing about conservation and proration as we have it to-day, in the face of the opposition of the industry.

That unit operation is the ideal operation is not open to doubt and precedents for unit operation of pools in which there is divided ownership are not lacking. In support of the views which we have put forward, we quote from the evidence:

The first quotation is from Exhibit 459 before referred to:

"For the past 10 to 15 years there has been a gradual weakening o interlease competition and a progressing tendency for oil fields to be operated as units, or as if they were units, with inestimable gain in operating efficiency and great reduction in physical wastes."

Dr. Frey made the following answers to the following questions:

"Q. You think then it is quite impracticable to have such a thing as unit operation associated with divided ownership?

"A. I think that if owners want to co-operate in unit operation they should be permitted to and they should be given every encouragement by the Government but there are situations in which it seems impractical to force unit operation. As a theory that is the only thing but for practical consideration it does not always work out.

"Q. Has it worked out in the places it has been tried. We have a unit operation, of course, in South America, haven't we?

"A. We have very large unit operations in quite a number of places.

"Q. That is single ownership?

"A. For instance, we have a unit operation of the Dutch, English, French and Americans and Goldbenkian over there in Iraq. That is operated as a unit.

"Q. Divided ownership amongst large corporations?

"A. They have put it into a common pool. And, of course, you have the Anglo-Iranian in Iran, and you have the Standard of California in Bahrein. You have the subsidiary of the Imperial in Colombia.

"Q. That is a very highly efficient operation, is it not?

"A. Yes, it is efficient. They also have unit operations in Peru. There are many unit operations over the world.

"Q. And they work best?

"A. I think that that is ideal, is to be able to develop a field as a unit.

"Q. Now then, haven't we, Doctor, instances of divided ownership where by voluntary agreement they have gone in for unit operation?

"A. Yes. We have a good example of that in Maracaibo, where the Lagos Petroleum Company and the Shell have an agreement concerning the unit development along the shore. We have many units of that kind in the United States where only two or three companies are involved and they have been able to get together and agree on a plan and the Federal Government and the State Government have always encouraged such unit operations where they are possible. I know of a number in California. I should say the best operations in California are either exclusively operated or are operated as units by two or three companies. Uncontrolled development in California is the most frightful example of waste that I know of in any large area."

Dr. Frey was asked to direct his mind to the feasibility of united operation with divided ownership in the event of a new pool being discovered in Alberta. We quote from his evidence the following response to the following question:

"Q. Would you say that in the event of another pool being found in the Province of Alberta that it would be the part of wisdom for the Government of this province to insist upon the unit plan of development along the lines that you have with respect to Federal lands in the United States?

"A. Well, except for the fact that our system is not perfect. I would like to see a more perfect system than we have. I should say that if another oil pool is developed in Alberta it would be desirable to work out a unit plan of operation based on good sound engineering and economics, in which proper spacing, whatever it happens to be, and ratable takings are an important factor. Of course that means a lot of other technical things like maintenance of oil-gas ratios and maintaining bottom hole pressures and many things of that sort."

Mr. LeSueur, vice-president of Imperial Oil Limited, says that where there is undivided ownership, the unit operation of an oil field has "proved to be the ideal way of operating." He adds:

"There are also occasions when two or three producers control the surface overlying the same crude structure. In such cases the conclusion of a voluntary agreement for unit operation is quite possible but not easy."

. . . . . .

"From these brief outlines, it is evident that to make a unit operation just and workable, even amongst two or three large companies with large resources the executives of those companies must approach the problem in a very broad, very considerate and very far-sighted attitude and must be prepared to revise their agreements from time to time on the same considerate, far-sighted basis.

"With the difficulties attendant on a voluntary agreement for unit operation two or three large companies as outlined above, it becomes evident that where there are a large number of producers the difficulties of a voluntary agreement for unit operation become almost insurmountable. With the surface overlying the pool divided among a large number of producers, you have not only the interests of these various producers but the interests of a large number of royalty owners with varying royalties. The proportionate value of the pool allocable to each surface owner and to each royalty owner cannot be estimated with any approach to accuracy by the best petroleum engineer and the produce and royalty owner naturally has an estimate of the value allocable to his particular property very different from the estimate of any other party in the field. This is quite understandable as we must remember that each field differs from every other field, that different sections of the same field usually vary from other sections, and, in fact, that each well has its own individual characteristics and must be studied individually for efficient operation. I might say that this is particularly the case in limestone fields."

In making the quotations which follow, it is not to be supposed that we put the stamp of our approval on any particular method of unit operation. It seems to us that this is a matter which must be considered in the light of the engineering and accountancy knowledge and the experience of the industry at the time of pool discovery, the location and physical characteristics of the field and such economic factors as may seem to have an important bearing at the time of the discovery.

We now quote from an article by a consulting geologist, Mr. L. C. Snider, which was put before the American Institute of Mining and Metallurgical Engineers:

"The advantages which it is believed would result to the industry and to the nation from the adoption of the law of ownership of petroleum and natural gas in place are summarized briefly below. The objections to the law of capture are, in general, so nearly opposite statements that they need not be repeated, although a few peculiar corollaries are noted in parentheses in appropriate places.

"1. The ownership of petroleum and natural gas in place is fundamentally more equitable and is much more in keeping with the commonly accepted ideas of property rights than is the law of capture, which, as has been noted repeatedly, applies only to property in wild animals outside the petroleum industry.

"2. The owner of the first well drilled in a pool would receive no more than his proper share of the oil, plus perhaps enough to retire the

cost or part of the cost of the well. (This would remove the incentive to the haste and resulting waste in drilling that have developed as corollaries to the law of capture.)

"3. All necessity for offset drilling and drilling on the property of each landholder in a pool will disappear, since each owner will receive his share of the petroleum and natural gas whether it is produced through wells on his land or through wells on his neighbours' land. (Offsetting and protection are the fundamental causes of most of the overdrilling which has been such a conspicuous cause of waste to the industry.)

"4. Pools will be logically operated as units under the law of ownership in place. (True unit operation is impossible under the law of capture so long as a single royalty owner or lessee objects.)

"5. Unit operation will permit careful determination of the nature of oil and gas pools and the development of the best engineering schemes to exploit them without the necessity of throwing the petroleum on a market which may be in no condition to receive it.

"6. Gas may be utilized in maintaining pressure so that the oil will retain its fluidity and much higher percentages of the oil may be recovered with fewer wells than is the case under the law of capture.

"7. Transportation and storage can be adjusted to a reasonable production of oil over a long period. (Under the law of capture it is necessary to provide facilities for a peak production which is far in excess of the later production and which may last only a few weeks or months.)

"8. Consideration may be given to proper housing, educational and recreational facilities for the field workers and the economic, social and moral wastes due to the boom oil town can be eliminated.

"9. A proven but undrilled reserve can be established which should go far toward stabilizing the industry on a reasonably profitable basis. (Stability is impossible so long as a pool may develop a peak production of 200,000 or 300,000 barrels per day, all of which is thrown on the market within a few weeks or months after its discovery and then decline to a relatively few thousand barrels per day in a few more months, all of which has happened many times under the law of capture. Production drilled but shut in or curtailed under the law of capture is not a true reserve but is a menace to the price structure.)

"10. The prospect of reasonable returns over long periods of time should bring capital into the industry sufficient for its legitimate needs. The removal of the spectacular returns from flush wells will check the flow of purely speculative entries into the business. (The idea of "discovery rights" which has grown up under the law of capture is regarded as harmful to the industry, and as meaning simply that the discoverer of a pool has a right to take some of his neighbours' oil or to render a large part of it unrecoverable. If the natural demands of the industry are not sufficient to stimulate a reasonable amount of wild-cat drilling so that a bonus becomes necessary, this bonus should come from the industry or the nation and not from owners of property adjacent to discovery wells.)

"11. Under more stable conditions, the industry can give more

attention to the development of higher grade markets for its products and can continually lessen the proportion of the crude petroleum which goes into the low-grade products that must be sold in direct competition with coal.

"12. In spite of the present over-production, many in the industry believe that the petroleum resources of the United States have been greatly depleted, and that other nations still have considerable reserves of shallow, low-cost petroleum while we are, even now, largely dependent on deep-seated, high-cost deposits. The application of the law of ownership of oil in place will contribute to the conservation of our reserves, and in so doing it is considered to be a benefit to the nation as well as to the industry."

The following is from an address entitled "The New Conception of Oil Production," by J. Edgar Pew, delivered some time ago but in our view of present application:

"It is not my purpose to go into details with which you gentlemen are thoroughly familiar. I am, however, challenging you frankly to consider with me these losses, and our responsibility. By our failure in dealing with production, we hold ourselves up as inefficient, blind, and lacking in the qualifications of good business men. We are subjecting ourselves to the menace of injurious legislation—perhaps of having the industry itself, second greatest in the land, as we are proud to say—wrested from our hands."

. . . . . .

"Our problem is not to be solved by cheerfully accepting a policy of 'survival of the fittest.' To such a programme a small minority of the industry is still committed; but I say: that way lies disaster. We will have no peace through a war of extermination. The world's history since 1914 has surely proved this. If anybody imagines that by ruthlessly crushing the weaker units the excesses of production can be curbed, he is tragically mistaken. It would drive out all those splendid forces of adventure, initiative, individual effort, and bull-necked courage on which the industry depends for finding the hidden stores of crude. No programme of eliminating these vital forces has ever worked or ever will."

. . . . . .

"But even if such a programme succeeded, its success would be more unfortunate even than its failure. I would be sorry for the surviving 'fittest' when he found himself alone on top of the petroleum world—object of all suspicions, target for all hatred; ham-strung by impossible regulations, and an easy mark for the legislative experiments alike of half-baked radicalism and hard shell demagoguery.

. . . . . .

"Of course, there is always the good old law of supply and demand to fall back upon for defence of any unconscionable economic distortion. Whatever the law of supply and demand might mean in a free state of industry and economics, it has been pretty well repealed by practice and statutes; what is left of it needs policing to save it from legislative rape and judicial mayhem. That supply is determined by demand, and that in the long run they balance each other, is good enough generalization for

the economist thinking in the absolute zero of a perfect vacuum; but let's see how it works. Whose 'demand' caused East Texas to well-nigh drown the industry? Whence has come the 'demand' for huge, untimely, and wasteful new production that repeatedly has brought chaos into the business? Certainly the industry didn't 'demand' it; nor did the consuming public. The fact is that the oil industry, as now restricted by statutes and injunctions, by laws and decrees, is about as responsive to the classic law of supply and demand as Sir Isaac Newton's apple was to the gravitational pull of the planet Nepture.

"Is it not time for us to recognize these things, and get together on a plan to solve our difficulties? You gentlemen, responsible to your stockholders and to your country, know it is time to act. Then why hold back? I say to you that if this meeting can agree on a plan and set up machinery for its operation, it will have rendered the Institute's greatest service.

"I submit two suggestions. They look to economy, to conservation, to establishing an adequate reserve, and to asking new production discoveries a safeguard rather than a menace. They are:

"1. Complete and unqualified adoption of a unit plan of production.

"2. Corollary to the first, the acceptance as fundamental that each owner in a pool is entitled to his equitable share in its oil and gas, as opposed to the present anarchic rule of everybody getting all he can as fast as he can."

We next quote from an article appearing in Exhibit 639, written by Mr. E. Oliver, an appraisal engineer of Ponca City, Oklahoma, written in 1939, in which he criticizes present-day proration methods, suggests that unit operation is unattainable and advocates a form of collective action which he appears to think is not unattainable.

"1. Proration in its present form has to its credit that it has maintained a living price for oil; this in itself is a worth-while accomplishment, but its mechanics are such that—

"2. It is perpetuating the high-cost production methods that have characterized the oil fields of the United States from the beginning of the industry and tends to hinder widespread application of the improved technology now available.

"3. Proration built on the capture rule tends in turn to stimulate and then eliminate the independent refiners and marketers of oil, induces "hot oil" running with all its attendant evils, creates situations resulting in 'Madison trials,' and in general promotes inequalities, inequities, and dissension within the industry;

"4. It is gradually but inevitably leading the oil industry into complete government management through government's unsuccessful attempts to correct the evils arising out of results 2 and 3 listed above, and thus is placing upon government functions that are inconsistent with its real purpose and that can be exercised more effectively by the industry itself provided sound proration methods are installed. As one government remedy after another fails in its purpose because proration

is built on legal principles that conflict with physical laws, more and more regulatory legislation is demanded in the vain hope that finally the evils can be corrected by government control.

"As Dr. Pogue points out, collective action among owners in a common pool is essential to conservation and stabilization of the oil industry. Two methods to attain that have been unsuccessfully attempted: (1) general adoption of unit operation; (2) proration. The first is unattainable, the second has resultant evils that make it impractical. A third typically American method of bringing about collective action among people with a common interest, which has never yet been applied to oil pools, was suggested to me by no less important authorities than the Hon. Homer Hoch, former chairman of the Kansas Corporation Commission, and now Justice of the Kansas Supreme Court, and his former colleague on the Commission, the Hon. Ernest E. Blincoe. It is known as corporate power. James Bryce, in 'The American Commonwealth,' said of this method of bringing about collective action:

> " 'The word Democracy has been used ever since the time of Herodotus to denote that form of government in which the ruling power is legally vested, not in any particular class or classes, but in the community as a whole. This means, in communities which act by voting, that rule belongs to the majority, as no other method has been found for determining peaceably and legally what is to be deemed the will of the community which is not unanimous.'
>
> . . . . . .

"This device, or some modification of it, is used already in every other phase of American life in which collective action by many individuals is required. Familiar examples are: drainage districts, irrigation districts, school districts, villages, cities, towns, townships, counties, states, business corporations, churches, lodges, labour organizations. In fact, it is the typical American way of getting things done by large groups.

"It is more flexible and a better type of collective action than is unit operation, for many reasons, among which are that it would permit each separate reservoir to have applied to it the exact degree and character of collective action best suited to the conditions of the reservoir in question. For many reasons, it is also a better type of collective action than is proration. Among these are that it would place the properties back into the hands of the owners to manage collectively in harmony with general principles laid down by the state, and turn officials of the state free to give their time and attention to activities that more properly come within the functions of government than managing private properties and determining complicated petroleum engineering problems for which they have had no training. It would enable installation of a single belt-line gathering system for the entire reservoir, to which all purchasers of crude would connect instead of connecting direct to the tank of each owner. This would not only stop stealing of oil and the running of 'hot oil' but it would enable independent refiners to secure their crude on a basis somewhat comparable with the major companies and in turn would tend to eliminate any legitimate argument for separating the integrated companies into their component parts, at least in the separating of pipe lines from production. Many other benefits would arise out of bringing about

collective action through corporate power than those enumerated here, but at least this will suggest some of the possibilities of that procedure."

We do not know that we fully appreciate the difference between voluntary agreement for unit operation and voluntary agreement for collective action with the corporate power of which the writer of this article speaks. We would suppose that in a field of divided ownership, the difficulties which attach to voluntary pooling for united operation would attach to the formation of any body corporate for collective action. If, on the other hand, the suggested body which has the corporate power is to be set up by statutory enactment, it would seem that legislatures might equally well set up a scheme of unit operation by force of law, but be that as it may, it would appear that the writer's principal objection to unit operation is that it is unattainable, and that his scheme for collective action carries with it the basic idea of united effort to defeat the evils of the rule of capture. If this be so, then, as we see it, the only difference between his scheme and the schemes of those who advocate unit operation is in the method of giving effect to the same idea.

To return to the question propounded, as to what has been done to do away with or mitigate the evils of the "Rule of Capture", the rule which, more than any other single factor, has brought about disregard of production cost and over-production. We think that it sufficiently appears that there is no room for the "Rule of Capture" in unit operation and that this is borne out by the examples of unit operation referred to. It further appears that the proration laws are the alternative to unit operation, that they have done much to mitigate the evils of the "Rule of Capture" but they are at most but a compromise measure and do not eliminate the evils of that rule.

As to the question what can be done, we think that unit operation should be put in force by government intervention in all new pools and that wherever practicable so to do, the same should be done with regard to pools already in operation.

We are quite clear as to this and so recommend. We have quoted from the writings of others at very great length only so that it might not be thought that the view expressed is a fanciful one of our own.

We recognize that there may be circumstances in which it is impracticable to impose unit operation upon existing pools and we feel forced to say, although we do so reluctantly, that the weight of the evidence before us impels us to the conclusion that the Turner Valley field is probably one of those fields. This being so, it at once

appears that it is all-important that the conservation and proration laws which govern this pool as a compromise measure, should be of the best that have been or can be devised.

From all that we have said concerning production we think that the following emerges:

1. That the cost of production of crude oil in Turner Valley is not presently ascertainable and that this being so, a comparison of cost and price cannot be made.

2. That an adequate and uniform system of cost accounting in connection with crude petroleum is a matter of public interest and should be a matter of government requirement.

3. That the concomitants, over-production and lack of relationship between production cost and field price, have been outstanding characteristics of the industry in times past and have brought about waste and economic chaos.

4. That this is a matter of public interest because a lack of relationship between cost and price ultimately means the discouragement of drilling operations to meet depletion and effect discovery in respect of a product that is required by the nation; and because over-production, while seemingly providing a temporary advantage to the consumer, ultimately means the undermining of the industry's economic structure with a tendency towards monopoly.

5. That free competition and the so-called law of supply and demand would not have served, without government intervention, to prevent shameful waste of a natural resource and to keep the industry itself from complete demoralization.

6. That of the factors which we have mentioned which have led to the disregard of production cost and to over-production, the principal ones remaining are drilling requirements in leases which stipulate that drilling shall be done for the sake of royalties quite regardless of market requirements or the relation between cost of production and price, and the "Rule of Capture" which legally ascribes ownership to oil only when reduced to possession.

7. That as to the first, this can be easily controlled by the government granting authority to a proper agency, to relieve against forfeiture.

8. That as to the "Rule of Capture", governments have done much, where the industry has failed, to mitigate the evils of the "Rule of Capture" by conservation and proration laws.

9. That the natural unit of property is the undivided pool in which the ideal in operation, from the conservation standpoint and from the economic standpoint as well, can be worked out by unit operation. Such an operation leaves no room for the evils of the "Rule of Capture".

10. That conservation and proration laws are a compromise measure in fields of divided ownership where it has seemed impossible to bring about unit operation. The thought may be put in the language of Dr. Frey when he says: "I think our theory of uniform well spacing and prorateable taking is a compromise where you have divided ownership."

11. That it cannot be said that the compromise, which conservation and proration laws effect, has freed drilling from all the evil effects of the "Rule of Capture".

12. That the value of conservation and proration schemes is reduced by the fact that there are still many pools, of which the latest example is Illinois, in which conservation and proration methods have not been adopted.

13. That conservation and proration cannot reach its highest point of efficiency without, not only conservation and proration under government control in each pool, but also government proration as between pools, arranged by compacts between governments with a view not only to the stabilization of the economic structure of the industry but also to the creation of reserves which are held as such.

14. That the examples provided in the evidence before referred to, serve to support the views of those who advocate unit operation. Furthermore, these examples serve to show that voluntary unit operation in fields of divided ownership is feasible where there is to be found breadth of vision and fairness of outlook amongst the operators.

15. That it would seem to follow that if lack of vision and greed are the only obstacles to the ideal plan of production, government intervention might well serve, even as it has done in connection with conservation and proration, where these same obstacles prevented the application of these measures.

16. That nonetheless, the degree of development, the physical characteristics of the field and other difficulties, from the standpoint of engineering, accountancy and equity, may provide obstacles to unit operation which are well-nigh insurmountable. In such cases it may not be the part of wisdom for a government to force unit operation.

    This thought is put by Dr. Frey in these words:

    > "I think that if owners want to co-operate in unit operation they should be permitted to and they should be given every encouragement by the Government but there are situations in which it seems impractical to force unit operation. As a theory that it is the only thing but for practical consideration it does not always work out."

17. That while we think its possibilities have not been by any means fully explored, we do think the weight of the evidence before us is against government requirement of unit operation in the Turner Valley field.

18. That it is our firm opinion that, if and when new pools are discovered, the Government of the day should see to it that there is unit operation in order that there may be that orderly development and efficient and economic operation with due regard to the relationship between cost and price and market demand which only unit operation will provide.

19. That where unit operation is not attainable the need for conservation and proration laws that accord with the best in present-day practices is self-evident.

20. That however much there should be, there is not a present relationship between the cost of production and price.

Before leaving a discussion of production, we think that we should make further mention of proration as between pools to emphasize that, granted there be attained the ideal in unit operation or the ideal in production under conservation and proration laws in any one pool, there is yet a danger of the destruction of economic stability from without, particularly during periods of new discoveries, because of the lack of any proration of the market between pools. In our view, the ideal in proration is not just proration of production to market in any pool but also proration as between pools, so that each pool's drilling operations may be in accord with the requirements of the market which it may naturally and economically serve, having due regard to the cost of production.

It seems to us, with great respect for the opinion of those who

have given more thought and more study to this subject than we have, that granted the consumer is not called upon to pay more than a fair price, an unrestricted competition, which permits of one pool stealing the natural markets of other pools by selling at a price which is out of all reason, is an economic absurdity which must every so often lead to chaos and to a cry for government intervention by those who are the first to decry government intervention in normal times. We believe in unrestricted competition but not at the price of a lack of economic stability, waste of a great natural resource, and a disregard of the need for reserves in nature's reservoir.

We have no hope of the industry ever bringing about the proration of the market as between pools in different states or provinces and if this is to be accomplished, it must be by the intervention of governments.

Proration as between pools cannot be accomplished by any one Province or any one State but only by the consensus of opinion of those in control of political divisions containing pools which are brought into conflict with one another. Because of this, it may be thought that all that we have said with regard to prorating production as between pools is without value since the Government of Alberta alone cannot effect a cure, but insomuch as this government may not be averse to playing a part in a broad and general scheme involving inter-state and inter-province compacts supported by complementary legislation, this subject has been considered worthy of mention.

Although this would appear to be the logical place to deal with conservation and proration as practised and in force in Turner Valley, since that which we will have to say concerning a Conservation Board goes beyond a discussion of its present activities in relation to crude oil, we propose to deal with this as a separate matter in a later part of this report.

FIELD PRICE

We then come to a consideration of the field price. We have made it clear that in our view if there were unit operation in pools and some equitable arrangement between governments for the control and proration of present production in all pools, there would not be the ever-recurring spectacle of an industry with its economic stability undermined because of the lack of relationship between production cost and field price. Since, however, these measures are not in force, we look to what we have, namely, conservation and proration by law, and we find that much has been accomplished from the standpoint of the conservationist; something has been done to curb overproduction in particular pools; but partly because all pools do not have conservation and proration laws, partly because there is no proration as between pools, and partly because of the inherent frailties of these laws to which we have before alluded, there is no close relationship at any given time between cost of production and price.

If then it is to be recognized that there is no present close relationship between cost of production and field price, it becomes important to determine as to just how the field price is arrived at. As to this we think we cannot do better than open with the following quotations from Dr. Frey's evidence:

> "THE CHAIRMAN: Q. Now leaving that and turning to what you mentioned this morning and that is as to how the field price is determined. As I appreciate what you have said, it is a consensus judgment as to the competitive situation and I take it you mean the consensus of opinion of the directors of the company that is fixing the field price?
>
> "A. Yes, that is those who are responsible for that particular phase of the company's activities.
>
> "Q. Yes. They use the best judgment they can in determining first what the competitive situation is and then predicating the field price upon it?
>
> "A. Yes."
>
> . . . . . .
>
> "Q. As I understand it, you would say that the Board that sits to make judgment, deliver judgment, as to what the field price should be is first concerned with what products it will make from the crude that it buys, that will best serve the market that it is intended to serve?
>
> "A. Yes.
>
> "Q. That is one thing?
>
> "A. Yes.

"Q. Having determined that it then looks around to see at what price it can buy crude elsewhere?

"A. Yes.

"Q. And it is going to buy crude that is suitable for its purposes at the lowest price it can having regard to the transportation plus problems with which it is concerned?

"A. Yes.

"Q. That being so, it just comes down to a question of how cheaply the crude can be bought of a type that will make the product that will serve its market?

"A. I think that is essentially what it amounts to.

"Q. Yes?

"A. The refiner is interested in getting the crude for the least possible price to him, qualities and conditions of market, that he has given consideration to.

"Q. Yes, so that in the result all this judgment that we have heard about, amounts to, it is merely a judgment, if it be a judgment at all, it is merely an ascertainment of where crude can be bought at the cheapest price of a kind that is required?

"A. Yes.

"Q. Having regard to the distance it has to be transported?

"A. Yes.

"Q. And so if in forming this judgment it is merely ascertaining what is the cheapest market in which it can buy, are we not concerned with finding out as to whether or not the cheapest place at which you can buy, be a place where there is an uncontrolled, flush production, which is having an evil effect on the industry as a whole or not?

"A. Some of our shrewdest buyers are taking advantage of the uncontrolled production that exists in certain areas of the United States and if they chisel far enough our price structures will not stand. They will break.

"Q. Well, then, if I am following you aright, Doctor, you seek the point of lowest price of crude as a basic factor upon which to predicate a judgment as to the price which can be paid in any given field?

"A. Taking into account these various other factors.

"Q. Yes, transportation and quality?

"A. Yes, and there is one other factor that perhaps is accepted too much as axiomatic, to require any separate consideration and that is a question of quantity. We are dealing with a large scale industry and for that reason companies buying will try to establish sources of supply that promise sufficient quantity to justify building up their connections in those fields. Some fields are rather small, so small, we have some that the

producers have to make an effort to find a refiner that will take it, simply because the scale is wrong, but if the scale of production is large enough to interest a refiner then he is looking for the lowest price that he can get delivery in his refinery.

"Q. Quite. I think I follow you perfectly, Doctor, and it robs this question of field price of all its mystery?

"A. There is no mystery about field prices as I see them.

"Q. You just go to the lowest point and buy at the lowest price you can, consistent with quality, transportation and supply?

"A. Yes.

"Q. And that is all there is to the field price?

"A. That is all. There is not anything fancy about it. It is just the workings of the ordinary economic factors that are involved in practically all other types of purchases."

In line with what Dr. Frey has said as above quoted, Mr. R. V. LeSueur, Vice-President of the Imperial Oil Limited, stated, in speaking of the position of the refiner:

"The cost of his crude oil and other raw materials, representing about 80% of his refining cost, is set by competition and cannot for long be out of line with the prices determined by competitive forces."

Dr. Frey further said:

"I do not believe that the producer should set his price in any other way than by competition unless the price is so low as to demand State interference or so high as to demand State interference. But within a relatively narrow range it seems to me that the supply and demand situation, the competitive situation, should determine the price level."

If then the field price of crude oil is fixed by competition, we are brought to a consideration of the world picture to determine what competitive forces come into play which affect the field price in Turner Valley, and then to a consideration of the local picture to determine as to whether or not the field price in Turner Valley truly reflects the competitive situation as it in fact exists.

The evidence discloses that world production of crude oil in the year 1938 was 1,978,340,000 barrels. Of this total world production, North America produced 1,272,772,000 barrels. The United States produced 1,213,254,000 barrels and South America produced 244,948,000 barrels in the countries of Argentina, Bolivia, Colombia, Ecuador, Peru and Venezuela. Of these the largest producer was Venezuela with 187,369,000 barrels. Europe produced 260,416,000 barrels, the largest producer being Russia with 202,290,000 barrels. The production of Asia was 198,608,000 barrels. Iran was the largest

producer in Asia with 77,230,000 barrels. Netherlands India produced 57,481,000 barrels. Of other producers, Africa produced the most with 1,588,000 barrels, most of which came from Egypt. There were about 9,000 barrels produced in other countries which makes up the total of world production. These were the sources from which the oil required in the world was supplied. One thing that stands out in the evidence is that the sources of supply to the deficiency areas in Europe and elsewhere shift from time to time, which shows a tendency in the world market to get those products at the lowest price at which they can be obtained. It is also quite clear that the discovery of important new fields has a direct bearing upon prices which may be obtained for crude oil in existing fields. For example, there was no important production in Venezuela prior to 1922 but with the discovery of the La Rosa well which came in with 100,000 barrels a day, Venezuela became an important factor in the world volume picture. Production in Venezuela from then on grew so rapidly that by 1931, when production in the United States has also increased, there was an attempt by mid-continent producers to keep Venezuelan oil out of the United States and they succeeded so well that an excise tax of 21c. a barrel, on fuel oil and on crude imported into the United States, was imposed. Other important discoveries have been made since 1922. All of these come into the competitive picture not only to meet the deficiencies in parts of the world where crude oil is not produced but they play a part in competing in countries in which there already is over-production.

Turning from world production to world consumption, the following table is of interest:

WORLD CONSUMPTION OF MOTOR FUEL BY COUNTRIES

(Thousands of Barrels)

Country	1938	1937	1936
Algeria	950	950	970
Argentina	7,000	6,300	6,180
Australia	7,800	7,500	7,300
Austria	.....	900	910
Barbados	65	60.3	.....
Belgian Congo	252	250	.....
Belgium	4,150	4,100	4,300
Bermuda	14.5	13.9	.....
Bolivia	110	100	.....
Brazil	2,750	2,700	2,750
British Guiana	30.2	29	.....
British India	2,700	2,650	2,480
British Malaya	1,000	1,000	690
Bulgaria	150	140	.....

Country	1938	1937	1936
Canada	23,000	21,000	20,630
Ceylon	355	347	.....
Chile	700	650	.....
China	1,300	1,300	990
Colombia	800	710	.....
Cuba	750	620	490
Cyprus	52.6	51.5	.....
Czechslovakia	1,200	1,820	1,700
Denmark	2,700	2,700	2,500
Dominican Republic	93.8	93.2	.....
Ecuador	155	147	.....
Egypt	800	750	700
Estonia	135	125	.....
Fiji Islands	42.8	41	.....
Finland	1,050	1,000	750
France	26,500	25,000	24,400
French Morocco	830	820	770
French West Africa	340	335	.....
Germany	27,300	23,500	17,710
Gold Coast	220	200	.....
Greece	550	550	510
Guatemala	108	103.5	.....
Haiti	66	63.2	.....
Hawaiian Islands	1,200	1,050	980
Hongkong	240	225	.....
Hungary	600	590	550
Iceland	113	107	.....
Indo-China	275	270	.....
Iran	600	600	500
Iraq	350	350	350
Irish Free State	1,200	1,150	1,100
Italian East Africa	190	180	.....
Italy	5,500	5,200	4,210
Jamaica	210	200	.....
Japan	7,800	10,400	10,000
Kenya and Uganda	375	370	.....
Latvia	155	150	.....
Lithuania	200	210	.....
Madagascar	75	70	.....
Malta	80	77	.....
Mexico	3,000	3,600	2,900
Mogambique	65	61.5	.....
Netherlands	3,600	3,500	3,480
Netherland East Indies	1,500	1,500	1,500
Netherland West Indies	250	180	180
Newfoundland	115	110	.....
New Zealand	2,550	2,500	2,800
Nicaragua	95	90	.....
Nigeria	190	180	.....
Norway	1,500	1,500	1,200
Palestine	380	350	.....

Country	1938	1937	1936
Panama Canal Zone	130	120	110
Peru	500	550	550
Phillipine Islands	1,000	1,000	1,000
Poland	800	600	550
Portugal	620	610	570
Puerto Rico	540	520	490
Roumania	1,000	900	810
Sarawak	12	11	.....
Siam	190	170	.....
South Rhodesia	210	202.3	.....
Spain	2,300	2,900	2,800
Sweden	4,100	4,000	3,740
Switzerland	1,750	1,650	1,650
Syria	280	275	.....
Tanganyika	87	85.6	.....
Trinidad	120	120	110
Tunis	370	356	.....
Turkey	340	335	.....
Union of South Africa	4,100	4,000	3,560
U.S.S.R. (Russia)	27,000	24,000	22,220
United Kingdom	47,500	44,000	40,250
United States	521,657	519,352	481,530
Uruguay	450	450	630
Venezuela	700	650	590
Yugoslavia	290	280	.....
Others	1,040	950	6,700
Total	765,514	751,477	694,910

It appears from Exhibit 644 that the world consumption of all petroleum products in the year 1938 was 1,907,542,000 barrels.

Turning now to a consideration of how far the principal consuming countries are dependent on outside sources for supply, this may be well put in the language of Dr. Frey as follows:

> "Now this is about where things stand as far as their ability to get along on what they produce. Holland and Belgium are almost wholly dependent on imports. The Scandinavian countries are wholly dependent on imports. France and Great Britain are 98% dependent. Germany and Austria produced this year probably 2,500,000 metric tons or about 50% of their normal consumptive requirements. The Poland that was had a small exportable surplus. It has been on the decline from 270,000 metric tons in 1929 to 57,000 metric tons in 1938 and the indications are that that was declining through 1939. The U.S.S.R. had had a difficult time maintaining its production but it did produce about 31,000,000 tons. Strangely, although it is one of the few European countries that has an exportable surplus they imported 150,000 metric tons from the United States for their far eastern area.

"Their exports have been on the decline from 6-3/10ths million tons in 1932 to about a million tons in 1938.

"The production in Roumania is critical. It has been on the decrease. There is no indication at the moment of any marked increase. Their production in 1937 was 7,780,000 tons and their exports last year dropped off about 25%.

"Italy is 95% dependent, that is Italy and Albania, about 95% dependent. They import 890,000 tons of crude and 1,684,000 tons of products, 70% of which went through Gibraltar."

The next thing to determine is by what countries petroleum production is controlled. This again may be well done by reference to Dr. Frey's evidence on this point, which reads as follows:

"The world's oil industry is concentrated primarily in the United States, secondly in Russia and in Northern South America. It is controlled very largely by American interests and the only other groups of any importance are the British, Dutch and Russian. American capital controlled 70% of the world's petroleum production in 1930 and 71% of the refining capacity of the world in 1931. This control included six-sevenths of the production and more than nine-tenths of the refinery capacity in the United States. British interests controlled 5% of the world's petroleum production and a like proportion of the refining capacity; about one-fifth of this oil was produced within the Empire and more than one-half of the refinery capacity was there located. The Dutch interests were represented solely by the Royal Dutch Shell Group in which there is a 40% participation by British capital and a small French share. This group controlled 12% of the petroleum production of the world in 1930 and 12½% of the refinery capacity in 1931. About one-fifth of the crude oil was obtained in Dutch Possessions and a small amount in British territory. The refineries situated in Dutch Colonies supplied two-fifths of the capacity under Dutch control and those in British territory a very small amount.

"The Russian Government controlled the production of 9½% of the world's petroleum in 1930 and 7% of the refinery capacity in 1931, representing the entire operations of the Soviet Oil Trust. Out of 63% of the world's petroleum that was produced in the United States during 1930, 60% was controlled by American capital; nearly all of the remaining 3% was produced by subsidiaries of the Dutch Group, although a small amount was obtained by British companies; the Dutch ownership covered less than one-twentieth of the production in the United States but in volume it was greater than the entire production of either the Dutch East Indies or Mexico, the sixth and seventh ranking countries in that same year. Venezuela yielded 10% of the world's output in 1930 and all of it was produced by foreign companies; more than one-half was under American control and practically all of the remainder under Dutch, as the British share was extremely modest.

"Russia produced 9½% of the world's petroleum under government management. In the following year the production was larger than that of Venezuela.

"A company controlled by the British Government produced all of the crude oil in Persia, which amounted to 3% of the world's total. I should say, I used the word 'Iran' just a while ago and here it is 'Persia'; that only means that our terminology is changing in the last seven or eight years and the old Persian Government insists that we use the new, or rather the old form 'Iran'.

"The output of Roumania was the same as that of Persia and about two-fifths of it was produced by native companies. The major part was produced by Dutch, British, Belgian, French, American and Italian interests in the order of their importance.

"A little less than 3% of the world's output came from the Dutch East Indies, nine-tenths of which was produced by the Dutch Company and one-tenth by an American Company.

"Mexico produced 3% of the world's petroleum and nearly two-thirds of it came from the properties of American companies and right there I should add that the Mexicans have kicked us and the Dutch and the British out and are running the show themselves very badly.

"Almost all of the remainder was controlled by Dutch interests as the output of the native and British concerns was of little consequence. About 1½% of the world's supply came from Colombia, the entire amount being the produce of a company controlled by American capital. There may be some question about that but of course this referred to a subsidiary of the Standard Oil of New Jersey through its Canadian operations.

"The remaining 4% of the world's production in 1930 was distributed among thirteen countries and three-quarters of which was controlled by British, Dutch or American capital."

We have already pointed out that the sources of supply to different countries are ever changing, which indicates either exhaustion of fields or that the importing countries are determined to buy in the cheapest market.

With knowledge of world production, and consumption and with knowledge of the countries that are deficient in petroleum production and with knowledge of the control over production, it seems clear that crude produced in excess of local demand naturally moves to the exporting countries' seaboards, and thence to the seaboards of the consuming countries. This results in a seaboard price, and has the effect of requiring the prices of crude oil of different countries to approximate each other at seaboard.

We may again use Dr. Frey's language to state an example and to point to a conclusion:

"Just to make an example on that point, take Curaco and Aruba, the shipping points from Venezuela, the distance from Curaco and Aruba to New York is approximately the same distance as from New Orleans but it is several hundred miles longer than from Texas; moving into

Europe it is shorter. It is a shorter distance by about 700 or 800 miles from Curaco and Aruba than it is from the United States Gulf Coast and these factors do have an effect in the delivery cost at the point of destination and consequently they do have some effect on the price of one as compared with the other but the whole thing is moving toward a dynamic equilibrium of prices at seaboard, so that all prices in the United States at the Gulf Coast is not a thing that is established just for the Gulf Coast, it is a price that is established by virtue of the fact that the United States is exporting and must meet world competition."

. . . . . .

"That brings us back to this fact, that the United States Gulf Coast market is a competitive market in the world and the fact that Japanese shipments are supplied to a very large extent from California, does not change the situation except that there is interposed a protective tariff for California as against the Gulf Coast by the difference in the freight rate and the Panama Canal tolls, so we are now led to move back into the country and see what that Gulf Coast prices does to other prices in the United States. I said awhile ago that it was the protest of the Mid-Continent producers that brought about the tariff in 1932. This would seem to show that it was their opinion that Mid-Continent prices were influenced by Gulf Coast prices. While the actual outcome of the tariff was not to make any substantial change in our exports, since our imports declined to just about the same extent as our exports did, as a result of that tariff, nevertheless it is the opinion of the producers, especially those independent producers that protested, that their price was tied in with the Gulf price. My experience leads me to the same conclusion, that there is a relationship between the Gulf and the Mid-Continent that has not always paralleled on the trend towards the establishing of a competitive situation which must be responsive. That is the fact as I see it. Mid-Continent then is not free in this world market. It is only part of the whole world picture. If there were a decline in the Gulf Coast production or if there was any great acceleration in demand, the shipments from the Mid-Continent would move to the Gulf and directly take on the world price minus the difference in the transportation to bring that down to the Gulf but as it happens all of the oil fields are not on the Gulf and all of the oil fields are not in the Mid-Continent. They are scattered from the Gulf to the Mid-Continent. There is no long bridge. Every field in that area is competitive in some way with every other field in that area and by reason of that competition there is a relationship in the prices of those crudes. It is reflected also in products and whether the Gulf Coast confines its business to the Gulf or attempts to invade the areas that have been occupied by the Mid-Continent or which the Mid-Continent has been the source of supply, it makes no difference. The potential competition is always there and as a matter of fact there is always real competition because you take East Texas as an example, which is only 250 miles from the Gulf and ships into the Gulf market, also ships by pipeline into the so-called Illinois-Indiana territory and also into the State of Oklahoma and even into the State of Kansas where oil is being produced. Those crudes then must be competitive. Now, then, as there is a relationship between the price in the Mid-Continent and the price at the Gulf, there is also a relationship between the price in the Rocky Mountain area and in Illinois, or if you want to go further back to the East, in Pennsylvania, or Cali-

fornia in the West; each of those enjoy a certain amount of production in competition with the other by reason of the costs involved in moving the crude. Where the oil can be moved by ocean or water rather than by pipeline or by rail, there is not any question about which has the better opportunity of getting the better price because the ocean shipping rate is so very very low compared even with the pipeline rate, and when you are dealing with the cost of moving by rail as compared with either the pipeline or the ocean shipping, you find there that the overland movement by rail puts an oil field at a distinct disadvantage in the matter of the price that it is able to enjoy for its products. The Mid-Continent is a reality to the Rocky Mountain area. The Rocky Mountain area consists of two states, primarily so far as oil production is concerned, one Wyoming and the other Montana. Those two States do not stand on their own bottom regardless of the Mid-Continent situation. They are in competition with the Mid-Continent just as the Mid-Continent is in competition with the Gulf. As an example of that, when Canada stopped importing oil into Alberta, there was a serious dislocation in the States of Wyoming and Montana. There was more oil being produced there than those States could absorb in the immediate marketing area, and something had to be done about it. Take the Lance field in Wyoming as an example. That is located in the south-east corner of the State. It would be one of the fields in a very unfavourable position since it would have to move farther into this area for business. It could not dispose of its oil in this area so it had to turn directly into competition with the Mid-Continent. Where can they sell oil? By pipeline it was possible to consider moving that to eastern Kansas, at the Standard of Indiana refinery at Neotasha. By close figuring the producers of the oil in the Lance field found that they were at a 25 cent disadvantage by freight, or rather pipeline, as compared with oil from the Mid-Continent. The perfectly obvious happened. They sold their oil for 25 cents less. That had the effect of changing crude oil prices all through Wyoming and Montana. In northern Montana, from which area considerable of the oil moved into Alberta, there was an oversupply of crude and some method had to be found by which that oil would move farther afield to capture a market sufficient to accommodate the production. With the consequence that just as soon as Canada was cut off—pardon me, I said just as soon but very soon after it was cut off—readjustments in price took place and the price of crude oil in Northern Montana dropped in order to extend the competitive area of that production. The details of these price changes are, perhaps, not so important in this instance as the general principle involved. Whenever you cut off a supply, a new supply comes in; when any shift occurs it is necessary to make adjustments in prices to accommodate the difference in the competitive situation."

If then prices tend to approximate each other at seaboard, prices at the Gulf Coast have a bearing upon prices in Illinois and Mid-Continent; these prices have a bearing upon prices in Wyoming and Montana; and prices in Wyoming and Montana have a bearing on the price of crude oil in Alberta, for the simple reason that if the price for crude oil be too high at any point down the line, it is to be expected that competitors in the nearest fields will be enabled to

take away the market of that field in which the unnecessary high price for crude is demanded.

If the foregoing is to be accepted, it follows that the price leader, who is usually the largest purchaser in the field and so presumably the most sensitive to competitive forces, does not arbitrarily fix a field price but forms a judgment as to what price crude may be bought for in the particular field in which the price is posted, having regard to the competitive situation.

We pause to point out that it is the buyers who fix the price of crude; that they are the ones who form the judgment as to what the price should be and that the producer has nothing whatsoever to say as to the posted field price. This situation arises because overproduction has created a buyer's market. The evidence before quoted discloses that the price leader is concerned to find at how low a price crude can be bought; and that is the posted field price. The other buyers follow the price leader because, with the great surplus of oil in sight, there can be no earthly reason why they should increase the price to the producer. Under these circumstances it is surely of first class importance to the producer that he, or someone on his behalf, should know at what field price his crude oil may be said to be in dynamic equilibrium with other crudes throughout the world and as to whether or not that field price is in balance with prices obtaining in the fields the competition of which he is called upon to meet, otherwise the field price may be, for a time at any rate, even lower than the price of any crude that could replace it. This knowledge we are inclined to think the average independent producer in Turner Valley does not have. Granted that he has the intelligence to form a judgment even as the price leader presumably does as to the competitive situation, he has not the time to give to watching the everchanging balance in crude price and, what is even more important, he has not the data readily available to him upon which to predicate an opinion upon which he and his fellow producers may found a refusal of the crude product at a given price, and furthermore, he has not the assurance of the co-operation of any other producer in respect of any stand which may be taken for a fair field price.

Having made these observations, we turn to a consideration of whether or not the posted field price in Turner Valley may be said to be a fair and equitable one in the sense of being in dynamic equilibrium with crude prices elsewhere. In this study we have had the assistance of Dr. George Granger Brown and insomuch as some stress will be laid upon his evidence, it may be well to now state

what are the qualifications which justify his being presented to us as an expert witness.

Dr. Brown comes from Ann Arbor, Michigan. He is a professor of Chemical Engineering at the University of Michigan, and a consulting engineer. He received his Bachelor Degree at New York University in 1917, and later received a Chemical Engineering Degree from the New York University and the Doctor degree from the University of Michigan. In 1920 he became a professor of Chemical Engineering at the University of Michigan, having charge of all the petroleum work at that University since about 1925. He has acted as Consulting Engineer, not only for petroleum companies but for the American Petroleum Institute, the National Gasoline Association and many of the engineering companies in the United States of America. He has been accepted as an expert witness by commissions and courts in the United States and Canada.

Dr. Brown accepts the view that the posted price for 37 gravity Cutbank (Montana) crude is $1.10. Furthermore he is of the opinion that that is the correct price because it stands up under the competitive situation as between Cutbank and other fields in the Rocky Mountain area as related back to Mid-Continent. He also accepts the view that the other crudes which might be used in place of Turner Valley are represented and, to use his own words, "really summarized" by the Montana crude which is available to refiners at Regina.

Regina is selected as the point at which the price should be figured for Turner Valley crude for reasons that may be best given in Dr. Brown's own words in response to a question by counsel for the Commission:

> "MR. FRAWLEY: Q. Why is it that Regina has been selected? Why does the Company go to Regina to begin its calculations?
>
> "A. The reason I have gone to Regina in this calculation is that there is so much Turner Valley crude available and being produced that it must find a market and this crude must supply Regina or else back up on itself and go into storage at Calgary. If there were still more crude available and seeking a market very urgently then we would look still farther to see how much the price might have to be cut still more in order to displace not only Cutbank crude but possibly even go farther east and run into competition with the Illinois crude, which has been mentioned. But at the present time the amount of crude which is being produced and sold from Turner Valley indicates that this is a point to figure the price for Turner Valley crude."

Dr. Brown's approach to his calculation is that the judgment expressed in field price is essentially a judgment as to where the

crude can be purchased at the lowest price, taking into consideration transportation, yields, tariffs and other factors which determine the value of the crude, and that if this judgment be a proper one, then, it puts crude in dynamic equilibrium with other crudes with which it is in competition and thus in equilibrium with all crudes throughout the world.

Dr. Brown accepts as correct Exhibit 269, which shows the relative value to the refinery at Regina, of Cutbank crude and Turner Valley crude. This exhibit reads as follows:

TURNER VALLEY CRUDE vs. CUTBANK CRUDE TO SUPPLY REGINA REFINERY

"Well Price of 37 Grav. Cut Bank Crude		$1.1000
Gathering and Loading		.1250
Freight to Regina		.7056
Cost of 1 Barrel of Cutbank Crude at Regina (Less value of additional Fuel Oil produced from Cutbank Crude compared with production from running 45 Grav. Turner Valley Crude plus Absorption Naphtha)		$1.9306
0.154 bbl. of Fuel Oil at $1.0300		.1586
Value of 0.785 Barrel of 45 Grav. Turner Valley Crude and 0.039 Barrel of Absorption		$1.7720
Deduct 0.039 Barrel of Absorption		.1809
Value of 0.785 Barrel of 45 Grav. Turner Valley Crude		$1.5911
Value of 1 Barrel of 45 Grav. Turner Valley Crude $1.5911—0.785 Barrel		$2.0268
Less—Additional Chemicals for Treating		.0208
Less—Additional Ethyl Lead required		.0390
Value of 1 Barrel of 45 Grav. Turner Valley Crude at Regina		$1.9670
Less—Freight Calgary to Regina	$ .5320	
Loading at Calgary	.0500	
Pipeage and Gathering	.1500	
		.7320
Value of 1 Barrel of 45 Grav. Turner Valley Crude at the Well		$1.2350
Equivalent Value of 48 Gravity (3 Degrees in Gravity x 2c.)		$1.2950"

Speaking of the above Exhibit No. 269 Dr. Brown says that he has gone over it and believes it is correct in all respects and then proceeds to say the following:

> "We have . . . an equivalent value of 48 gravity Turner Valley crude at Regina of $1.96 7/10, to put it on a comparable competitive basis with the Cutbank crude of 37 gravity at a price at the well of $1.10. Now,

> the $1.96 7/10, which is the laid down relative value of the Turner Valley crude on this basis at Regina is reduced by the freight rate from Calgary to Regina of 53 2/10 cents, and loading at Calgary of 5 cents, and the pipeage and gathering charge of 15 cents, to a value of $1.23½ for 45 gravity Turner Valley crude at the well, which is equivalent to $1.29½ for 48 gravity or $1.19½ for 43 gravity crude at the well in Turner Valley based on those transportation costs. On that basis $1.20 for the Turner Valley crude of 43 gravity, which I understand is the current posted price, appears to put Turner Valley crude in dynamic equilibrium with Cutbank crude at Regina under those conditions as set forth in that Exhibit. Now, that is the basis upon which the proper price for Turner Valley crude at the well would be arrived at on the basis of purchasing Turner Valley crude on an equal competitive basis with the Cutbank crude."

Now it is to be borne in mind that following upon the recommendations of this Commission, the loading charge at Calgary of 5c. and the pipeage and gathering charge of 15c., referred to by Dr. Brown, were reduced to 2½c. and 9½c. respectively and so Dr. Brown was invited to bring his calculation up to date and he says with respect to this, as follows:

> "The minimum economic price for Turner Valley crude under the present conditions and transportation costs is that price which will put it on a competitive basis with Cutbank crude at Regina. This price is clearly set forth in Exhibit 269 which indicates a minimum price at the well of $1.275 per barrel of 43 A.P.I. crude oil taking into account the present prices of 9½c. for pipeline and 2½c. for loading."

It is to be noticed that Dr. Brown speaks of the price of $1.275 per barrel for 43 gravity Turner Valley crude as being the minimum economic price. He does suggest that the price might go to $1.30 but says this would involve some curtailment of the present market. This calculation of $1.275 per barrel is, of course, on the assumption that the benefit of the reduction in pipeline rates should go to the producer and not to the consumer. As to this we have Dr. Brown's opinion that the saving in transportation cost to the refineries should not be treated as a reduction in refinery cost which should be reflected in the tank wagon price for the benefit of the consumer. In his view, to pass on this 8c. saving to anyone other than the producer, to use his own language, "puts the price of crude out of competitive balance." Mr. LeSueur, Vice-President of Imperial Oil Limited, is also of the opinion that the producer should get the benefit of the pipeline saving because, to use his words, "it is logically part of the price structure of crude and that is logically where the 8c. should go, to the crude producer."

After giving the matter serious consideration, we accept the view that the full pipe-line saving of 8c. should be passed on to the producer.

We may say in passing that, strictly speaking, all refineries do not make a saving of 8c. on the product which passes through the pipeline because the loading charge only applies to refineries outside of the City of Calgary. The saving to the Calgary refiners is in fact only 5½c. No point is made of this as, in the opinion of the price leader, this difference of 2½c. should be absorbed by the Calgary refineries without adding to the cost to the public of the refined product and this will, without doubt, be done.

In the result, we have come to the conclusion, in the light of all of the evidence, that with present volume, present markets and present transportation costs, and having regard to the present competitive situation, the fair field price for Turner Valley crude oil of 43 gravity is $1.28 per barrel and that the present field price should be increased accordingly.

The total production of crude oil in Turner Valley in the year 1939 was 7,250,000 barrels. If it be assumed that this figure represents the average annual production for the future, it follows that at a new field price of $1.28, made possible by a reduction in pipeline charges, the producers of crude oil in Turner Valley will have increased revenue to the extent of $580,000.00 per year.

We may summarize what we have had to say concerning field price as follows:

1. That there being no present close relationship between cost of production and field price, a condition which will probably never be corrected without unit operation in pools and proration as between pools, other means for the determining of the field price must be looked to.

2. That the evidence is overwhelmingly in favour of the view that field price is determined by the forces of competition.

3. That the evidence before us establishes that the competition which determines field price is not local but world-wide in character.

4. That for an understanding of the world picture, one must have knowledge of world production, world consumption and world deficiency areas, using the words "deficiency areas" in the sense that these areas have comparatively little or no petroleum production and are dependent upon imports for supply.

5. That with the knowledge that the great deficiency areas are the British Isles and European countries, and with the

knowledge that the sources of supply for these countries are ever-changing, indicating a determination on the part of the importers to buy in the cheapest market, it is but a short step to the conclusion that the competition of exporting countries to supply the deficiency areas brings about seaboard price.

6. That the Gulf Coast price in the United States is not a price that is established for the Gulf Coast but is a price that is established, as Dr. Frey says, "by virtue of the fact that the United States is exporting and must meet world competition."

7. That the Gulf Coast price for crude oil is reflected in prices throughout the United States and Canada for the reason that competitive forces bring the price of crude at each pool into dynamic equilibrium with the crudes from all other pools with which it is in competition, and so in dynamic equilibrium with all crudes throughout the world.

   This may be simply put by saying that if the price for crude be too high at any point down the line of competing pools, it is to be expected that competitors will be able to back up upon, and take away, the market of that field in which a price is demanded that is out of balance with the Gulf Coast price after taking into consideration transportation costs, tariffs and other factors which help determine price at a given point.

9. That if we accept the theory that all crude prices through the operation of competitive forces should be in dynamic equilibrium with each other, then the determination of what the field price should be at any given pool involves a determination as to what the competitive situation is at the time of fixing the price.

10. That field prices are usually fixed by the largest purchaser in the field, who is called the price leader. By virtue of being the largest purchaser, the price leader is presumably the most sensitive to competitive forces and most anxious to form a correct judgment as to the competitive situation.

11. That if this be so, it cannot be said that Imperial Oil Limited, as the price leader in Turner Valley, fixes the field price arbitrarily or whimsically, but in accordance with its best judgment as to what the field price should be, having regard to the ever-changing prices fixed by world competition.

12. That it is to be borne in mind that price leaders are not philanthropists; that they will buy crude oil as cheaply as they can; and that if they show a preference for any pool, as we think Imperial Oil Limited has done in the case of the Turner Valley pool, it is not to be thought that that preference will overshadow their business judgment so as to cause them to pay a higher price than the price at which they can obtain crude oil from other sources.

13. That because of the fact last mentioned, it is all important that the independent producers in Turner Valley, or any other pool, have independent knowledge of the world situation, a proper appreciation of how a field price is determined and the data upon which accurate judgment may be formed as to the soundness of any field price.

14. That in our opinion, the average producer in Turner Valley has neither the time nor the inclination to watch the ever-changing balance in crude prices; that he has not the data readily available to him upon which to predicate an opinion as to what the fair competitive price is at any given time; and furthermore, he has no association of independent producers (disassociated from Refiners and their Subsidiaries) which gives him any assurance of co-operation in any stand which he may take against a price which is not in dynamic equilibrium with the price of other crudes.

15. That in view of this it is important that the government, through some agency that is competent to form a judgment as to what is a fair field price, should at all times keep in touch with the posted field price.

    The suggestion last made is important, not only from the standpoint of the producer but from the standpoint of the public, because field price is an all-important factor in the encouragement of drilling to provide for depletion in existing wells and to provide for exploratory effort to the end of having available reserves of a product which the public requires.

16. That with the method of approach to the determination of field price ascertained, it then becomes important to decide as to whether or not the particular field price posted in Turner Valley may be said to be a fair and equitable one in the sense of being in dynamic equilibrium with crude prices elsewhere.

17. That the evidence establishes that the price of Montana crude from the Cutbank field of 37 gravity is $1.10 per barrel and that this price may be presently accepted as the correct field price for Cutbank crude. It is also established that before the pipeline reductions were made, Cutbank crude at that price was, with transportation cost taken into account, in dynamic equilibrium with Turner Valley crude at Regina.

18. That Regina is selected as the competitive point in respect of which the Turner Valley field price should be calculated because, having regard to the amount of crude which is being produced in Turner Valley, it must find a market with Regina refineries or else back up on itself and go into storage in Calgary.

    In speaking of the selection of Regina as the competitive point for purposes of his calculations, Dr. Brown says, "At the present time the amount of crude which is being produced and sold from Turner Valley indicates that this is the point to figure the price for Turner Valley crude."

19. That a study of the relative values to a refinery at Regina, of Cutbank crude and Turner Valley crude, which takes into account transportation costs and all other factors necessary to the comparison, shows that a field price of $1.20 for Turner Valley crude of 43 gravity puts that crude in dynamic equilibrium at Regina with Cutbank crude of 37 gravity at a field price of $1.10.

20. That the field price of $1.20 for 43 gravity Turner Valley crude is calculated without taking into account changes in pipeline charges following upon the recommendations of this Commission in its pipeline report which brought about a reduction of 8c. per barrel.

21. That we accept the view put forward by Dr. Brown when he says that to pass on this 8c. saving to anyone other than the producer "puts the price of crude out of competitive balance". Support for this view is to be found in the evidence of Mr. LeSueur, Vice-President of Imperial Oil Limited, who, in suggesting that the producer should get the benefit of the pipeline saving, says, "It is logically part of the price structure of crude and that is logically where the 8c. should go, to the crude producer."

22. That having accepted this view, it follows, subject to what may be said about exchange, with which we do not concern ourselves for the reasons before given, that in our opinion the field price for 43 gravity Turner Valley crude should be, under existing conditions, $1.28 per barrel, and that the present field price should be increased accordingly.

23. That at a new field price of $1.28 per barrel, if the average annual production in Turner Valley for the future equals that of the year 1939, the producers will enjoy an increased revenue to the extent of about $580,000.00 per year.

WIDER MARKETS AND TRANSPORTATION COSTS

We think that we should not leave the subject of crude oil production without entering upon a discussion of a subject which is bound up with the cost of transportation and which is of great interest to producers in this province, namely wider markets. This subject was fully explored by Dr. Brown; for the sake of accuracy, we quote his words:

> "Now, if it is desired to continue to run the Regina refinery on Turner Valley crude and to run more Turner Valley crude at Regina so as to push the products from Regina farther east, such as into Winnipeg or something of that nature, we have this kind of a picture. The apparent equilibrium between the refined products produced at Regina going East and the refined products produced at Sarnia or elsewhere coming West, is at Portage la Prairie, and if it is desired to push the products from the Regina refinery into the Winnipeg market, that is a distance of about 56 2/10 miles, the freight from Regina to Portage la Prairie is 4 cents per gallon while the freight from Regina to Winnipeg is 4.48 cents per gallon, making it necessary to absorb on that end of it 48/100 of a cent per gallon to get the product into Winnipeg. But in Winnipeg there is a freight differential in favour of materials coming west by freight from Fort William and that must also be absorbed by the products which are seeking this market in Winnipeg. The freight from Fort William to Portage la Prairie is 5.2 cents per gallon while the freight from Fort William to Winnipeg is only 4 cents per gallon. Therefore, there is 1.68 cents per gallon which must be absorbed by the refiner or by these products if they are to reach the Winnipeg market. Now in these plans I am assuming a figure of 28 gallons of retail products sold per barrel of crude oil. That figure is not absolutely accurate in all cases, but it is fairly representative. It is sufficiently accurate for these comparisons, certainly to arrive at a sound conclusion. If there are 28 gallons of retail products or products that will be sold in this manner per barrel of crude, Turner Valley crude processed, this differential of 1.68 cents per gallon amounts to 47 cents per barrel of crude. Therefore, if we wish to extend the market of the Regina Refinery to Winnipeg, which is a distance of 56 miles, to compensate or to absorb that competitive differential in the price of crude, it will be necessary to decrease the price of Turner Valley crude by 47 cents per barrel, in order to take over the Winnipeg market on a competitive basis with the gasoline produced in the east and coming west."
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> . . . . . .
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> "The information of which, that I wish to show from that letter of August 14th which is Exhibit No. 649 is the statement that between Portage la Prairie and Winnipeg approximately 500 barrels of Turner Valley crude would be required to supply the products and in Winnipeg approximately 1,250 barrels, making a total of 1,750 barrels per day of Turner Valley crude which would be run in addition to the present run if this price of Turner Valley crude were decreased 47 cents per barrel. That would of course decrease the price of the raw material at Regina

for all of that territory and would lead to a corresponding reduction in price in retail products in Regina and the other parts of that territory but it would meet the products refined in the east and coming west into Winnipeg. Now let us see how that would affect the producer in Turner Valley. If the producer in Turner Valley is now supplying to the Imperial approximately 10,000 barrels of Turner Valley crude per day, is that substantially correct?

"MR. COTTLE: Yes.

"WITNESS: And by cutting the price 47 cents per barrel he could now deliver to the Imperial 11,750 barrels per day, this decrease would be in proportion, whether or not we take the figures of the entire refining industry or simply use the Imperial as an example, I am using the Imperial simply because those are the only figures which are available to me at this time. The present return per day to the oil producers in Turner Valley on the 10,000 barrels being sold at $1.20 is $12,000.00; the return to him for the 11,750 barrels per day at 73 cents, which is 47 cents less, is only $8,577.50; therefore, the producers in Turner Valley would be called upon to produce and deliver 11,750 barrels instead of 10,000 barrels per day and they would receive gross some $3,422.50 less;"

. . . . . .

". . . I am showing first of all it is not sound for the crude producer to cut his price to take on this market; then I wish to analyze whether or not it is sound for the refiner to do that and I am simply indicating that it is not sound now for the refiner at Regina to go all the way into Winnipeg to get this market. They cannot do it without losing money on it but they can go a big way towards Winnipeg and they do. We do not find a hard and fast line where end the economic points. We find some products from Turner Valley going past that line and some products from the other crudes coming past the line to the West. There is a kind of fringe. I think Dr. Frey used that word, an economic fringe."

. . . . . .

"Now taking those factors into consideration it is my opinion that the fair price for Turner Valley crude, meeting the competition of crude oil and meeting the competition of refined products, should not be less than this $1.20 and $1.20 does put it in competitive equilibrium with the Cutbank crude at Regina and that is based on the figures as they existed last June so it is my opinion that that price is the fair price to do the job that is required of the crude oil price."

It is to be noted that in making these calculations, Dr. Brown has not taken into account the changes in pipeline rates but this in no wise affects the result arrived at by him as to the amount of reduction required to gain a wider market.

The result of all of the foregoing, as we appreciate it, is that the producers in Turner Valley cannot hope to pass the economic fringe at Portage la Prairie, with products refined from Turner Valley crude, with present transportation costs and under conditions as they exist to-day, except by taking a wholly unjustifiable loss.

For example, a reduction of 47c. per barrel in the price of crude oil might perhaps capture the Winnipeg market, but this reduction for the additional market so gained would result in the gross receipts of the producers being $3,422.50 less per day, on the purchases of Imperial Oil Limited alone, than if they had been content with the market they now have. As Imperial uses approximately one-half of the total field production, it is, we think, reasonable to estimate the gross receipts of the producers would be approximately $6,800.00 less per day, if this attempt were made, than they now are.

We think that a case has been made out showing that the anti-dumping laws of the Dominion, in so far as they affect Montana oil products, have not been strictly enforced. In our view, Calgary refiners might go farther south with the refined product other than at a loss, if these anti-dumping laws were enforced.

It seems to us it may be anticipated that in the course of time, the chaotic conditions which obtain in the Illinois field, and to which Dr. Frey has referred, will be straightened out and that this may have some effect in moving the economic fringe in an easterly direction. In this connection it is, however, to be borne in mind as Dr. Brown has emphasized, that to gain the Winnipeg market under existing circumstances, would mean a reduction in the price of Turner Valley crude of 47c. per barrel. It follows that before Turner Valley crude can gain the Winnipeg market at its present price of crude, the Illinois price of crude would have to increase 47c. per barrel. It thus appears that the price of crude in the Illinois field would have to take a great jump before it would very materially move the economic fringe for Turner Valley crude, refined at Regina, in an easterly direction, or in other words provide any material increase in the number of barrels of crude oil that Turner Valley producers may send in an easterly direction.

In our view the real hope of a wider market for Turner Valley crude lies in a reduction of transportation costs.

It has been suggested by Mr. LeSueur that it is a practicable thing to build a pipeline as far as Regina at the present time. If this were done there undoubtedly would be a saving in transportation costs; but would the effect of the reduction in transportation costs be to enlarge the market for Turner Valley crude? It seems to us that since the competitive point as between Montana and Turner Valley crude is Regina, the only logical result would be an increase in price to the Turner Valley producer without in any wise enlarging the market. Any thought of increasing the market, as distinguished from increasing the price to the producer, seems to us out of line

with the theory propounded both by Mr. LeSueur and Dr. Brown in respect of the reduction of transportation cost between Turner Valley and Calgary. In other words, it would be a negation of the theory which we have accepted, that transportation saving to the Regina competitive point is logically a part of the price structure of crude and logically should go to the crude producer.

With regard to a pipeline to the Great Lakes, which was discussed before us, entirely different considerations obtain. In this event, the competitive point which will determine the price of Turner Valley crude will be the Ontario refinery to which the crude will be shipped, and Montana will no longer be a factor in this determination for the reason that the competitive price in Ontario will be lower than the competitive price at Regina. This is, of course, because of lesser transportation costs for available crude supplies which are near to the Ontario refineries. In the event of a pipeline being built to the Great Lakes for the transportation of Turner Valley crude oil to refineries in Ontario, the price of Turner Valley crude will then be the competitive value of the crude at refineries in Ontario, from which must be deducted the cost of transportation from Turner Valley to these refineries.

We do not enter upon a consideration of what price the Turner Valley producer could sensibly take for the benefit of competing directly in the Ontario market because, in our view of the evidence, there is no likelihood of a pipeline to the Great Lakes being built until greater reserves of oil are in sight. As to this, we have already stated in the course of our pipeline report, that in our opinion, an opinion arrived at in the face of contradictory evidence, the life of the Turner Valley field would be eighteen years at a withdrawal rate of 6 million barrels per year. In other words, we found that the Turner Valley reserves were 108 million barrels as of January 1st, 1939, from which now must be deducted the production during the year 1939 of 7,250,000 barrels. Now it appears from the evidence given by Dr. Brown that before the building of a pipeline to the Great Lakes may be said to be an economically sound proposition which a businessman would undertake, there must be reserves of oil which would provide a minimum daily throughput of 60,000 barrels per day for a period of twelve to fourteen years, the periods within which the capital expenditure in pipeline should be amortized. This would mean reserves, on the basis of 12 years, of 262,800,000 barrels and on the basis of 14 years, of 306,600,000 barrels, which is some 162,050,000 or 205,850,000 barrels more than the reserves now in sight, on the evidence before us which we are prepared to accept.

Dr. Brown's evidence on this point is of interest:

"MAJOR LIPSETT: Q. Before you pass from that, Dr. Brown, and just to clear up about the pipeline, I took your evidence, and I would be glad to know that it is correct, as meaning that if there were 60,000 barrels or 50,000 barrels in addition to the present market, that then in your opinion it would be sound to get after possible capital for a pipeline?

"A. No, I go a little further than that. It is sound now to try to get the capital but whether or not it is sound now to invest the capital I am now prepared to state; if there were 40,000 barrels available over the oil required to supply the Prairie Provinces, then it would not only be sound to try to get the capital but in my opinion it would then be sound to actually invest the capital; in other words it seems to me that that would absolutely prove the case. In the meantime it is a case of opinion and business judgment.

"Q. If you got the 35,000 barrels per day, or increased as it has since June, if you got that up then to 60,000 barrels a day in your opinion it would be good business to promote a pipeline and keep wider markets on that reduced transportation charge?

"A. Yes, providing, of course, that at that rate of production the life of the field would be sufficient to amortize the pipeline and I believe it certainly would.

"Q. Well I gather that the period of amortization, from the American experience, would be approximately 12 to 14 years?

"A. That would seem a reasonable figure, yes."

Now if the production is to be increased from the requirements of the prairie markets, which is said to be roughly 20,000 barrels a day, to 60,000 barrels a day in order to justify the building of a pipeline to the Great Lakes, this would be a matter of grave concern to those producers who participated in new production up to 60,000 barrels, prior to the construction of the pipeline, because this 60,000. barrel production would, on the present scheme of things in Turner Valley, be prorated down to a 20,000-barrel market. We venture to question whether or not this be sound, because we have no assurance of pipeline construction and it is not established beyond the peradventure of a doubt, that a battle with a strong Illinois field would be a successful one. We put forward the suggestion that, in lieu of pursuing a course which, as we see it, would tend towards the elimination of at least all marginal producers and so tend towards monopoly, an alternative course be pursued consistent with the view expressed in our discussion of exploration, namely, that a sufficient number of test wells be put down to establish these reserves if they exist, to the satisfaction of any proposed investor rather than to proceed well by well to build up to 60,000 or 70,000 barrels per day at a tremendous loss to the producers during the whole of the period

of this building up process and until such time as the pipeline came into operation.

In the result as we see it on the evidence before us, the only hope of the market for Turner Valley crude being increased to any extent under existing conditions, is in reduced transportation rates by railway or pipeline on gasoline between Saskatchewan refinery points, the Brandon refinery point, and Winnipeg, or in reduced transportation rates on crude oil to Winnipeg coupled with refinery operation at that point. There is no evidence before us to suggest that a pipeline from Regina to Winnipeg is presently feasible. Likewise there is no evidence as to whether or not refining at Winnipeg under existing conditions would be a profitable undertaking. With regard to freight rates, we may say that in the course of our pipeline report we took occasion to point out that a reduction in freight rates was a matter for consideration by the Dominion Transport Board and to suggest that an application be made to that body. It is our understanding that an application was launched but for some reason not proceeded with. Without in any wise having the temerity to prejudge the merits of an application to be made to another body, we can say, we think with good sense and without impertinence, that it would appear to be sound from the standpoint of Turner Valley producers, that the application should be gone on with. If, after hearing the Railway Companies concerned, the Dominion Transport Board reduced freight rates from refinery points in Saskatchewan and at Brandon on gasoline going to Winnipeg, then the economic fringe for products from Turner Valley crude would automatically move east to a degree commensurate with the transportation cost reduction allowed.

That which we have said as to wider markets and transportation may be summarized as follows:

1. That having regard to present transportation costs and all present conditions, it is economically unsound for the crude producer in Turner Valley to cut his price for the purpose of sending products refined at Regina in an easterly direction beyond what is described as the economic fringe near Portage la Prairie.

2. That Dr. Brown's evidence shows that if the Turner Valley producers reduced the price of crude by 47c. per barrel, they would probably gain the Winnipeg market, but this reduction for the additional market would result in the gross receipts of the producers being roughly $6,800.00 less per

day than if they had been content with the market they now have.

3. That a case has been made out showing that the anti-dumping laws of the Dominion, in so far as they affect Montana oil products, are not properly enforced. We express no opinion as to the value of the law; we merely say that, because of incompetence or indifference or both, no serious attempt has been made to bring about strict enforcement.

4. That a strict enforcement of the laws last mentioned might have some effect in moving products made from Turner Valley crude in a southerly direction other than at a loss.

5. That the stabilization of the chaotic conditions in the Illinois field may have some effect in moving products from Turner Valley crude in an easterly direction; but since it is not to be anticipated that the price of Illinois crude will increase 47c. a barrel so as to open up the Winnipeg market, it is not to be anticipated that the correction of conditions in the Illinois field will provide a very material increase in the number of barrels of crude that Turner Valley producers may send in an easterly direction.

6. That even though the evidence be accepted that a pipeline to Regina is feasible at the present time, this does not entail an enlargement of the market for Turner Valley crude because, if the theory propounded by Mr. LaSueur and Dr. Brown in respect of the reduction of pipeline cost between Turner Valley and Calgary, is to be accepted, it equally applies to reduction in transportation costs to Regina and so the saving in transportation costs between Calgary and Regina would be passed on to the producer as being "logically part of the price structure of crude."

7. That in the event of a pipeline being built to the Great Lakes, the competitive point which serves to determine the price of Turner Valley crude will be at the Ontario refinery to which the crude is shipped, and Montana will no longer be a factor, because the competitive price in Ontario will necessarily be lower than the competitive price in Regina by reason of lesser transportation costs in respect of available crude supplies which are near to Ontario refineries.

8. That no useful purpose is to be served in entering upon a consideration of what price the Turner Valley producer could sensibly take for the benefit of competing in the

Ontario market because, in our opinion, there is no likelihood of a pipeline to the Great Lakes being built until greater reserves of oil are in sight.

9. That we arrive at this last conclusion as follows:

> We have found on conflicting evidence and so stated in our pipeline report, that the Turner Valley reserves were 108,000,000 barrels as of January 1st, 1939, from which must be deducted the production during 1939 of 7,250,000 barrels. It appears from the evidence given by Dr. Brown that before the building of a pipeline to the Great Lakes may be an economically sound proposition, there must be reserves of oil which would provide a minimum daily throughput of 60,000 barrels per day for a period of 12 to 14 years, the period within which the capital expenditure in pipeline should be amortized. This would mean reserves, on the basis of 12 years, of 262,800,000 barrels and on the basis of 14 years, of 306,600,000 barrels, which is some 162,050,000 or 205,850,000 barrels more than the reserves now in sight according to the evidence before us which we have accepted.

10. That to make a pipeline to the Great Lakes feasible, there must be further successful exploration.

11. That in our view, this exploration should be for the mapping out of reserves in such fashion as to satisfy anyone who would undertake a pipeline project, that there are such reserves, and not for present production which would, pending the construction of the pipeline, reduce the "allowables" to an extent that would eliminate at least all marginal producers.

12. That in our view, under existing conditions and without further oil discovery, the only real hope of a material extension of market for Turner Valley crude lies in reduced transportation rates, on gasoline made from that crude, between Saskatchewan refinery points, the Brandon refinery point, and Winnipeg. With the competitive point Regina, any such saving in transportation costs would not, on the theory before advanced, be considered a part of the crude structure and so passed on to the producer, but could be utilized to push back Illinois crude.

13. That if the application now outstanding, to reduce freight rates from refinery points in Saskatchewan and at Brandon

on gasoline going in an easterly direction were granted, the economic fringe for Turner Valley crude would automatically move east to a degree commensurate with the reduction in transportation costs allowed.

14. That in our opinion, the application for a reduction in freight rates launched for the consideration of the Dominion Transport Board should be proceeded with. We express this opinion without in any wise attempting to prejudge the merits of an application to be made to another body before which the railway companies concerned are entitled to be heard; we merely say it would appear to be sound, from the standpoint of the Turner Valley producer, that the application be gone on with.

We have now discussed exploration and crude oil production. We have dealt with transportation not only in the discussion of crude production but also in our interim pipeline report. There remains for us to consider first, refining, and the prices charged to wholesale distributors, generally called tank car prices; secondly, the marketing operation of wholesale distributors and the prices charged by them to retailers, generally called tank wagon prices; and thirdly, the marketing by retail service stations and other retail dealers and the prices charged by them to consumers, generally called retail prices.

It would seem that after we had examined into these matters and come to our conclusions with respect thereto we would have performed the duties assigned to us but we think this is not the case because while we would have then examined into all of the activities of those engaged in the industry and the prices fixed by them we would not have touched upon matters over which the industry has no control, yet matters that may greatly affect the prices to the consuming public. The principal subjects of discussion before us which may be said to be matters of this kind are, taxation, standardization, the operations of the Ethyl Corporation, and the activities of the Statutory Board that has to do with conservation and proration in this province. As we have been directed to make full inquiry as to prices we shall consider these matters as well.

With this rough outline of what remains to be dealt with in this report, we turn to the first subject to be considered, namely, refining.

REFINING

The refiners derive their raw materials from the "fugacious hydrocarbons" petroleum and natural gas. Their job is to transform the crude material into the multiplicity of refined products known to present-day society, and that job they have performed exceedingly well.

When crude petroleum is brought to the surface, because of its susceptibility to evaporation and to ignition, it is necessary that it should be stored in appropriate tanks or processed forthwith. Since the providing of crude storage facilities to balance production would be uneconomical, the crude oil is passed as quickly as may be through gathering lines and pipelines to the oil refinery where the process of refining takes place. In Exhibit No. 459 it is said:

> "The refining of crude petroleum utilizes the application of heat, pressure, and catalytic principles for the separation of the raw material into its component parts and for the breakdown and recombination of the molecular structures of the derivatives."

There are three classes of crude petroleum processed in Alberta refineries, namely, crude oil, crude naphtha, and absorption naphtha.

To use Dr. Brown's definitions, crude oil is "the material which is produced from the ground in liquid form and exists in the ground as liquid;" crude naphtha is a "condensate from the gas which is produced from the oil and gas horizon"; and absorption naphtha is a "material absorbed out of the gas by an absorption process and recovered from the absorption oil in which it has been absorbed from the gas" by means of distillation.

Although crude naphtha is a much lighter and more volatile material than crude oil, its processing in a refinery is no different from that of crude oil and therefore crude naphtha may, for this purpose, be considered as crude oil.

Absorption naphtha, however, is a highly volatile material and requires a separate processing in a refinery. In fact the processing of absorption naphtha "is not considered as part of the refinery operation of crude oil although the expense must be borne by the refining operation." Absorption naphtha in its crude form is much too volatile to be used as an ingredient of gasoline. Therefore this absorption naphtha is treated in the refinery by a process known as stabilization which removes these very volatile constituents and reduces the vapour pressure of the absorption naphtha to the point

where the naphtha is suitable, after the removal of impurities, for blending with other constituents of gasoline.

The refining operation was described by Dr. Brown, as follows:

"Now to go back to the crude oil and naphtha which we will treat together for the sake of simplicity, the crude oil when it is brought into the refining area is run into tanks for temporary storage. From those tanks the crude oil is pumped through heat-exchangers, which heats the crude oil on the way to the stills by heat-exchange from the hot oil leaving the still. It is a measure for economizing fuel and increasing generally the efficiency of the operation. After the crude oil has been heated to perhaps 250 degrees Fahrenheit it is then usually passed through a settling tank under pressure and at this temperature in order to settle out of the crude oil, water and sediment which might cause trouble in the refining operation, in other words clean up the crude oil. This oil then at a temperature of about 250 degrees usually then goes to the still. Now these stills may be of various types of construction. In the modern plant, those which have been built in the last few years, it is almost always a pipe-still in which the crude oil passes through a pipe, a steel pipe, of about 3½ or 4 inches diameter in a furnace and in passing through this pipe it may be heated to a temperature of some 600 or 700 degrees Fahrenheit and a large part of it vaporized. Then the mixture of vapour and liquid leaving this pipe-still will be introduced into a fractionating tower or bubble tower which consists of a tower perhaps six or eight feet in diameter, depending upon the size of the plant, and from 40 feet up to perhaps 80 feet or more in height. This tower consists of a number of trays or bubble trays, as they are called, which contain or hold pools of liquid and the vapours passing up from below is forced to bubble through these trays of liquid on its way to the top of the tower. At the top of the tower the vapour is condensed, part of it removed to form the liquid products such as the crude gasoline or raw gasoline and part of it returned to the tower to supply these pools of liquid which are formed on each one of these various plates. As the vapour passes up through the tower and comes into contact with these pools of liquid, there is an exchange of material, the more volatile material in the liquid pool is vaporized from the liquid and passes up the tower with the vapour, while the less volatile materials in the vapour are condensed out of the vapour and absorbed in the liquid pools on the various plates. This action consists essentially of a number of successive distillations and condensations. The temperature of the vapour and liquid as it is introduced near the bottom of the tower from the pipe-still may be 600 or 700 degrees and the temperature of the liquid and the vapour at the top of the tower may be about 300 to 350 degrees, so that only those constituents which may exist in the vapour state at atmospheric pressure, at about 300 or 350 degrees, will be carried overhead from the top of the tower as a vapour and that stream constitutes the raw or crude gasoline. Somewhere down this tower, perhaps 6 or 8 plates from the top, the liquid, in one of these pools, will have such properties as would be desirable as a burning oil such as kerosene, or possibly a furnace oil or such product as desired. For that reason some of the liquid which collects in this pool, say 6 or 8 plates below the top, is removed as a side-stream. The stream of vapour removed from the top would be called an 'overhead product' or 'top stream' and this stream of liquid removed part way down the

column is referred to as a 'side-stream' because it is removed from the side of the tower rather than the top and out of that side-stream liquid which is removed would be produced the kerosene and other types of burning oil.

"Now at the very bottom of the tower will collect those high boiling fractions which are not vaporized by the heat supplied in the pipe-still and also those high boiling fractions which are removed from the vapours as they pass upward through the successive pools of liquids and this bottom product is frequently referred to as 'fuel oil' or 'the residue' or 'residuum'. It is a residue in the sense that it is the residue left behind through the distillation operation. This residue is then usually, in a modern plant at least, sent to a cracking still which is constructed in very much the same general way as the still I have outlined except that it operates at higher temperatures and higher pressures, and it has other devices in the plant for special functions, but it is generally similar, so that residual product removed from the bottom of this fractionating tower would then be treated at a temperature from 900 degrees upward, usually in a pipe-still of somewhat similar design, and then frequently passes through what is known as a soaking chamber or reaction chamber which is simply a large vessel perhaps 40 feet high and 10 or 15 feet in diameter which is built to stand high temperatures and high pressures, so that the oil, this residual fuel oil, after being heated to a temperature of 900 degrees or more, is then flowed into this reaction chamber at such a rate that it may stay in that reaction chamber a matter of 20 to 40 minutes more or less, during which time the cracking operation which was started in the furnace, due to the high temperature of the oil in the furnace, continues, and the cracking operation is then allowed to continue to produce the desired product from this residual product of the topping or first distillation unit. The vapour from these reaction chambers will then pass up to a similar bubble tower or fractionating tower, with the overhead products removed, which will constitute the crude cracked gasoline. In some cases a side stream might be removed also from this plant for the purposes of producing a structure distillate or for other burning oils but usually not kerosene and the very high boiling fractions which do not vaporize and will be taken out from the bottom of this tower by some similar equipment, is then a cracked residue. It has a very low gravity and a low viscosity but is not usually useful for any purpose except commercial heating where the equipment is designed for handling such heavy fuel oil and in some cases it may be converted into road oil for putting on the road or a synthetic asphalt and in some operations it is cracked considerably further and produces coke."

At this point in Dr. Brown's description of the refinery process he distinguishes between two important units in a refinery. These are the topping unit and the cracking unit, the first of which he describes as follows:

"Now in these operations we have essentially two units, there is the first unit of the furnace and tower, which is called a topping unit for the reason that it tops out of the crude oil the more volatile components such as those which would constitute gasoline, tractor distillate, kerosene, light fuel oil and similar materials and leaves behind a residue but all of the material removed from the tower in this topping plant was originally

present in the crude oil but it was present in the crude oil as a more or less homogeneous solution and the gasoline has to be separated from the crude oil by the operation known as 'topping', in much the same way as you might say the cream and the skim milk are the two components of ordinary milk but we cannot separate these unless we put this milk through a process such as a separator and in putting it through the separator we get the two streams, cream and the skim milk, each of which was present in the milk as it was originally supplied to the separator. There is no chemical change brought about in this topping plant and the products from the topping plant are referred to as 'straight run', such as 'straight run gasoline', being the gasoline produced from the topping operation, before any cracking or straight run kerosene and so on."

The operation of the cracking unit he then describes as follows:

"Now these products which are produced from the cracking unit which operates on a residue from the topping unit are all products which have been produced by some chemical change brought about by the cracking operation. There was no gasoline in the heavy residual fuel oil which was supplied to the cracking unit. Whatever gasoline has been produced from the cracking unit has been produced by inducing a chemical change in the material supplied to the cracking unit. So that all of these produced are in their true sense synthetic. The cost of the cracking operation is always considerably greater than the cost of the topping operation because of the increased cost in the equipment necessary to withstand high temperatures and pressures and the longer time required to carry on these chemical reactions and a very, very important consideration is the fact that in these chemical changes there has been produced a rather large quantity of gas which is useless except as fuel in the refinery, or if there happens to be a good market for gaseous fuel it might be sold as gas. This gas and some of the coke which is formed constitutes a loss in the liquid recovery from the cracking operation and a good part of the loss shown in these figures we have been discussing is due to this loss incurred in the cracking operation."

The products produced from the topping and cracking operations are in an unfinished state at this point and require further treatment for the removal of impurities. These processes are described by Dr. Brown as follows:

"Carrying it, therefore, to this point, we have simply the crude or raw streams from which the finished products will be made by chemical treatment and by blending. For example, the crude or raw gasoline stream taken from the top of the topping tower must be treated to remove the mercaptans and other sulphur materials, or at least convert the mercaptans into other sulphur compounds. In the Mid-Continent fields of the United States the quantity of mercaptans in the gasoline is reasonably small and it is simply necessary to convert this evil-smelling mercaptan compound into other sulphur compounds by a process known as sweetening, which does not remove any sulphur but simply sweetens the gasoline so far as its odour is concerned. In the Turner Valley crude the mercaptan content is so high that it is necessary not only to convert the evil-smelling

mercaptan into other sulphur compounds which have a different odour but it is also necessary to actually remove some of this sulphur which may be present as mercaptans. So that in treating this crude of Turner Valley here in Calgary the Imperial have evolved a method which seems to be very successful and economical in reducing the sulphur in the gasoline that may be present as mercaptans. So that this raw gasoline stream removed from the top of the topping tower is then processed again by putting it through another furnace and bringing it up into a vapour condition, to perhaps 500 degrees more or less and passing it through the towers under about 30 or 40 pounds pressure in which there is alumina which is a mineral having a more or less catalytic action on these gasoline vapours, and this alumina converts the mercaptans into other compounds such as free sulphur in the form of hydrogen sulphide. Now the hydrogen sulphide can be removed from the gasoline by treating it with some alkali wash. So by putting in this special treating process of the Bauxite treater it is then possible to produce a gasoline of sufficiently low sulphur content and of a satisfactory odour from this Turner Valley crude where it would be extremely expensive to produce a satisfactory product in so far as the sulphur is concerned by the ordinary methods such as are used in treating crudes which do not contain so much mercaptans. That is one of the operations which has to be undergone in order to handle Turner Valley crude in a satisfactory manner and is one of those things which increases the cost of the operation of Turner Valley crude as compared with other crudes which are not cursed with so much mercaptan sulphur. Well, similar but different—I mean equivalent but different—treating operations are also given to the side-stream which will compose the kerosene and to other products that may be removed from the topping operation. Now go over to the cracking unit. We find that the gasoline, the raw gasoline from the top of the cracking unit, must also be further treated. There are different ways of doing that. In the Imperial plant as it is now operated, this stream is given a treatment with clay and rerun in another distillation unit to produce a clear coloured and stable gasoline which will not form gum in use and not cause trouble due to sticking valves, which is a thing we discussed the other day, you remember, as part of the problem that had to be met by the technical service division. And in rerunning or re-distilling this cracked gasoline there is left behind a residue which may be called P. D. Bottoms, P. D. being the abbreviation for pressure distillate. The term 'pressure distillate' being applied to cracked gasoline as distinct from the straight run or topped gasoline. The term 'pressure distillate' was introduced because this cracked gasoline was produced under pressure and it was a distillate product. The product taken off was not suitable for gasoline so it is called pressure distillate. Then this pressure distillate being redistilled leaves behind a residue which has been called pressure distillate bottoms, or in the shorthand of the industry, P. D. Bottoms. And these pressure distillate bottoms may then be blended with other streams to constitute part of the tractor fuel. And then finally the cracked fuel oil, which is dark or black coloured material and appears dirty too look at, but it may be a reasonably clean product in the sense it does not contain much solid carbon, is then sold as an industrial fuel or possibly used by the railroads or something of that kind. Or it can be used as a material that can be reduced to synthetic asphalt or road oil depending upon conditions."

It is not our purpose to discuss at any length refining methods other than those mentioned by Dr. Brown in discussing the Alberta situation but it may be pointed out, as is done in Exhibit No. 639, that the new Houdry processes of catalytic cracking, viscosity breaking, gasoline treatment, desulphurization, and polymerization, are said to be applicable to almost any raw petroleum stock and to yield gasoline of very high octane number; this may have a tremendous effect on the refining industry. There are other developments; to-day a refiner's knowledge extends to alkylation, cyclization, aromatization and isomerization which are said to be commercially feasible under proper conditions. It is anticipated that there will be further expansion of isoctane manufacture by polymerization and hydrogenation to meet the needs of aviation and in particular military aviation. We might mention other new or partially changed methods for treating motor fuel, such as the improvement of the doctor sweetening process, the new copper chloride and lead sulphide process, the development of catalytic processes for the removal of sulphur compounds, the construction of Stratcold process units by some refiners to expand the low temperature acid treatment of cracked distillates and to remove organic sulphur compounds with a low treating loss; the development of more satisfactory inhibitors against deterioration of colour and the formation of gums and other undesirables; all of these methods are said to be improvements upon those previously in general use.

We have taken much space by quotation and otherwise for the discussion of the process of refining and the constant changes therein, for the reason that generally speaking an understanding of the refining process is necessary to an understanding of refining problems. Furthermore, an understanding of the process will make possible an understanding of the difficulties attaching to any attempt to determine cost of production of any one product of which we shall speak. Then again it is well that at the outset of the refinery discussion it should be clear that the advancement of scientific knowledge in physics, chemistry and engineering, and the constant application of new principles of mechanization, by-product utilization and multiple production, make the investment of capital in the refining industry from the standpoint of obsolescence alone an exceedingly hazardous one.

Since all of our comparisons, contrasts and examples have to do with the United States, before coming to a discussion of Alberta refineries it may be of interest to give some information concerning the refineries in that country.

On January 1st, 1938, the rated refinery capacity of the United States was 4,634,171 barrels per day, through which only 3,269,419 barrels per day were run in the peak month of the year. We quote from Exhibit No. 459, as follows:

> "On January 1st, 1938, there were 561 refining establishments in the United States, of which 431, representing 77 per cent of the total capacity were operating, 120 were idle, and 10 were under construction. Of the operating plants, 24.9 per cent of their total capacity was represented by units with capacity of 100,000 barrels per day or over; 12.9 per cent, by units with capacity of 50,000-99,000 barrels daily; 15.3 per cent, by units of 25,000-49,000 barrels daily; 25.6 per cent, by units of 10,000-24,000 barrels daily; and 21.3 per cent, by units below 10,000 barrels daily capacity. Thus, 104 plants represented 78.7 per cent of the operating capacity of the country, while 327 plants accounted for 21.3 per cent."

It is said that the size of the refining division of the petroleum industry in the United States is the result of demand for its principal products. We think that we may safely add that in times past an over-production of crude oil has led to an unnecessary enlargement of the refining division of the industry to meet the demand for the processing of an unnecessary surplus of crude.

With some understanding of the refinery process we come to a consideration of the number and kind of refineries which we have in Alberta.

Imperial Oil Limited is the largest refiner in the province. This company has recently completed the building of a new combination cracking and topping unit which provides it with a modern plant from which may be produced a full range of petroleum fuels. During the year 1938, this company operated its refinery continuously in the processing of 2,753,587 barrels of crude oil and naphtha. Out of this total number of barrels, 781,233 barrels were processed at the request and for the benefit of the British American Oil Company Limited pursuant to an arrangement which came to an end in the Spring of 1939 when the British American Company completed the construction of a new refinery of its own at Calgary.

The British American Oil Company has constructed a new refinery with a modern combination cracking and topping plant, and since the Spring of 1939 has conducted its own refining operations. Prior to 1938, this company operated a refinery at Coutts and also a small skimming plant at Calgary through its subsidiary the Bell Refining Company Limited. In 1938 these two last-mentioned refineries were not operated except during the season of peak demand, the refining for the British American Company being done by Imperial Oil Limited.

Gas and Oil Products Limited in 1938 operated a topping plant in conjunction with an absorption plant in Turner Valley and processed 208,800 barrels of crude and naphtha during that year. A cracking unit was added to the topping plant during 1939. Prior to the completion of this unit, the refinery was equipped to make only third grade gasoline and distillates but the company is now in a position to manufacture the same grades of motor fuels as the Imperial and British American plants.

Lion Oils Limited operates a topping plant at Calgary. As it has not a cracking unit its plant is not equipped to manufacture gasoline of a grade higher than third structure. This plant processed 67,214 barrels during 1938. We are told by Mr. Plotkins, the manager of this refinery, that the Company intends to construct a modern cracking unit in the near future.

Becker Oil Company operates a topping plant at Turner Valley and processed 100,518 barrels during 1938.

There is a small refinery at Lethbridge operating with Montana crude and there are other small plants in the Wainwright area using mostly Wainwright crude. These are small and localized operations which have little, if any, effect on the general price structure and so are not viewed as part of the refining picture to be examined.

We now propose to concern ourselves with the question of whether or not the refinery tank car prices are reasonable.

It will be remembered that in arriving at a conclusion as to the field price for crude oil, we adopted the economic principle enunciated by Dr. Frey and Dr. Brown, that the prices of crude in all fields tend towards a common level and become in dynamic equilibrium one with the other, after due allowance is made for differences in quantity, transportation cost and the quality requirements of purchasers in the respective markets in which the various crudes are sold.

The same principle of dynamic equilibrium has application in the case of gasoline processed from the crudes of the various competing fields and so it is that Dr. Brown has pointed out, as before enlarged upon by us, that under existing conditions, the economic fringe beyond which gasoline processed from Turner Valley crude at Regina should not go in an easterly direction, is somewhere near Portage la Prairie, at which point it comes into impact with Illinois gasoline processed at Sarnia. Dr. Brown has also pointed out that the economic fringe for gasoline processed from Turner Valley crude at Calgary is in a southerly direction at Champion, Alberta, at

which point it comes into impact with Montana gasoline. Dr. Brown did not take into account changes in freight rates which may have the effect of placing the present economic fringe near Nobleford.

It must be borne in mind, however, that the so-called economic fringe is merely the line at which the gasoline of competitors from competing fields comes into competitive impact at a price below which the competitors from these fields cannot sensibly go. It cannot be said that the tank car price fixed by Calgary refiners is a fair one merely because it is low enough to keep Montana gasoline out of the Calgary market. The tank car price for standard gasoline made from Turner Valley crude at Calgary is 10c. per gallon and the laid down cost at Calgary of Montana gasoline of like quality is about 13c. It would seem to follow that so far as Montana competition is concerned the tank car price on standard gasoline at Calgary might be 3c. higher than it now is with a resulting profit to refiners that might be considered excessive. However, the fact that the Calgary refiners' market is isolated from foreign competition by transportation cost, does not mean that tank car prices will be unreasonably high. There are two safeguards which should serve to keep the Calgary tank car price at a proper level, and these are, competition between local refineries, and the ever-present fear of other refineries being erected and new competitors coming into the field if attracted by a great spread between the price of crude and the tank car price.

In Alberta there are a number of refineries that purport to compete and Dr. Frey expresses the opinion that competition is a reality. Since, however, it has been strongly suggested that there is no real competition other than in third structure gasoline and that profits are excessive, we propose to examine into the cost and profit performance with a view to deciding as to whether or not at present tank car prices, the refineries are making greater profits than will serve to provide a reasonable return upon the capital invested in this type of business.

The first step in this method of testing the fairness of tank car prices would appear to be the determination of the cost incident to the production of each of the products refined from the crude oil. As to this we have come to the conclusion, after gaining some knowledge of the process of refining and after hearing the evidence of engineers and accountants on the point, that it is quite impossible to determine the cost of producing any one of the several products which are produced in the course of refining crude oil.

We quote from the evidence as follows. Dr. Brown says:

"Now you can see that there are so many varied products or streams produced from this one raw material, crude oil, that the cost of producing any one of these streams can be determined only after we have fixed an arbitrary cost for all of the other streams. If we take a simple case such as the dairy farmer who produces milk. It is possible perhaps by a system of accounting to determine over a period of years how much it costs that dairy farmer to produce one gallon of milk, but if you ask him to determine what his cost of producing one gallon of cream is as distinct from the cost of producing one gallon of skimmed milk, you can appreciate the difficulty he would have. Because the cream and the skimmed milk are the two components which make up the natural milk and he cannot fix the cost for producing his skimmed milk unless by some basis the cost of producing the cream is first arbitrarily fixed. In other words, if there is a good market for cream he can put all his cost of production on the cream and then the cost of production of the skimmed milk would be zero. Or it may be the case that the cream brought a very fancy price and his cost of producing milk would be less than zero and he would be justified in pouring the skimmed milk on the ground and selling only the cream rather than selling the milk because he may then actually make more money. The same condition exactly applies in the effort to determine separately the cost of the various products that are produced from the refinery. If there is an excellent market for gasoline and kerosene and no market at all for the heavy fuel oil, as actually exists at times, the refiner would be justified in producing all the gasoline and kerosene that he could and saying that the entire cost of production must be borne by the gasoline and the kerosene. He takes the fuel oil and burns it in a pit as a waste product. On the other hand if we can fix the cost of production, if there be such a thing, of the fuel oil and of the tractor distillate and of the kerosene and of all of the other products that may be produced from crude oil, except one, then by the difference we can arrive at the cost of producing that one product. So that I believe that it is utterly futile to regard a refining operation from the standpoint of trying to determine the cost of producing any one of the particular products that may be produced."

. . . . . .

"THE CHAIRMAN: Now a customer who wants gasoline, we will say, . . . is very much interested in where those costs are to be, isn't he?

He does not care a bit what the other products cost?

"A. That is right.

"Q. So all these refineries may decide where they will put their costs, and, of course, if they do that with regard to everything, they have to leave one over because it picks up the slack. But they nonetheless, as I understand it, and perhaps of necessity, . . .put their cost against whatever product they like and there is no way of showing that is unreasonable os improper?

"A. Perhaps I have given you a little wrong impression in saying we can put an arbitrary cost against all products except one. That is simply a way you might do it on paper. In actual practice the refiner does not put his cost against any one of these. He simply sells all of them

for what he can get for them and then adds up what he gets for all of the products he sells and figures whether he is making money or losing money. If he is losing money he says, 'I have to get something more for some of these products,' and he works around and sees what he can get for them. In other words, the selling price, although it is influenced by the refiner, is actually determined in the long run by supply and demand and other economic factors.

"Q. That is the sales realization theory, I suppose?

"MR. FRAWLEY: Yes."

. . . . . .

"THE CHAIRMAN: Q. Yes. But that is all very well, and I think I understand it. But one is impelled to the conclusion from what you say, it is quite impossible to say whether or not a person buying only gasoline is paying the proper price?

"A. You must again say a proper price on what basis?

"Q. Quite so. That is one of our worries, of course.

"A. That is the whole thing."

. . . . . .

"Q. As I understand you, in all refinery practice you get so much crude and you sell for what you can all your products?

"A. Yes, that is right.

"Q. You know what it cost you to refine that barrel of crude into the various products that you have. You know what you have got for all of those products, but is it impossible to say as to what the precise cost has been in respect of any product, any one.

"A. Any one alone?

"Q. Any one alone. Yes, quite so?

"A. That is right.

"Q. It may seem perfectly absurd to all refiners or to anyone representing them, but the fact is we are asked a question which would imply that we should make answers about this and if we cannot our task is insurmountable. If we can, I want to know how?

"A. It seems to me the only way to do it would be exactly the same way you would approach the problem of what is a fair price for cream. If you know the price for milk, if you have determined a fair price for a gallon of milk what is the fair price for a gallon of cream? You are faced with exactly the same dilemma. In order to determine the fair price for cream, you have to determine the fair price, arbitrarily or by some other means, for the skimmed milk."

Dr. Brown's further evidence relating to why a refiner cannot determine the cost of any one product is as follows:

"THE CHAIRMAN: Q. Because in the process of making

them all—or rather because the processes by which they are all made are intermixed and entwined as it were?

"A. Yes.

"Q. That is the reason. You do not go along to a certain stage and drop there one product and move along further and get more and so on?

"A. No."

Dr. Brown's evidence is supported by the evidence of the accountant to the Commission. Mr. Cottle says:

"As Dr. Brown has pointed out, it is impossible to determine the actual cost of refining a gallon of gasoline. All that we know is what crude oil costs and what the manufacturing costs and what we get for the product. Any attempt to determine the cost of any one product is merely an arbitrary method of apportioning the cost and the amount that is apportioned to any one product is accurate only when you ultimately accept the amount that is apportioned to all of the other products."

At first blush it may seem absurd to say that a refiner who is in the business of selling petroleum products at specified prices, does not know what it cost to produce each of the products on which a selling price is placed but because of the nature of the process of refining, we think that the conclusion that this is so is inescapable.

It is not to be thought from what we have said that refiners do not do any cost accounting. On the contrary they have a method of cost accounting which is generally known as the "sales realization method of costing joint products." This is a method by which the total cost of crude oil and other materials and all refining costs are apportioned among the various products derived from the refining operation, in proportion to their respective sales values. For instance, if gasoline represents 60% of the sales value of all of the products derived from the refining operation, which is usually ascertained by determining realizations from sales, then 60% of the total refining cost, including the cost of the crude oil and other materials, is computed to be the cost of gasoline. This joint cost principle is not peculiar to the oil industry as it is in general use by many other industries where more than one product results from a common base stock and extractive operation. For example, the cost of various cuts of meat is determined in this manner in the packing industry and of various grades of flour in the milling industry and of various grades of lumber in the sawmill industry. Mr. Cottle was asked as to the value of this sales realization method and had this to say:

"THE CHAIRMAN: Well, Mr. Cottle, you know no doubt that the sales realization method has been the subject of much discussion and in some places of bitter attack. What are your views about that as to the

propriety of adopting it; whether or not there is any better method for the purpose or as to whether that is the one that will best serve to give the information that you seek?

"A. Well, in my opinion no method will serve the purposes that some people have in mind in determining costs. The sales realization method in my opinion is a reasonable method for one to use who realizes what is involved in that computation. There is no method of determining accurately the cost of gasoline. This method serves a useful purpose, however, in the valuation of inventory and several other matters of that kind. But that is the only real purpose that it does serve and there is no method any better for that purpose. There is no method that is useful at all for the ordinary person's method of determining exactly what this thing costs. It cannot be done. However, the method is useful to those in the trade who realize what the implications of the method are but it is not useful to one who merely wants to know a final figure of the cost of gasoline."

When asked as to the reasonableness of arriving at the cost of each product by the method of dividing the total cost of all products by the total gallonage and arriving at a common cost per gallon for all products, Mr. Cottle had this to say:

"My accountancy criticism of it is that no method gives the cost. As a matter of interpretation I say that that method ignores the fact that each of these products has a different value and that in determining the cost of bunker fuel, it is just as foolish to say that the bunker fuel costs as much as the gasoline as it is to say that in the lumbering business sawdust costs as much as the finished lumber. In other words there is no reality in the method. And the only thing that makes the sales realization method reasonable is that it recognizes the important fact that different products have different values."

Now if the Sales Realization Method is valuable only for inventory purposes and if there be no accounting method which serves to determine the cost of producing any one petroleum product alone, it is obvious that the closest that we can come to arriving at a proper judgment as to the fairness of tank car prices is by the method of finding the price of crude oil to the refiner, the cost of refining that crude into multiple products and the prices obtained for those products. With this information it is possible to determine the profit performance and to decide as to whether or not the profits give a rate of return on the invested capital which is an excessive one.

Dr. Brown puts that view in this way:

"However, if we take all of the products which are produced from the crude oil we can then determine the cost of producing all of those products because we know the total cost of processing the crude oil and we know that all of the products produced from the crude oil were produced at that cost. So that the only satisfactory way of arriving at the cost of a refining operation to determine the capital return and whether

things are as they should be, is really to consider the cost of processing crude oil to make the products which were sold and to consider on the other hand the total return from all of the products produced from the crude oil."

. . . . . .

"The only consistent way to look at it is that the cost of producing all of these products which were produced from a barrel of crude oil was 45.61 cents, and the returns from the sale of all of these products should bear a proper relationship to the cost of producing all of those products."

If the rate of return on invested capital be such as to be classed as excessive, it is reasonable to assume that the spread between the price of crude oil to the refiner and the tank car price which the refiner fixes to the distributor is too great. If on the other hand the rate of return on invested capital is not unreasonably high, having regard to the type of business in which the capital is invested, it is equally to be assumed that the spread between the price of crude and the tank car price for refined products is not too great.

Coming now to the type of examination which we have just outlined, we have first to consider as to whether we shall examine into the refinery operation of one or all refineries with which we are concerned. If Dr. Brown's evidence is to be accepted there is but one refinery into the operations of which we may examine with hope of an intelligent result, and that is the refinery of Imperial Oil Limited. His reasons for so stating are, first, the Imperial operation is the low cost operation and therefore the one which should set the price in a competitive industry, and second, the Imperial refinery is the only one which in 1938 was in a position to process and supply all of the products required, and so the only one which could be said to be a determining factor in the price of petroleum products. Dr. Brown's evidence on the point is as follows:

"Q. . . . as to what would be a fair price to the public per gallon for gasoline, how would you approach it?

"A. I would start to analyze the situation on the basis that I found it. As I find it here, it is a competitive industry with, well, three or four refineries producing the products desired from the crude oil. Then the lowest cost refiner would be the one which should set the price in a competitive industry. It would seem to me that the best way to do it would be then to analyze the operations of all of the refiners who are marketing in the territory and figure out what is the low cost for the refining of crude oil. In other words, what is the cost to the lowest cost refiner. And that should then set the price on the principle of free competition.

"Q. And if you were concerned with that in a local situation, would you be concerned to ascertain what the lowest cost refiner was doing in that locality?

"A. This is correct."

. . . . . .

"Q. But when they do not produce all the products does not that create a difficulty?

"MR. FRAWLEY: Then we eliminate them.

"A. They are eliminated. They cannot do the job.

"Q. Nobody pretends Mr. Plotkins can produce anything but third structure gasoline at the moment. As I understand you that does not, with the rest, answer the Chairman's question.

"THE CHAIRMAN: Why should not Dr. Brown's theory apply to third structure gasoline, if he is not making anything else? If he is not supplying anything else?

"MR. FRAWLEY: Q. What do you say about that? We will assume he is making third structure gasoline in reasonably large quantities. How about that? Does he fit in in any way?

"A. Let us suppose Plotkins' one plant which is capable of making only third grade gasoline.

"Q. Yes.

"A. And nothing else?

"Q. Yes, that is the fact?

"A. He is unable to supply this territory with the requirements.

"Q. Yes, that is right?

"A. He might, because of conditions of free and open competition sell his third grade gasoline at a low price, which, in turn, will cause the other producers to reduce their price for that same product to equal his. Then he is faced with the difficulty of getting rid of the residue from his skimming or topping plant. This territory has a limited requirement for that residue, and unless one of the other plants is kindhearted enough to take that residue off his hands, he will soon fill his tanks full of this residue and then go out of the picture. Then the people who can supply the products required by the industry will again be in competition with each other and that particular price of third structure gasoline will again rise. That has been repeated time after time over all parts of the United States. It is a matter of history. In other words, I have seen that same operation in my State in the past five or six years repeated many times. It is a marginal producer of a particular product who can exist only so long as the other companies hold an umbrella over him, and give him the protection that he needs to market his products. As soon as he stands on his own two feet, unless he is able to supply all the products required by the territory he is serving, he goes out of the picture."

. . . . . .

"Q. We are back then to finding the lowest cost refiner in the territory, and examining his operation, and he must be a person—well let us talk plainly about the British American Oil Company. They have cer-

tainly, as far as the market is concerned, considerably less of the market than the Imperial, so presumably their daily throughput would be somewhat less, although their capacity may be up to the capacity of the Imperial Oil. Do you think it is of value for us to endeavour to find the cost of the British American Oil Company, to find the refinery cost? You know something about the plant only having been built and so on?

"A. It is not yet really on stream.

"Q. What do you say about that?

"A. Well if the proposition were put up to me to determine what is the equitable price for gasoline and the other products as produced from the refinery in this territory at this time, I should proceed to get the information as to the cost of production from all of the refineries who are supplying these materials at this time, and set up a fair return on their investment, their operations, and say that that is a fair price as it should be determined by competition, as determined by the low cost producer.

"Q. Of course, let us be practical now. Dealing with what we have at the moment. We have four, I think we can continue to talk about, the Lion Refining or Mr. Plotkins is not able to supply the market?

"A. That in my estimation would not be considered.

"Q. Mr. Mayland of the Gas & Oil Products Limited in Turner Valley is not able to supply the market. We know as a fact he is purchasing his first and second structure requirements through another refinery?

"A. He would be of no use in this connection.

"Q. We have been told he is now actually constructing a cracking unit. You say he is not in the picture?

"A. If he is not in a position to supply all the products required he cannot be a determining factor in this price."

In the absence of any other evidence pointing to a different conclusion we feel constrained to accept Dr. Brown's view that so far as the year 1938 is concerned we must examine into the Imperial operation alone. In doing this we are comforted with the thought that the lowest cost operation must be the fairest from the standpoint of the purchasing distributors and presumably of the ultimate consumer. On the other hand, we are concerned about having to take the low cost operation from the standpoint of competing refiners. The low cost refinery operation owes its character as such in large measure to its having the greatest volume passing through its refinery. It follows that if other competitors cannot approach to the gallonage of the low cost refiner, then they cannot hope to make a comparable profit and so may be put out of business while the low cost refiner is still making a fair rate of return on invested capital. We may enlarge upon what we have just said by again referring to

Dr. Brown's evidence. In speaking of the Imperial operation Dr. Brown said:

> "As I indicated on this Exhibit '310' it could be seen that the operating cost per barrel of crude put through the refinery has varied in this one refinery from a low of about 44 3/10 cents in 1938 to a high of about 84 cents in 1933. Roughly the quantity of material, crude processed in 1938 was something more than twice that in 1933. So there is the same refinery operating in much the same manner but the difference in throughput has practically doubled their cost—rather the increase in throughput from 1933 to 1938 has practically halved their cost of processing one barrel of crude. Very much the same experience as, of course, in that of the railroads where they find when traffic decreases and they have to maintain their right of way and maintain their crew and maintain their equipment that they lose money with the same rates, while under other conditions, with much heavier traffic, they can make a very substantial profit. So that the actual cost of processing crude oil in a refinery to convert it into gasoline, distillates and other finished products depends in a very large measure upon the amount of crude processed through the refinery. In fact I believe that may be safely stated to be one of the most important variums. There are differences in efficiency and differences in other operating costs but that one factor makes more difference than practically all the rest put together."

In support of this view that the volume of throughput in a refinery affects the per barrel cost of processing the crude we put forward the following table covering the refinery operation of Imperial Oil Limited in the years 1930 to 1938 inclusive.

	Barrels Run	Per Barrel
1930	2,459,962	55.56c.
1931	1,682,579	64.74c.
1932	1,107,431	79.98c.
1933	1,121,535	84.25c.
1934	1,732,797	68.58c.
1935	1,732,389	70.14c.
1936	1,671,029	75.98c.
1937	2,062,079	60.97c.
1938	2,753,587	44.31c.

Our examination is limited to the year 1938 because this is the latest period for which complete refinery figures were available during the sittings of this Commission. It is perhaps regrettable that this inquiry into refinery operations is now made instead of in the year 1940, when the three modern refineries, the Imperial, the British American and Gas & Oil Products will be in full swing, but this is, of course, a vain regret and quite beside the point.

We come then to a consideration of the refinery operation of Imperial Oil Limited.

Imperial Oil Limited does not operate its refining department

separate and apart from its marketing department and it cannot be said that the products manufactured by the refinery are, even in a theoretical sense, sold to the marketing branch. This, of course, provides a difficulty in that the accounts of the company do not sever the profit performance of the refinery branch from the other activities of the company. It is doing business as a company and so is not concerned to set up its accounts in such fashion as to show the profit performance of the refinery branch separate from the other activities of the company. We do not offer any criticism of the Imperial accounting method. We may add that even if it had kept separate accounts the price at which the refinery department would sell to the marketing department, for example, would necessarily be an arbitrary one and of no particular value either to the company or to a Commission of this kind, until it was settled that the price so fixed was a fair one; but however this may be we have been under the necessity of segregating the refinery operation from the marketing operation of this company and we have adopted a method which, though an arbitrary one, is, we think, a sound one. Our method of segregation is to treat the accounts of the company as being amended so as to show the sale of all of the refined goods produced during the year 1938 at prices which are the same as the prices charged to jobbers by the refiner. As 40% of the total of the white products processed by the refinery in 1938 were sold to and marketed by marketers other than the marketing branch of the Imperial Company, we think that our position is a reasonable one. Our method carries with it the assumption that all of the unsold goods in storage at the close of the year are priced at the refinery prices to jobbers. As a result we are enabled to determine the profit performance at prices which we think are arrived at in a reasonable way. We may add that the method adopted appears to be acceptable to the company concerned, the expert witnesses before us and the accountant to this Commission.

During the year 1938 the Calgary refinery processed 69,032,397 gallons of crude oil and naphtha (exclusive of that processed for the account of British American Oil Co., Ltd.) which cost $2,925,423.43 delivered at the refinery. The above products are classified as follows:

	Gallons Processed	Laid down cost Per bbl.	Total cost
Turner Valley crude oil	58,598,017	$1.3770	$2,305,421.78
Turner Valley absorption naphtha	8,645,332	2.1449	529,811.88
Turner Valley crude naphtha	422,235	2.2530	27,179.69
Pondera (Montana) crude oil	1,366,813	1.6135	63,010.08
Total crude oil and naphtha	69,032,397		$2,925,423.43

The yield of refined products from the above quantity of crude oil and naphtha resulting from the refining operation was as follows:

	Gallons
Gasoline	41,369,939
Refined oil (kerosene)	1,755,863
Tractor distillate	4,529,126
Light fuel oils	2,732,528
Bunker fuel	7,707,246
Asphalt	2,869,099
Coke	106,232
	61,070,033
Refinery fuel	1,888,011
Unfinished stocks	1,915,760
Loss in processing	4,158,593
	69,032,397

The gasoline yield shown above is the quantity produced from the crude oil and naphtha before blending with it a special naphtha shipped from Ioco, British Columbia; tetra-ethyl lead and solvent oil. This operation is explained later. Actually the absorption naphtha is processed by a separate operation and then blended with the gasoline, but for simplicity we have treated this product as if it had been processed in the same manner as crude oil and have taken the production of the blended gasoline as the yield from the combined process.

The yield of refinery fuel is the equivalent liquid volume of the gasses or liquid fuels consumed as fuel for the refining processes.

The yield of unfinished stocks represents an increase during the year in the volume of inventories of partly processed materials. For convenience we considered this increase to be a reduction in the amount of crude oil and naphtha consumed and have adjusted the cost of such crude and naphtha by the equivalent difference in value of the stocks of unfinished products.

Accordingly the volume and cost price of crude oil and naphtha consumed should be stated as:

	Gallons Processed	Total Cost
Crude oil and naphtha	69,032,397	$2,925,423.43
Add cost value of unfinished stocks on hand at first of year	6,059,445	358,117.83
	75,091,842	$3,283,541.26
Deduct cost value of unfinished stocks on hand at close of year	7,975,205	342,536.24
	67,116,637	$2,941,005.02

On the above basis, the average cost laid down at the refinery of the 67,116,637 gallons, or 1,917,618 barrels, of crude oil and naphtha consumed during 1938 was $1.5337 per barrel.

In addition to the above crude oil and naphtha, 1,375,174 gallons of blending stocks costing $512,316.99 were consumed in the blending of finished gasoline, increasing the yield of gasoline to that extent. The blending materials are summarized as follows:

	Gallons Consumed	Cost
Tetra-ethyl lead and dye	33,297	$267,637.80
Solvent oil	83,484	20,220.59
Ioco naphtha	1,258,393	224,458.60
	1,375,174	$512,316.99

The tetra-ethyl lead was blended with a substantial portion of the gasoline for the purpose of increasing the octane rating of ethyl and standard grade gasoline. The function of tetra-ethyl lead is dealt with at length in a separate part of this report.

The solvent oil is added to Imperial's own brands of ethyl and standard gasolines for the purpose of preventing certain gum-forming tendencies of the fuel.

The Ioco naphtha is a selected gasoline stock distilled from California crude at the Ioco refinery of Imperial Oil Limited. This naphtha is selected for its high octane rating and is blended with standard gasoline stock to raise its octane to the standard required for ethyl gasoline. The completion of the new distillation unit at this refinery will permit the manufacture of ethyl gasoline without the importation of Ioco naphtha, the cost of which is considerable due to the expensive mountain freight haul.

The total cost of the refining and blending operation during 1938 was $874,542.12 or 45.61c. per barrel of crude oil and naphtha processed. The expense may be analyzed as follows:

Salaries	$87,973.92
Wages	329,543.73
Pensions	7,782.01
Materials	181,829.79
Other expenses	65,101.98
Fuel	110,667.29
Electric power	28,545.54
Engineering development	27,105.07
Depreciation	283,473.70
Administration and general expense	67,973.05
Taxes	24,681
	$1,214,677.08

Deduct:		
Miscellaneous revenue	$36,321.97	
Cost of processing B.A. crude	286,898.23	
Cost of processing products for other refineries	16,914.76	
		340,134.96
Cost of processing Imperial products		$874,542.12

The total cost of $1,214,677.08 shown above is the cost of operating the refinery for the year, including the cost of processing British American crude and stabilizing absorption naphtha shipped to the Regina refinery. The cost of these operations has been deducted, as will be observed, to arrive at that portion of the total expense chargeable to the processing of the 67,116,637 gallons of crude oil and naphtha previously referred to.

We do not propose to discuss each of the above items of expense. Dr. Brown examined into them in detail and expressed the opinion next quoted:

> "First of all, I believe that the operation as presented in these exhibits of the Imperial plant as representing the operation as extending during the last six months of 1938, where they had high throughput, the plant was operating up to capacity, is really a very efficient operation as far as costs go, and I doubt if an analysis or an estimate of any other operation which is now contemplated will show costs that are below that."

Summarizing the foregoing, we find the total cost of all the finished products manufactured during 1938 was $4,327,864.13, comprising the following items:

Cost of crude oil and naphtha	$2,941,005.02
Cost of blending stocks	512,316.99
Cost of processing	874,542.12
	$4,327,864.13

Up to this point in our review of the refining operations, the accounts of the company provide all of the information required. It remains, however, to determine the proper price at which to value the refined products produced at the refinery in order to determine the profit. As we have said, we adopted the method of valuing the total production at the prices charged to jobbers.

The prices charged to jobbers, however, differ for various grades of gasoline and other products and differ for various points of

destination, as such sales in 1938 were made on a delivered basis. Accordingly we were obliged to refer to the accounts of the company to ascertain the average price per gallon actually realized for each of the classes of products F.O.B. the refinery. Hence the prices used for this examination are really average realizations rather than quoted prices. These average realizations were obtained from the accounts of the company recording sales to jobbers, after adjusting the accounts to reduce actual realizations to the price basis in effect at the time of the examination. Sales tax was also deducted from the prices used in order to arrive at the sales value of the finished products upon completion of the refining process.

The sales value of the products manufactured during 1938 on the above basis of valuation was thus computed as follows:

	Gallons Manufactured	Value F.O.B. Refinery per Gallon	Total Sales Value of production, at jobber prices F.O.B. refinery
Gasoline	42,745,113	8.6600c.	$3,701,726.79
Refined oil (kerosene)	1,755,863	11.2900c.	198,236.93
Tractor distillate	4,529,126	6.7110c.	303,904.35
Light fuel oils	2,732,528	4.5500c.	124,330.02
Bunker fuel	7,707,246	2.7720c.	213,644.86
Asphalt	2,869,099	8.4300c.	241,865.05
Coke	106,232	2.3900c.	2,538.94
Refinery fuel	1,888,011	1.3400c.	25,299.35
Loss in processing	4,158,593		
	68,491,811		$4,811,546.29

The total sales value of the products recovered from the processing of the crude oil and naphtha being $4,811,546.29 and the total cost of the products being $4,327,864.13, it follows that the profit on the refining operation was $483,682.16. From this amount must be deducted income tax at 22% or $106,410.08 leaving a net income to the company of $377,272.08.

For the sake of clarity we present the following table of the refining operation stated in terms of a barrel of crude oil and naphtha.

SUMMARY OF REFINERY PROFIT PERFORMANCE YEAR 1938

Value of Products:	Gallons	Value	Yield per barrel of crude Gallons	Value
Gasoline	41,369,939	$3,189,409.80	21.5736	$1.6632
Refined oil (kerosene)	1,755,863	198,236.93	.9156	.1034
Distillate	4,529,126	303,904.35	2.3619	.1585
Light fuel	2,732,528	124,330.02	1.4250	.0648
Bunker fuel	7,707,246	213,644.86	4.0192	.1114
Refinery fuel	1,888,011	25,299.35	.9845	.0132
Asphalt	2,869,099	241,865.05	1.4962	.1262
Coke	106,232	2,538.94	.0554	.0013
Refining loss	4,158,593		2.1686	
	67,116,637	$4,299,229.30	35.0000	$2.2420

Cost of products:		Cost per barrel crude oil
Crude oil and naphtha consumed	$2,941,005.02	$1.5337
Processing expense	874,542.12	.4561
Income tax	106,410.08	.0555
Total cost of products	$3,921,957.22	$2.0453
Profit	377,272.08	.1967
	$4,299,229.30	$2.2420

For the purpose of the above summary the cost of blending materials, $512,316.99, has been deducted from the value of gasoline rather than considered as a cost of the products for the reason that the summary is intended to show the cost of crude oil and processing in relation to the value of the products derived from the crude oil whereas the blending stocks are added to the gasoline subsequent to the refining process as previously explained.

The next step in our examination involves a review of the amount of capital employed in refinery operation.

The total original cost of the Imperial refinery assets in use as at December 31st, 1938, was $5,289,268.42, classified briefly as follows:

Cracking coils	$633,175.03
Crude stills, stabilizer and other distillation units	1,019,349.99
Treating and blending units	561,522.11
General storage, pipe lines and pumping facilities	1,392,270.98
Steam, electric power, sewers, fire protection and other general facilities	1,658,473.44
Land	24,476.87
Total original cost	$5,289,268.42

The greater part of the above investment was made in the years 1923 and 1924, that portion of the plant acquired by the end of 1924 representing an investment of $4,003,363.08. Considerable sums were expended in practically every year since 1924; the most substantial of the expenditures were $160,766.06 in 1926, $185,590.23 in 1928, $185,589.62 in 1929 and $491,930.78 in 1930.

A large part of the refinery having been in constant use since 1924, it is natural to suppose that the original cost must be depreciated substantially to arrive at a reasonable investment value as at the date of our examination. Depreciation had been written off in the accounts of the company, but as the amounts written off by a company depend more upon the policy of management or income tax regulations than the extent of actual depreciation, it was recognized that the amount of depreciation to be deducted for the purpose of the Commission would have to be computed without regard to the entries made in the books. As a result of conferences between the Commission accountant and officials of the company, it was decided, and we think rightly decided, that the proper amount of depreciation to deduct from the original cost of the refinery should be computed on the same basis as the amount of depreciation included in the refining expense statement for the year 1938. Accordingly, accumulated depreciation was computed using the following rates which are 70% of those permitted by the Dominion Income Tax authorities:

Brick buildings	1.75%
Frame buildings	3.50%
Machinery and equipment	7.00%
Other equipment (including tanks, stills, pipes and the bulk of the refinery assets)	5.25%

The accumulated depreciation, on this basis, amounted to the sum of $3,444,126.25, thus reducing the plant investment value as at December 31st, 1938, to $1,845,142.17.

The above depreciation being computed by accountants, we sought Dr. Brown's opinion as an engineer. We quote from Dr. Brown's evidence as follows:

> "Now alongside of that I was asked to make my own estimates as to the cost of a plant, the operating cost, the yields and so on, of what I thought might be done in Calgary and I am somewhat at a disadvantage because I am not personally familiar with the actual cost, labour charges and the operating conditions in Calgary, but I believe I have made a reasonably satisfactory allowance for those conditions and I find that my estimated cost for a new plant tallies very closely with the depreciated value of the old equipment from the Imperial plant, plus the cost of the new unit."
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"On page 8,933 of the record the Chairman asked me how one should depreciate or how one should arrive at the present depreciated value of a plant; in my opinion the value of the plant should be determined as the value of the plant of the company which is operating that plant as a going concern; this value is equal to the cash investment which the company had left in the plant after making proper allowance for depreciation and obsolescence; if the original plant cost was excessive for the actual equipment installed, an extra rapid depreciation or write-off for obsolescence would be required in order to bring the depreciated value of the plant at the present time to its proper figure. This would indicate excessively high operating cost. But frequently a more expensive plant will have a lower depreciation so that the actual operating cost with the more expensive plant may be less than with a cheaper plant. In any case the present depreciated value when added to the cash expenditure necessary to make the old plant the equivalent of a new modern plant, should give a sum equal to that necessary to erect a new plant that would bear the same annual depreciation charges and do the same job. This appears to be the best possible test as to whether or not the old plant might have been properly depreciated. The proper rate to charge for depreciation is that rate necessary to maintain the value of the existing plant such that the sum of the depreciated value and the necessary cash expenditures to make it equivalent to the new plant would equal the charge for an equivalent new plant. Similarly the best way to arrive at the proper present depreciated value of the old plant is to consider its value as a producing unit to the company which is operating it as a going concern. This can best be determined by comparing the sum of the present depreciated value with the additional cash expenditure necessary to produce a plant equivalent to the new installation, with the proper cost of such new installation. Perhaps this can be made more clear by the application of the present situation of the Imperial Oil Refinery in Calgary. This plant actually processed on an average over 6,600 barrels per day in 1938. It, therefore, can be compared with a modern plant of 6,500 barrels per day capacity. The original cost of the Imperial plant at Calgary, that is the cost of all useful equipment in service in 1938 was about $5,200,000.00. The depreciation on this plant during the year 1938 was approximately 5.5%, or about $283,474.00. This represents a depreciation write-off to maintain the value of the plant as a going concern and represents the total depreciated value as of January, 1939, of about $1,845,000.00. It has been estimated by the Imperial Oil Company that the new unit to be constructed by them will cost $1,783,000.00, making a total investment in this plant at the time the new unit is completed, and using the depreciated value as of January, 1939, to be $3,628,000.00, which compares very closely with my estimate of $3,570,000.00 to build a new plant of 6,500 barrels capacity. Since this addition to the old Imperial plant will be paid for out of depreciation reserves, which will be accumulated, the annual depreciation charge will remain substantially constant at about $283,474.00. This figure is also in close agreement with the estimated depreciation of the equivalent new plant, which I figured as $290,000.00. It is, therefore, seen that the annual charges for depreciation are substantially the same for the new plant as for the old Imperial plant, including the new unit, although the original costs are quite different. This fact is clearly indicated, that the depreciation taken by the Imperial Oil Company on its present plant is a proper rate of depreciation because

with this depreciated value of the old plant, it figures that the total cost of the old depreciated plant and the new cracking unit is comparable to the cost of the new plant of equivalent service, and also the depreciation rate charged by the Imperial Oil Company is substantially the same as as that estimated for an entirely new plant. The object in all depreciation charges is to depreciate the plant according to its expected useful life and facts indicate that this has been done in the case of the old Imperial Oil Plant."

From the above it is clear that the computations of the accountants reflect a proper valuation from Dr. Brown's point of view and accordingly we are of the opinion that the fair investment value of the Imperial refinery as at December 31st, 1938, was $1,845,142.17.

Accepting the sum of $1,845,142.17 as the value of the refinery as at December 31st, 1938, the total capital employed in the refining operation of this company as at the same date was $2,976,032.01, comprising the following items:

Depreciated investment in plant	$1,845,142.17
Refinery inventories of crude oil and finished products at cost	976,152.28
Inventories of material and supplies at cost	114,303.60
Cash, accounts receivable and other working capital	40,433.96
	$2,976,032.01

As the profit on the 1938 refining operation on our basis of calculation amounted to $377,272.08, the return on the above investment was 12.68%.

This return of 12.68% was the profit, subject always to the assumptions made in its determination, actually enjoyed by the Imperial Refinery in the year 1938. This, however, would not have been the profit in that year had the British American Oil Company Limited processed its own crude as it has since the Spring of 1939, or had the price of crude oil, which we now recommend, been in effect.

It is impossibe to determine the exact effect that the processing of the British American crude had on the operating costs of the Imperial refinery even though we know the marked degree to which costs per barrel vary with different volumes of throughput. We have, however, an estimate prepared by Dr. Brown showing that the probable profit on the Imperial operation, had the British American crude not been processed, would have been only $297,000.00, instead of $377,272.08, by reason of the increased cost per barrel because of

the lesser volume. The total profit of the Imperial operation was actually $429,000.67 including a profit of $51,728.59 on the processing arrangement with the British American Company. If, therefore, we accept Dr. Brown's estimate, as we do, and the 1938 operation were duplicated without the benefit of the British American arrangement (which was of short duration) the return on investment would probably have been 10% instead of the return of 12.68% before mentioned.

While we are primarily concerned with the 1938 operation because that is the one in respect of which we have facts and figures, it has seemed worth while to try to project our calculations beyond 1938 with a view to considering the position under the new pipeline rate with a new field price for crude as recommended in this report. To this end we sought the opinion of Dr. Brown as to the possible profit performance of the new Imperial plant under 1938 conditions, but without the processing of crude for the British American Company. Dr. Brown estimated that the yields from the new Imperial plant would be such that all of the refined products produced by the Imperial Company in the year 1938 (exclusive of the British American yields) could be obtained by the processing of 4,750 barrels of crude oil per day with 5% absorption naphtha. Dr. Brown also estimated that the total capital investment in the new plant would be $4,728,000.00, including inventories and other working capital. If the new plant were operated to supply a market equal to that of 1938 (without the British American crude) the estimated result would be a profit of $574,000.00, or a return on investment in the new plant of 12.14% compared with the actual return on the investment in the old plant (without the British American crude) of 10%. This is, however, without taking into consideration our present recommendation as to the field price of Turner Valley crude. If it be assumed that this will be put into effect and that the present pipeline rate as fixed following upon our recommendation in our pipeline report be continued, the laid down cost of crude oil at Calgary will be the recommended field price of $1.28 per barrel plus the pipeline rate of 9½c. per barrel or a total of $1.37½ per barrel. As this laid down cost at Calgary is 2½c. per barrel greater to the refinery than the costs on which the foregoing estimates are based, it follows that had this cost been in effect during 1938 the profit performance of the Imperial refinery in that year would have been reduced by approximately $35,000.00. In the result Dr. Brown's estimate of profits in 1938 without the British American crude would have been reduced from $297,000.00 to $262,000.00 and his estimated return on investment would have

been reduced from 10% to 8.8%. Similarly Dr. Brown's estimate of the profit performance of the new Imperial plant would have been reduced by $33,808.00, thus reducing his estimated return on the capital investment in the new plant from 12.14% to 11.42%.

If, then, the rate of return of the new Imperial plant without the British American crude for the year 1938 and under existing pipe-line rates and crude field price, may be fairly estimated to be 11.42%, it remains to be considered as to whether or not this is a reasonable rate of return upon the capital invested. As to this, we quote from Dr. Brown's evidence as follows:

> "In my opinion I think both the spread and the operating cost and the profit as set forth on Exhibit '308' (c), which represents the conditions as they would have existed in 1938 under the present price structure, represent what would be considered a fair situation. I would like to amplify that a little bit. There is some question in the minds of some of us what the return on invested capital should be over a long period of years. And this Exhibit '308' (c) as I carried it through and referred to Exhibit '311', showed a return on capital of about 12 2/3%."
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> "I believe 12 2/3% is not a high return for the very reason it was not to be expected for the following year. If perhaps 12 2/3% is to be expected year after year, we might say it is a little bit high."
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> "Well, in estimating the proper rate of return to an oil company, refining company, which takes all the risks, the business risks involved, I have assumed—and which I believe to be a figure which is substantially sound—that a 15% return on the monies invested in plant should be allowed; this is not an average figure that might exist over a period of 25 years but it is a figure which should not be regarded as excessive due to the risks and the vicissitudes of ordinary business ventures; the money which is invested in inventories about 6% and on the money which is tied up in accounts receivable 7%. If we take those figures we find that the average return on the total invested capital figures out to be about 13.1%."
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> "A. That is arrived at by about 77% of the total capital being in the plant and approximately 11½% of it being in inventories and accounts receivable; that is subject of course to correction and modification. Therefore, any return on invested capital in the neighbourhood of 13% certainly should not be regarded as excessive because that might indicate simply a reasonably good year which is required to compensate for the lean years which have preceded it or have followed, or will follow."

After fully discussing many of the hazards of the refinery business, including the risk of obsolescence and stating that in his opinion even so great a return on invested capital as 15½% would not be unreasonable. Dr. Brown continues as follows:

"A. Well, the real risk, to get right down to cases, is the risk that any business of this kind assumes.

"Supposing for example something happened in 1940, instead of being able to run and market 5,500 barrels per day, they are only able to run the same amount they would have run in 1938, which is 4,750 barrels, then their return drops to 12.8%; supposing in place of that the crops fail and everybody curtails and they only run 3,000 barrels, it will not be long before they get to the point where they will have no return at all; now those are the ordinary business risks which are always in sight."

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"MR. FRAWLEY: Now, Dr. Brown, just one more question on the rate of return. The 13.1% which you have put down as the low for rate of return to a plant of this kind operating under competitive conditions is a rate of return which has to do with the actual situation, namely, the competitive situation, competitive conditions?

"A. Yes. I regard that as a figure that should certainly be indicated by these estimates and computations before any company or any business group would be justified in going into the business or putting in the plant."

We accept Dr. Brown as a truthful and competent witness and so in the light of his evidence as to what is a reasonable rate of return on capital investment in a refinery business, which was in no wise contradicted nor belittled by any witness who appeared before us, it seems to us that unless we are to set ourselves up as experts in such matters, which, as we see it, we are neither competent to do nor called upon to do, we must come to the conclusion that the rate of return enjoyed by Imperial Oil Limited on its refinery operation is not an unreasonable one.

There however remains for consideration the question as to whether or not the capital said to be invested was in fact invested, as to whether or not it was prudently invested and as to whether or not the Imperial operation was one which was conducted without undue operating cost.

We do not propose to review the evidence on these points to any greater extent than may have already been done; we think it is enough to say that the great weight of the evidence is in favour of our answering all of these questions in the affirmative and so, as we see it, we have no option other than to find that the spread between the price of crude and the tank car price, on the Imperial operation which we have been able to examine into, is not an unreasonable one.

Before concluding our discussion of tank car price we think that we should repeat, for the sake of emphasis, that the Imperial operation which we have been considering, is the low cost operation and

that if we were considering, as we are not, the recommending of price fixing to bring about a lower rate of return, we would have to take into account that the reduction of the rate of return of the Imperial company to the irreducible minimum consistent with its staying in business, would have the effect of putting all competitors out of business, which would be to the ultimate disadvantage of the consumer.

We also desire to make it clear that while we accept the view that the Imperial profit performance is not out of line, having regard to the 1938 throughput, it is to be anticipated that the Imperial company will enjoy a greater throughput in the future with consequent saving in operating cost and so a greater profit. It is true that this anticipated added profit may not materialize and that a few bad crop years might bring about loss rather than profit. It is also true that if greater savings, and so greater profits, accrue from increased throughput, the Imperial company may do in the future that which it has done in the past, namely, give effect to these changed conditions by a reduction in the tank car price and so keep the profit position within reasonable bounds.

In other words our examination of the actual 1938 operation leaves us content with the Imperial profit performance. We cannot speak with certainty as to any other year because we have been unable to examine into the performance of any other year. However, the evidence which we have before us points to the likelihood of a tank car price reduction being indicated in the not so distant future. If we are right in this view it is, we think, not to be assumed that the Imperial company will not arrive at the same conclusion and give full effect to it. In short, while we think that the trend of tank car prices will be in a downward direction, we have no evidence before us which would justify our saying that tank car prices are so greatly out of line as to call for government intervention at the present time.

This viewpoint is, we think, in accord with the following part of Dr. Brown's evidence:

> "In other words it might be desirable from their point of view possibly to make some adjustment in some of the prices as conditions change and so on and those changes are indicated but I do not think there is any point where the price is so seriously out of line that a definite recommendation should be made at this time for any reduction in the price of finished products.
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> "Q. In short, you think that the operation as conducted to-day in respect of, at least, the two companies into whose affairs you have examined, shows a picture that is not an unreasonable one.

"A. That is right.

"Q. And that there should be no outside interference with it?

"A. That is right. It is a favourable situation in my opinion but it is one of those favourable situations which we must have in a period of years in order to keep the industry in a sound condition, to tide it over the lean years."

Having determined that the tank car prices of refined products as a whole are not unreasonably high, it remains to be decided as to whether or not the price of any particular grade of motor fuel is too high in relation to other grades.

The present tank car prices of motor fuels including sales tax, charged by Imperial Oil Limited to other distributors, are quoted F.O.B. the Calgary refinery, as follows:

	Tank car price per gallon
Ethyl gasoline	11c.
Standard grade gasoline	10c.
Third structure gasoline	9.2c.
Tractor distillate	8.2c.

It thus appears that there is a price differential between ethyl and standard gasoline of 1c.; between standard and third structure gasoline of .8c.; and between third structure gasoline and tractor gasoline of 1c.

As we have said, we are unable to determine the cost of any one product, and so we are unable to relate the above differentials in price to any determinable differential in cost. We know, however, even though we cannot determine the difference, that there is a greater cost in manufacturing standard gasoline than there is in manufacturing third structure gasoline and an even greater cost in manufacturing ethyl gasoline; this being so a price differential is clearly indicated. Even if there were no difference in cost it seems to us that the price of the low grade product which must be disposed of in any economic refinery operation must necessarily be lower than that of the higher grade product, otherwise it would be impossible to sell the lower grade fuel.

The price differentials shown above in our opinion are reasonable in view of the very considerable difference in quality between the various grades of motor fuel. This view is borne out by reference to the differentials in the tank car prices of various grades of motor fuel shown in the trade journals in the United States.

We think the following points stand out in connection with the refining operation:

1. That because of its susceptibility to evaporation and ignition, so soon as may be after the crude oil is brought to the surface, it is delivered to and processed by refineries.

2. That there are three classes of crude petroleum processed in Alberta refineries, namely, crude oil, crude naphtha and absorption naphtha.

3. That the description of refining as given by Dr. Brown shows the extraordinary complexities of that operation and that the different products produced at the refinery are not manufactured by different steps as to which there may be a cut-off to show cost of production of any one product.

4. That the constant changes in refining methods due to the steady advancement of scientific knowledge in physics, chemistry, engineering, mechanization and by-product utilization make the investment of capital in the refining industry, from the standpoint of obsolescence alone, a hazardous one.

5. That an examination into the construction, capacity and throughput of all Alberta refineries serves to show that the refinery operation of Imperial Oil Limited is the low cost operation, and it is the only one which in the year 1938 was in a position to process and supply all of the products made from Turner Valley crude.

6. That the year 1938 is taken for the purposes of our examination into refining problems because it is the one year for which we were able to have before us the complete accountancy picture.

7. That transportation costs are a barrier to foreign competition in the normal Calgary tank car market.

8. That the safeguards against unreasonably high tank car prices are competition between local refiners, and the fear of other competitors, such as large jobbers, erecting refineries and providing new and additional competition.

9. That the reality of the competition may be tested by an examination into the cost and profit performance of the low cost refinery.

10. That while it is possible to ascertain the cost of processing all products produced from a barrel of crude it is not possible to determine the cost of producing any one of these products.

11. That the Sales Realization method of "costing" joint products is valuable to the oil industry for inventory purposes but does not serve to determine the true cost of producing any one petroleum product.

12. That one test of the reasonableness or otherwise of tank car prices is to find the cost of crude oil and the cost of refining it and the prices obtained for the refined products, and thus determine the profit so as to decide whether or not this profit provides a rate of return on invested capital which is excessive.

13. That the Imperial operation was selected for examination because in 1938 its accounting record was complete for all operations, because it was the low cost operation for the processing of all products and because it had a normal proportion of volume between various products.

14. That the Imperial operation is the low cost operation largely because it has the greatest volume going through its refinery.

15. That to set the standard of excellence by the Imperial operation alone might mean the elimination of competitors which would not be in the public interest.

16. That the Imperial Oil Limited refinery during 1938 processed 69,032,397 gallons of crude oil, crude naphtha and absorption naphtha, the cost of which, laid down at the refinery, was $2,925,423.43.

    Amending this cost by the fluctuation in inventories of partly processed products, the cost of raw products processed during 1938 was $2,941,005.02.

17. That the cost of operating the refinery to process the foregoing volume of crude oil and naphtha was $874,542.12.

18. That tetra-ethyl lead, solvent oil and special naphthas, costing in all $512,316.99, were blended with the gasoline derived from the refining process.

19. That the total cost of the refined products manufactured during 1938 was $4,327,864.13.

20. That the total tank car sales value of the refined products manufactured during 1938 was $4,811,546.29 of which gasoline accounted for $3,701,726.79.

21. That the total profit on the 1938 refining operation was 483,682.16 which, after payment of income tax of $106,410.08, leaves a net income to the company of $377,272.08.

22. That the total original cost of the refinery as at December 31st, 1938, was $5,289,268.42 from which is deducted depreciation of $3,444,126.25, giving an investment value of $1,845,142.17.

23. That we find that the investment was in fact made, that it may be said to be a prudent investment and that depreciation is computed on a reasonable basis.

24. That investment in inventories and other working capital as at December 31st, 1938, being $1,130,889.84, the total capital employed in the refining operation was $2,976,032.01.

25. That the 1938 profit being $377,272.08, and the capital employed being $2,976,032.01, the return on investment was 12.68%.

26. That if the refinery had not processed the crude of the British American Oil Company Limited in 1938 (an arrangement which was of short duration and ceased early in 1939), it is estimated the return on investment would have been only 10% instead of 12.68%.

27. That had the recently completed plant of Imperial Oil Limited been operating in 1938, but without processing the British American crude, it is estimated that the profit would have been $574,000.00 which, on an estimated investment of $4,728,000, is a return of 12.15%.

28. That amending the foregoing figures to give effect to the increase in laid down cost of crude at Calgary which we recommend herein, the return on the actual operating in 1938, excluding the processing of the British American crude, becomes 8.8% instead of 10% and the estimated return on the new plant duplicating the 1938 operation without processing the British American crude, becomes 11.42% instead of 12.14%.

29. That Dr. Brown's evidence as to the Imperial Refinery operation, which we accept, leaves no room for doubt that in his opinion the tank car price is not so "out of line" and the rate of return upon invested capital is not so high as to

indicate the need for any reduction in tank car price at the present time.

30. That it is to be expected that an increased throughput will bring an increase in profits and this probably will lead to a reduction in tank car prices.

31. That the tank car price differentials between the various motor fuels are fair and reasonable.

MARKETING

As in the case of crude production, so in the case of gasoline distribution, the system had its main development during a period of rapidly expanding markets under exceptionally high prices. These influences ultimately led to an over-production of crude which in turn led to an over-refining of crude, and as the oil companies either did not have the capital, or did not wish to employ it to build service stations rapidly enough to provide relief by way of retail outlets for this over-production and over-refining there was an intense competition to get dealer outlets, some of which were in competition with the company-owned stations. But even with the dealer outlets, there was not enough outlet expansion to take care of the refined products, and so we have the introduction of the jobber who disposed of the refiner's surplus in direct competition with the dealers and the company-owned service stations. It thus appears that the evils of over-production have carried through into refining and from refining into marketing, with the result that we have an over-developed marketing system which, though efficient and convenient, constitutes a high cost mechanism.

Turning from the general to the particular, we may say that there is no doubt the Alberta distributing system is said to be uneconomic and this adverse criticism is associated with proposals for immediate action to effect economies by statutory regulation and change. We shall have occasion to return to a discussion of this subject; for the moment we are content to say that those who are alarmed at what would seem to be uneconomic marketing practices would probably be the first to deplore a lack of service and lack of convenience and to decry the freezing of competition by rigidity of control.

Marketing, in the broad sense of being all operations having to do with the distribution of petroleum products from the refiner to the consumer, is performed in many ways by different types of marketers. It is a long cry from the distribution of illuminating oil in the early days of the industry, to the present-day distribution of gasoline and other petroleum products. We have before us a trite description of the present-day marketing set up in the United States which is of interest and from which we quote as follows:

> "The physical plant engaged in the distribution of gasoline is spread over the entire country and consists of specialized transportation facilities, intermediate warehouses, and retail establishments. The last named are

either service stations devoted to the sale of this commodity and related accessories, or establishments of various sorts that handle gasoline as a side line. The technical aspects of the plant in its entirety are highly proficient; the evolution in the form of equipment has been progressive, as witness the modern tank-truck and the electrically driven, automatic, measuring and computing pump; but the visual or architectural characteristics of most retailing units reflect immaturity and leave room for improvement.

"Originating at the refinery, gasoline first moves by tanker, barge, pipe line, or railroad tank-car to terminals or bulk stations. The oil tanker is used interchangeably for either crude oil, gasoline, fuel oil, or kerosene. The railroad tank-car is a specialized form of freight car; barges are employed on rivers, harbours, and canals. The terminal is a large depot, usually at seaboard, for receiving the product unloaded from tankers. Other terminals, seldom as large as those along the coast, are located at inland points; and these are usually serviced by pipe lines. The bulk plants are wayside storage stations, comprising a few tanks, a loading rack, and often a warehouse building, located within trucking distance of the retail outlets. The number of terminals and bulk plants in the country is about 20,000, having a value of $348,000,000, or $17,400 on the average. From the bulk plant gasoline is transported by tank-trucks to service stations, other retail outlets and large commerical consumers. In 1935 the U. S. Bureau of Census reported 197,568 service stations in the country. It has also been estimated that there are in addition some 200,000 business places that carry gasoline and oil as a side line. The net book value of company-owned service stations was reported in 1934 at $378,000,000, or an average of $15,448 per station.

"A simplified flow-sheet of gasoline from refinery to consumer shows four channels of distribution: the company-owned service station, the dealer who operates his own service station or retail outlet, the large consumer such as trucking or bus companies, and the jobber. Of the total domestic consumption of gasoline, the distribution formerly took place approximately as follows: company-owned service stations, 20 per cent; retail dealers, 40 per cent; large consumers, 15 per cent; and jobbers, 25 per cent. But the recent practice of integrated companies in leasing their stations to operators has reduced the proportion flowing through company chains and raised the dealers' percentage to over 50 per cent. It is thus seen that the dealer, who is in the nature of a commission agent selling the branded product of the supplying company, is the dominant element in the marketing business. The jobber is a middleman, buying the product directly from the refiner and then distributing it through his own bulk stations to chains of service stations, dealers, or large consumers, thus more or less duplicating the channels employed by the refiner in his own distribution.

"Practically all refining companies sell to jobbers their surplus above the requirements of their own service stations, dealers and large-consumer outlets. Under the classification of jobbers may also be included the so-called trackside stations, which are usually cut-price stations located at the juncture of a convenient street and a railroad siding and equipped

with bulk storage for receiving tank-car deliveries; and the oil co-operatives which buy in bulk and resell through their own retail outlets to members who receive, in effect, a discount below the prevailing retail market, usually in the form of a 'dividend'."

In Alberta we are not concerned with all of the distribution methods above described but as will appear from what follows, in marketing as in all other phases of the petroleum industry, our methods in the main are patterned upon those of the United States.

WHOLESALE MARKETING

In wholesale marketing in Alberta, we find that for the size of the market, there are a large number of marketers, but that some few companies share a large part of the total volume of business. The table next set out which is a list of taxable sales of fuel oil in Alberta by the important distributors in 1938 and 1939 shows who the marketers are and gives some idea of the place they hold in the marketing field:

SALES OF TAXABLE FUEL OIL

	1938		1939	
	Gallons	% of Total	Gallons	% of Total
Imperial Oil Ltd	24,540,921	31.08	26,336,442	30.92
British American Oil Co. Ltd	13,839,726	17.53	13,494,952	15.84
Texas Co. of Canada Limited	5,211,753	6.60	6,368,517	7.48
North Star Oil Ltd	5,057,960	6.41	5,039,289	5.92
Great West Distributors Ltd	4,745,815	6.01	5,220,955	6.13
Maple Leaf Petroleum Limited	3,660,774	4.64	4,433,378	5.20
Artic Oil Company & Artic Oil Sales Co. Limited	2,333,170	2.95	3,103,209	3.64
Canadian Oil Companies Limited	2,296,549	2.91	2,904,597	3.41
Union Oil Co. of Canada Limited	2,243,594	2.84	2,306,042	2.71
Gas & Oil Products Ltd	2,242,289	2.84	3,316,770	3.89
Becker Oil Co. Ltd. & Becker Refineries Ltd	2,192,355	2.78	1,647,519	1.93
Lion Oils Ltd	1,663,533	2.11	1,778,603	2.09
Bell Refining Co. Ltd. & Bell Distributors Ltd	1,366,829	1.73	1,481,713	1.74
Oughton Brothers	970,359	1.23	1,058,007	1.24
Alberta Hi-Way Refineries Ltd	548,174	.69	516,128	.61
H. M. Trimble & Sons	458,998	.58	700,489	.82
McColl-Frontenac Oil Co. Ltd	454,483	.58	464,782	.54
All other companies	5,124,948	6.49	5,017,286	5.89
Total	78,952,230	100.00	85,188,678	100.00

These companies did not all distribute petroleum products in the same manner. However, in 1938, Imperial Oil Limited, British American Oil Limited, North Star Oil Limited and Canadian Oil Companies Limited followed the same general scheme of operations and as these four companies distributed in that year, a total volume of 45,735,156 gallons of fuel oil (practically all motor fuel) or 58% of the total volume, the marketing methods adopted by them may be said to be the wholesale marketing methods which are typical for this province.

The operation by the companies named follows the general scheme of having numerous bulk stations operated on a commission basis to which products are shipped by rail or truck or both and from which deliveries are made by the commission agent over relatively short distances by truck to service stations, dealers and farmers. This type of operation requires a large number of these bulk stations to cover the market requirement as it is not economical for the commission agents to deliver to farmers beyond a radius of twenty miles.

The populous cities such as Calgary and Edmonton are served by larger bulk stations operated on a salary basis which deliver products to city service stations and dealers by tank wagon or truck. These stations also operate as warehouses in which car lot shipments of lubricating oils, greases, tires, batteries and other products handled by such marketers are broken down into smaller lots for distribution to the numerous commission stations throughout the province.

In the cities the marketing companies in most cases own the service station premises and lease them to operators. In the country most of the service stations are owned by the operators. In both cases aside from a negligible number of exceptions the operators make out-right purchases of their petroleum supplies and resell to the public on their own account.

In 1939 the British American Oil Company Limited changed its marketing methods so much that it cannot now be put in the same category as the other three companies. The marketing methods of this company were changed so as to eliminate a large number of commission bulk stations, replacing them with a much lesser number of salary operated distribution centres. These distribution centres are so equipped that they may be supplied either by rail or by tank truck, and the company has in operation a number of large trucks for this purpose. Other salary operated trucks are used for the distribution of the products from these distribution centres to all of the dealers and service stations supplied by the company within the areas assigned to the respective distribution centres and the farmer customers contiguous to the distribution stations are supplied by the same trucks. At strategic points selected dealers in turn operate as agents for the purpose of delivery to the farm trade.

We have listened with great interest to Mr. A. H. Miller of the British American Oil Company in discussing the new marketing plan of that company. It may be that it will effect marketing

savings. The plan is new in Alberta and time alone will tell as to whether or not those who serve this company throughout the province will be content with the new arrangement; as to whether or not distribution costs will be increased; and as to whether or not in general it will be as satisfactory as the present operation of Imperial Oil Limited. If we were in a position to say that the British American plan had been proven as a feasible and a money-saving one, we would, of course, be interested, because it would then appear that all other marketers must inevitably adopt it and the marketing picture for the future would be a different one. We do not feel we can say that the experience of the company concerned has been long enough to justify our accepting it as the standard of excellence of a marketing scheme and so we think that we must for the present take the operation of the other three companies first mentioned as the typical Alberta operation upon which to rest our calculations.

This view is, we think, in no wise disturbed by the operation of the remaining marketers whose operation we now briefly review.

Of the remaining companies, Texas Company, Great West Distributors, Maple Leaf, Union and McColl-Frontenac more or less follow the general pattern of the first four companies mentioned but differ in some material respects. For instance the Texas Company does not attempt to cover the whole marketing area and operates only 17 bulk stations in the province. These Texas stations are operated on a commission basis and appear to cover a somewhat wider territory than the individual stations of say Imperial Oil Limited. This company does not have a relatively large farmer business and specializes in service stations, catering to the motorist. The same remarks apply to Union Oil Company of Canada Limited, except that the latter company has even a smaller coverage than the Texas Company.

Great West Distributors Limited and Maple Leaf Petroleum Limited on the other hand cater largely to the farmer trade and a large number of their bulk stations operate also as service stations and are supplied more generally by truck and in many cases are so located that they cannot be supplied by rail. Neither of these companies own many service stations apart from those which operate as combination bulk and service stations.

McColl-Frontenac, on the other hand, specializes in the sale of its brands of lubricating oils and greases and by comparison with other companies its proportion of sales of motor fuels is relatively unimportant. It operates only two bulk stations in Alberta, one

in Calgary, the other in Edmonton, and only a few service stations in each of these cities.

The operations of McColl-Frontenac have recently been merged with those of the Texas Company of Canada Limited by reason of the acquisition of the Canadian assets of the Texas Company of Canada Limited by McColl-Frontenac Oil Co., Ltd. We understand that the parent company of Texas Company of Canada, Ltd., the Texas Corporation, has acquired a controlling interest in McColl-Frontenac which no doubt accounts for the merger of the operations of the two Canadian subsidiaries.

Each of the other companies operates according to a method or methods best suited to its requirements. Those who are also refiners, namely, Gas and Oil Products, Lion, and Becker, operate a limited number of filling stations and sell a relatively large proportion of their products to other marketers and to what are known as trucker or farmer dealers. In most cases these operations do not conform to any single pattern and there are almost as many methods employed as there are distributors.

Gas and Oil Products Limited have now completed the addition of a cracking unit which enlarges considerably the capacity of its refinery and makes it possible to supply the higher grades of motor fuels which it formerly was obliged to purchase from other companies. This refinery expansion into what we understand to be an entirely modern plant, may result in some change in the requirements and in the marketing methods of this company.

The same applies to the Lion Refinery, if, as the owner tells us is now planned, a new cracking unit is added thereto.

For reasons which will shortly hereafter be set forth, we have accepted the operation of Imperial Oil Limited as being the one upon which we found our conclusions as to the profit position in relation to investment in respect of marketing in Alberta. This being so, we perhaps should deal with the operation of this company in greater detail, but insomuch as a splendid review of his company's marketing operations has been made by Mr. Halverson, a director of Imperial Oil Limited, in charge of marketing in Western Canada, not only in his evidence but in the Exhibits Nos. 314 to 317 inclusive which he filed, we feel that we are not under the necessity of so doing, there being such a ready reference available. We were greatly impressed by Mr. Halverson's evidence, and we may add that we were impressed by his very evident desire to assist us to get all information concerning the industry and concerning his company in particular,

which could possibly be of assistance to us in coming to a conclusion. While the same may be said of the representatives of all companies that appeared before us, we feel that Mr. Halverson was a moving spirit in bringing about the placing of the industry's cards upon the table for our examination. If we have failed to grasp the complexities of marketing in Alberta, it will not be because of a lack of explanation of them.

We are directed to inquire into and report on the cost of marketing gasoline and other petroleum products. Now if this were possible by reference to the books of account of the marketers, our task in that respect would be a simple one, but the fact is that the cost of marketing any one product is not ascertainable, not because the marketers have not kept books, but because the marketing of gasoline and other motor fuels is done in conjunction with the distribution of lubricating oils, greases and usually many other products such as tires, batteries, pumps, candles, wax, anti-freeze, etc., and at no place in the operation is it possible to segregate the handling of one product from another.

For example, the Calgary warehouse of Imperial Oil Limited operates as a distribution centre for the supply, not only of gasoline, but all of the many products handled by this company, to supply the service stations and dealers in the City of Calgary. The goods other than motor fuels are all stored and handled in the same warehouse and when gasoline is delivered by tank truck to dealers and service stations, lubricating oils and other merchandise are carried on the same vehicle. It is thus impossible to determine how much of the Calgary warehouse expense is properly applicable to gasoline as distinct from lubricating oils or tires. Moreover, the Calgary warehouse operates as a distribution centre for the breakdown of car-load shipments of lubricating oils, greases and other materials and a redistribution of these products in smaller quantities to the various commission bulk stations throughout the southern half of the province. Here again it is impossible to determine how much of the Calgary warehouse expense is properly applicable to the goods distributed within the city and the goods, other than gasoline, shipped to the various commission stations.

Following the movement to the commission stations, the agents receive a specific commission for the sale of the separate products handled by them. It is, therefore, possible to determine the commission expense on gasoline as distinct from the commission expense on the other products. It may well be argued, however, that although the commission is computed as a definite amount in

relation to each separate product, in reality this is merely a means of computing the agent's total remuneration on the basis of the volume of business handled, and that it is therefore improper to say that that portion of the commission paid, computed on the gasoline volume, represented only the cost of handling gasoline or, on the other hand, that the commission paid computed on the lubricating oil volume, had nothing to do with the cost of any other product. But be that as it may, on what basis is it possible to allocate the taxes, depreciation and repairs on the bulk station properties among gasoline, lubricating oil and tires? Then again, only a part of the total marketing expense has to do with the operation either of the main warehouse or the bulk stations and even if one could properly allocate these costs to the separate products, the answer would not be obtained because much of the marketing expense comprises such items as accounting, administration, advertising, salesmen, service station supervision and the expense of service stations apart from the expense of the service station operators. Obviously any attempt to apportion these considerable items of expense to the separate products marketed would be purely arbitrary. We quote from the evidence of Mr. Cottle as follows:

> "Now, there is no accurate method of apportioning the cost of marketing over the product marketed. We know how much it costs to do the entire marketing job of all products that are marketed, but there is no exact method of finding out how much any one of those products costs to market. The Imperial employed a method of apportionment of marketing expenses, which is merely an apportionment on the basis of the value of the products sold. I do not say the method is wrong. I do not think any method is right."
>
> . . . . . .
>
> "But no conclusions can be made which are very definite, for the reason that we simply do not know how much it costs to market any one of the products. That is quite understandable when the company markets miscellaneous merchandise, pumps and greases and lubricating oils and tires, all in conjunction with the marketing of gasoline and other motor fuels. There is no segregation at any one place of any one product. The warehouses all carry all the products and even tank wagons, when they are delivering gasoline carry lubricating oils and greases, and as I say, it is impossible to come to any definite conclusion on the basis of this distribution."

Clearly then it is quite impossible, except by a method which is so arbitrary as to be useless for our purposes, to determine the cost of marketing any single product. The cost of marketing all products by a wholesale marketer may, of course, be ascertained but this does not answer the question put to us. However, it is to be assumed that the question has been propounded to some purpose and that it was

intended that cost, when ascertained, should be related to price, with a view to determining as to whether or not the marketer was making an undue profit on sale to the retailer, and so unduly enhancing the price to the consumer. With this in view we examine the marketing profit performance in relation to the invested capital, because if the investment be prudent investment and the marketing operation be efficiently and economically performed, with a resulting profit that does not provide an unreasonable return on the investment having regard to the nature of the business, then we have a strong indication that the marketers have not unduly influenced the price to the retailer in an upward direction and through the retailer to the consumer.

Now if we are to examine the marketing profit performance and in that connection, to consider the reasonableness of the investment and the soundness of the operation so as to determine whether or not the profit is a reasonable or an unreasonable one, it is evident that we must examine into the position of all marketers or select one who is carrying on a typical operation. We have said "typical"; it might be more accurate, in view of the different kinds of marketing operations carried on in this province, to say "conventional". As to this Dr. Frey says:

> " . . . the Imperial operation is quite conventional; it represents the pattern of doing things; that pattern is not followed by all marketers. Those who use short cuts of one type or another are sometimes called 'price cutters' but I prefer to call them by a more polite name 'differential marketers'."

We have selected the Imperial operation, not only because it is the conventional operation but because for the reasons given in evidence by the accountant to the Commission next quoted, we cannot well do otherwise.

Mr. Cottle says:

> "As Dr. Frey has indicated, I propose to present a concise summary of the financial performance of the marketing phase of the Industry in relation to prices.
>
> "A summary of this kind would seem to require a consolidation of all of the financial statements of all of the people engaged in the marketing phase of the Industry. This I have found to be impossible, however, firstly, because of the lack of uniformity in the classification of accounts of the various companies involved even if there were a uniform classification of accounts, however, the operations themselves of the various companies are so dissimilar that no classification, no single classification, of account would reflect the performance of each of the marketers; for instance, I do not know how one could consolidate the operations of say Trimble who markets gasoline from Montana and delivers directly from

the importing truck to customers, with the operations of say Becker who operates salaried service stations. Moreover the accounts are not available in great detail from some of these companies. The North Star, for instance, is a rather large marketer and that company does not attempt to segregate the accounting for its operations in Alberta as distinct from its entire operations in the three prairie provinces and no consolidation would be complete without the figures for that company. Moreover, I think the result of such a consolidation would be misleading.

"Again, what benefit would be derived from adding the performance of Trimble to that of Becker when their operations are so dissimilar; not only that, we have operators, we have marketers at least, who do not carry the distribution process to its normal conclusion. We have deliveries to farmer dealers for instance at refinery depots; the trucker-dealer completes the operation and the complete picture of the operation cannot be had in respect of those distributors without having the figures and the financial statements from the trucker-dealers and those we do not have.

"I have chosen, therefore, the method of selecting a representative and typical marketer and examining that marketer's performance in some detail and then relating that performance to the performance of the other marketers. Now in choosing a marketer who is typical it is necessary to select one who serves a wide area; a marketer who serves only a selected area, for instance the marketer Mr. Trimble, is not typical. It is also necessary to select a marketer who has a normal proportion of volume of various products. We have at least one marketer who has a large proportion of lubricating oil business and that marketer for that reason is not typical. It seems also essential that the typical marketer have a sufficiently large volume to have a normal operation.

"Now there are several marketers who fit this classification. The North Star, for instance, is one. We have not sufficient detail of the operations of the North Star in the Province of Alberta to use that company as a typical marketer. The B. A. is a typical marketer but unfortunately the British American was in a state of flux in connection with its supply during the year 1938 and therefore a complete picture from refining to ultimate distribution is not available for the British American.

"This leaves the Imperial Oil as the only marketer in respect to which we have sufficient information to make a detailed analysis. Imperial has the largest gallonage, serves in the widest area and has, I believe, the most typical performance and I say 'typical' in relation to the industry as a whole. Therefore, I have chosen the Imperial as the example of marketing as a whole and will deal with that company in some detail and draw such comparisons as I find advisable with the operations of the other marketers.

THE CHAIRMAN: Q. You have given reasons for excluding the North Star and the British American, what about the other two refineries, the two local refineries?

"A. I am speaking now, sir, of marketing, and the marketing departments of Gas and Oil Products and Lion Oils are not typical for two

reasons: one is that they do not serve a wide area, at least a sufficiently wide area to be typical of the province as a whole, and secondly, they do not always carry the operation to its normal, notice I did not say proper, I say 'normal' conclusion. Both of those companies deliver to trucker-dealers and much of the ultimate distribution is done by people of that kind, whereas the normal operation is to deliver to customers, either to farmers or to dealers."

As we have said we think that the reasons given by the accountant to the Commission are not only sufficient to justify the selection of the Imperial operation for the purpose of determining profit performance, but that there is no sensible alternative to so doing.

As in the case of refining, our examination will be confined to the year 1938, as no statements were available for the year 1939 during the sittings of this Commission.

As we explained in our discussion of refining operations, Imperial Oil Limited does not attempt, in its records, to segregate the marketing department from its other operations. Accordingly we were obliged to resort to some reasonable basis of segregation. We have explained that, in the refining operations, we determined the profit performance on the basis of the refinery selling all of its refinery production at the same prices as that part of the production sold to jobbers. As all of the products not sold to jobbers are eventually sold by the marketing department, that procedure amounts to the refinery charging the marketing department the same prices as it does jobbers.

Now that method, as we have said, is arbitrary even though we deem it reasonable. The method cannot, however, lead to any serious error in the over-all operation so long as we now charge the marketing department with the same prices we used for determining the refinery performance. To the extent that we may overcharge one department, and thus decrease its profits, we necessarily over-credit the other and thus increase its profits, so that the combined profit would be the same in any case.

The chief merit in using the prices charged to jobbers for this isolation of marketing performance of Imperial, is that it reflects what that performance would have been had Imperial been obliged to buy its products on the same basis as the jobbers.

The prices used in the refining analysis and which we now use as a refinery door purchase price for the marketing department, were as follows:

Gasoline	8.6600c.	per gallon
Refined oil (kerosene)	11.2900c.	" "
Tractor distillate	6.7100c.	" "
Light fuel oil	4.5500c.	" "
Bunker fuel oil	2.7720c.	" "
Asphalt	8.4300c.	" "
Coke	2.3900c.	" "

To these prices must be added sales tax and in the case of package goods, the cost of the packages.

Not all of the above products marketed in Alberta were produced at the Calgary refinery. For instance, aviation fuel is usually shipped from the Ioco, B.C., refinery and some products come from Regina. Lubricating oils and greases and other specialties are supplied from Ioco and Sarnia, and tires, batteries and some brands of lubricating oils and greases were purchased from other companies. The purchase cost of these products or, in the case of goods supplied from other refineries, the estimated refinery cost, must be added to the cost of goods supplied from Calgary, computed on the above basis.

On this basis, the refinery door cost, including sales tax and packages of all the products sold by the marketing department of Imperial Oil Limited in Alberta during 1938, as was follows:

REFINERY DOOR COST

	Gallons	Per Gal.	Amount
Gasoline	21,351,160	9.59c.	$2,047,214.31
Refined oil (kerosene)	1,122,449	12.46c.	139,635.57
Tractor distillate	1,225,408	7.39c.	90,536.08
Crude naphtha	1,503,011	6.81c.	102,340.23
Light fuel oil	1,309,627	4.86c.	63,689.03
Bunker fuel oil	8,977,234	3.08c.	276,418.20
Asphalt	2,488,700	9.32c.	231,995.10
Coke	90,941	2.39c.	2,173.49
Marvelube oils	632,398	40.30c.	254,858.79
Other lubricating oils	377,791	20.52c.	77,509.03
Grease	120,688	60.25c.	72,715.32
Wax	24,999	44.36c.	11,088.83
Candles	5,086	74.54c.	3,791.25
Vacuum oils	167,495	44.54c.	74,603.10
Miscellaneous merchandise			214,204.04
			$3,662,972.37

The above cost figures include sales tax in the amount of $248,537.89 and packages, largely in connection with lubricating oils and greases, in the amount of $98,598.10.

The above products were sold largely to dealers, service stations and farmers throughout the province at delivered prices which amounted, in the aggregate, to $6,413,520.81.

The most substantial item of marketing expense is freight from the refineries to the various bulk stations throughout the province, this item amounting to $1,230,032.00 for the year 1938 in the case of Imperial. The price structure in Alberta is such, however, that the tank wagon price of motor fuel at any point north of Lethbridge is approximately the Calgary tank wagon price plus tank car freight from Calgary. Consequently the large part of the freight expense of $1,230,032.00 was recovered by the differential in prices over those posted at Calgary. For this reason it seems logical to deduct the freight expense of $1,230,032.00 from the gross sales figure of $6,413,520.81 rather than to consider freight as an element of marketing expense. On this basis, we find the sales amounted to $5,183,488.81 after deducting freight, the amounts for each product being as follows:

TOTAL SALES VALUE, LESS FREIGHT

	Gallons Sold	Per Gallon	Amount
Gasoline	21,351,160	14.71c.	$3,140,480.11
Refined oil (kerosene)	1,122,449	16.60c.	186,335.01
Tractor distillate	1,225,408	11.39c.	139,618.27
Crude naphtha	1,503,011	7.99c.	120,049.64
Light fuel oil	1,309,627	6.16c.	80,704.01
Bunker fuel oil	8,977,234	3.23c.	289,719.73
Asphalt	2,488,700	9.95c.	247,664.89
Coke	90,941	2.59c.	2,354.56
Marvelube oils	632,398	56.68c.	358,457.49
Other lubricating oils	377,791	32.17c.	121,534.19
Grease	120,688	70.71c.	85,339.13
Wax	24,999	55.85c.	13,961.87
Candles	5,086	102.72c.	5,224.60
Vacuum oils	167,495	75.91c.	127,156.32
Miscellaneous merchandise			264,888.99
			$5,183,488.81

Deducting the refinery door cost from the above sales values, less freight, we find the total gross profit or spread on each of the products sold to be as follows:

GROSS MARKETING PROFIT OR SPREAD

	Per gallon	Amount
Gasoline	5.12c.	$1,093,265.80
Refined oil (kerosene)	4.14c.	46,499.44
Tractor distillate	4.00c.	49,082.19
Crude naphtha	1.18c.	17,709.41
Light fuel oil	1.30c.	17,014.98
Bunker fuel oil	.15c.	13,301.53
Asphalt	.63c.	15,669.79
Coke	.20c.	181.07
Marvelube oils	16.38c.	103,598.70
Other lubricating oils	11.65c.	44,025.16
Grease	10.46c.	12,623.81
Wax	11.49c.	2,873.04
Candles	28.18c.	1,433.35
Vacuum oils	31.37c.	52,553.22
Miscellaneous merchandise		50,684.95
		$1,520,516.44

It is interesting to note from the above tabulation that, whereas gasoline is by far the most important product marketed, the other products contribute in no small measure to the total revenue of the marketer.

The total cost of the marketing operations of this company, exclusive of freight which we have deducted from sales, amounted in 1938 to $1,021,694.80. These expenditures are briefly classified as follows:

Main warehouses:		
Salaries and wages	$39,988.01	
Other expenses	75,115.22	
		$115,103.23
Bulk stations:		
Commissions	$335,884.41	
Other expenses	100,316.35	
		436,200.76
Barrels		23,370.71
Service station and dealer expense		71,780.71
Salesmen		90,160.05
Advertising and identification signs		48,747.61
Office expense and general administration:		
Salaries	$105,860.35	
Other expenses	43,914.72	
Head office administration	86,556.66	
		236,331.73
		$1,021,694.80

Deducting the marketing expense of $1,021,694.80 from the gross profit or spread of $1,520,516.44 we arrive at a profit on the marketing operations of $498,821.64. From the latter figure must be deducted income tax of $109,740.75 leaving a net profit to the company of $389,080.89 on the 1938 operations.

Summarizing the foregoing, the marketing profit performance may be stated as follows:

Proceeds from sales of all products	$6,413,520.81
Deduct:	
Cost of products at refinery door or other source of supply	$3,315,836.38
Sales tax	248,537.89
Packages	98,598.10
Freight from source of supply to bulk stations	1,230,032.00
Marketing and delivery expense	1,021,694.80
Income tax	109,740.75
	$6,024,439.92
Balance, being net profit	$389,080.89

The total original investment in buildings and equipment employed in the marketing operations of Imperial Oil Limited during 1938 amounted to $4,433,498.32, classified as follows:

	Original Cost
Main warehouses and bulk stations	$1,950,388.23
Service stations	1,357,705.74
Steel barrels	884,287.02
Motor equipment	41,658.61
Loaned vendor equipment	15,913.46
Agents loaned vehicle tanks	42,007.07
Dealer identification signs	63,439.49
Office furniture	61,261.92
Other assets	16,836.78
	$4,433,498.32

The above assets must be depreciated, however, to ascertain a proper valuation of investment as at December 31st, 1938. Depreciation was computed on the same basis as described at length in our discussion of refining. That is accumulated depreciation was computed at the same rates as those used in arriving at depreciation expense in the year 1938, those rates being 70% of those permitted by the Dominion Income Tax authorities.

The total depreciation so computed amounted to $2,243,062.66, leaving the depreciated value of the investment in land, buildings

and equipment at $2,190,435.66 as at December 31st, 1938, the latter investment value being classified as follows:

	Depreciated value Dec. 31, 1938
Main warehouses and bulk stations	$916,369.93
Service stations	1,192,785.59
Steel barrels	19.104.06
Motor equipment	20,915.53
Loaned vendor equipment	12,538.41
Agents loaned vehicle tanks	.....
Dealer identification signs	12,916.44
Office furniture	5,375.81
Other assets	10,429.89
	$2,190,435.66

In addition to the above investment, the company employed the sum of $1,491,199.27 as working capital represented by the following items:

Cash.	$20,416.53
Accounts receivable less accounts payable. .	493,209.23
Inventories	968,251.30
Miscellaneous	9,322.21
	$1,491,199.27

The total capital employed in the marketing operations as at December 31st, 1938, amounted, therefore, to the sum of $3,681,634.93. The net profit on the marketing operations during 1938 amounting to $389,080.89, the return on investment provided by the prices then in effect was 10.57%.

During 1939, however, the average tank wagon prices of motor fuels were reduced by .58c. per gallon, representing a saving to Imperial Oil customers of $128,836.58, exclusive of freight reductions, and a reduction in 1938 earnings, had the present prices then been in effect, of $110,359.53. If then the present prices had been in effect throughout 1938, the earnings would have been only $278,721.36, representing a return on the above investment of 7.56% instead of 10.57%.

Having come to the conclusion that the return on invested capital is 7.56% as in the year 1938 at to-day's prices, we have to consider as to whether or not that return may be said to be an unreasonable one, having regard to the type of business in which the investment is made. We have not the slightest hesitancy in saying, with due

regard to all evidence before us, that on the face of it this rate of return is not an unreasonable one.

It is to be borne in mind, however, that if part of the money that was said to be invested in the marketing branch had not in fact been invested, then the true rate of return would of course be higher. Then again, a return seemingly low, may be too high if it is a return upon imprudent investment in that there has been employed a wholly unnecessary amount of capital for the kind of business that is being carried on. Furthermore a rate of return seemingly low may in reality be too high, because it may not rest upon operating costs that are excessive by reason of improvidence or inefficiency or both.

In directing our minds to these considerations we shall not be at pains to make fine distinctions between imprudent investment and inefficient operation, as the two are intermixed in the discussions before us which have a bearing upon these matters. For example, if a company has more service stations at a given point than it is economically sound to have, then there is both undue operating cost and imprudent investment.

With regard to capital invested, there is no room for doubt that the investment stated was actually made and we have no thought but that the depreciation which the accountant to the Commission has accepted may be safely accepted by us.

We turn now to the subjects prudent investment and marketing efficiency. If the efficiency of the Imperial operation could be determined by a comparison of that company's operating costs with the operating costs of competitors, no difficulty would arise because with the assistance of the accountant to the Commission, we have made a sufficiently detailed examination of the cost performance of competitors to satisfy us that the Imperial operation gives the lowest cost performance. But we do not think that such a comparison serves to settle the question; all competitors might have absurdly high operating costs and then again one company's costs might be out of all reason even though it were the only marketer in the field; in fact there would be a greater likelihood of improvidence if that were the case. We have come to the conclusion that our best method of approach to an examination into these subjects, in respect of the company whose rate of return is under consideration, is to discuss them under heads suggested by those portions of the evidence which relate to possible reductions in marketing investment and marketing costs.

Undue Expansion

It may be that if Imperial Oil Limited had not extended its marketing operations and facilities to sparsely settled areas its investment might be less, its operating cost less, and its immediate profit greater, but it is to be borne in mind that as Dr. Frey has pointed out, "there has been a pronounced tendency to extend the territorial operation of companies more and more broadly." This may be partly due to demand and partly due to the desire of the marketer to maintain his gallonage position against competitors. It may also be due to confidence in the future of the country and to a laudable ambition to give a present service for all petroleum products in all parts of the country served; a service that will take care of the peak demand in sparsely settled as well as in populous areas. Every marketer must take into account the size of the area in which the marketing is taking place, the transportation facilities, the railway situation, the distance factors, the state of highway development, the density of population, the relationship of city to country population, the climate, the nature of the land and diversity of agriculture, and then form a judgment as to what his marketing operations will be. It would be unfair to compare an operation such as that of Imperial Oil Limited with the operation of companies which cater only to selected areas; each marketer has formed a judgment as to method, type and extent of distribution and, unless there be a demonstrable lack of prudence in the investment made by Imperial Oil Limited in the large operation which it has undertaken in furtherance of its judgment, it seems to us that it cannot be said that the investment is not a prudent one. As before stated the motivating force behind the Imperial expansion may be to be the first in the field and to maintain gallonage position against all competitors; it may be that it is also concerned with public service; in any event we cannot say that their judgment as to expansion is faulty and so that their operating expense in pursuance of it is unreasonable; nor can we point to their investment in premises or facilities for wide distribution, and say that it is imprudent. We think it fortunate that the judgment of marketers in this province is in consonance with the giving of adequate service to our all-important farming districts, even though they be remote from large centres of population.

Duplication of Bulk Stations

We use the words "bulk stations" in the sense of being wholesale distribution stations from which deliveries are made to farmers, service stations and dealers. We give the same meaning to the

descriptive words "commission stations", "bulk agencies" and "commission agencies", as we do to "bulk stations", wherever they may appear in the course of this discussion. We make this explanation because in the course of the evidence and perhaps in this report, these terms are used synonymously, and because we wish to make it clear that no one of them is to be confused with the well-known retail service stations.

If there be any one thing more than another in respect of which the marketing branch of the petroleum industry is criticized by the general public, it is with regard to duplication of bulk stations and retail service stations. These bulk stations stand out for all to see, all over the country, with apparent disregard for capital investment, operating cost and the demand for petroleum products from the districts to be served therefrom. In the cities and towns, retail outlets seem to occupy all corners of all important intersections outside of the main business districts. We are inclined to think that the average consumer of gasoline has a strong feeling that he is paying too much for this product because of improvident practices in the industry, but has had not that familiarity with the activities of the different branches of the industry which permits of his putting his finger upon the trouble or of his suggesting the remedy, excepting always with regard to bulk stations and service stations, as to which he feels that he is on sure ground in condemning what seems to him somewhat insane competition for gallonage which results in his being called upon to pay a higher price for petroleum products than he would otherwise be required to do. We have every reason to believe that it is anticipated by most consumers that we will make recommendations which, if given effect to, will serve to eliminate this seeming surplus of bulk and retail service stations. Since we have come to the conclusion that we should not make any such recommendation, it probably behooves us to clearly state our reasons for taking this attitude.

Dealing first with the duplication of bulk commission stations, we find the total expense of Imperial Oil Limited operating all of their 279 commission stations during the year 1938, was as follows:

Commissions	$335,884.41
Taxes and licenses	21,713.28
Depreciation	48,581.76
All other expenses	22,875.31
	$429,054.76

As will be observed from the above, the greater part of the cost of operating these bulk commission stations is the commission paid

to the agents, amounting to $335,884.41, of which $274,453.65 was commission on white products, the balance on lubricating oil, grease and other products. The commission rate paid on white products was 1c. per gallon for deliveries to dealers located in agency towns and 2c. per gallon for delivery to farmers. The same rates of commission apply regardless of the volume of sales at any point.

Now with regard to commission expense, duplication of bulk stations cannot be said to increase the cost of marketing, unless it is to be assumed that increased gallonage at individual commission stations, arising from the elimination of duplication, would justify a lowering of the rates of commission. If this assumption were reasonable, it would seem reasonable to expect that the commission rates at large stations would be lower than the rates at small stations and vice versa, the commission at small stations higher than at large stations. However, the fact is that the commission rates at the large stations are the same as the commissions paid at low volume stations. It would thus appear that it makes no difference to the marketing companies, as far as commissions are concerned, whether there are or are not too many commission stations.

It seems to us that this situation can be understood only by an appreciation of the fact that a commission agent, who does not enjoy a sufficient volume of business to occupy his full time, conducts his oil business only as a part time occupation in conjunction with some other line of endeavour. The commission agent must of necessity operate a truck with which to make deliveries, but if his volume of oil business is not sufficient to make the operation of the truck profitable, he hauls gravel, grain, merchandise, implements, live stock and the like. For these reasons it appears that a uniform rate of commission may be paid regardless of volume and that commissions would not be appreciably reduced by the elimination of some of the competitors in the field. It follows from what we have said, that so far as commissions are concerned, duplication does not contribute to any appreciable extent to the cost of marketing petroleum products.

With regard to expense other than commissions, it appears that the bulk station expenses, over and above commissions, in the Imperial operation totals $93,170.35, for the year 1938, which is an average cost of .46c. per gallon of all products handled at their bulk stations. Assuming that the elimination of duplication would reduce the per gallon cost of operating these bulk stations, apart from commissions, the total cost being only .46c. per gallon, it is obvious that only a very slight saving could be anticipated and as against this,

there is the danger of supplies being inadequate to meet demand in the rush seasons when farming activity is greatest.

Dealing with the feasibility of the elimination of duplication of bulk facilities, the only method by which this could be accomplished, would be for various companies voluntarily or under compulsion to cease to operate at various agency points and give up all of their business at those points. Now it does not appear to be economical for, say, Imperial Oil Limited to close its agency at one point and attempt to serve the same area from another point, as the saving effected by closing one agency would be offset by the increased cost of serving the same area from a more distant point. A possible solution would be to give various companies exclusive franchises in various marketing areas. Such a scheme, in our opinion, should not be put into effect; it would not only eliminate competition, but it would not, in our view, assure any material reduction in marketing expense.

We quote several relevant passages from Mr. Halverson's evidence:

> "At smaller points such as Burdett, salary operation is entirely out of line with our present commission costs. That is because our agents at these smaller points are mostly part-time men supplementing their commission earnings from other sources."
>
> . . . . . .
>
> "Besides he would be deprived of the supplementary earnings that he is at present making by doing outside work with his trucking equipment and is thus able to carry on with a much lower commission than he otherwise could.
>
> "The prevailing rates of commission paid in Montana, according to our information, are as follows:
>
> "White Products:
>
> "Up to 5 miles—1c. per Wine Gal.—or 1.2c. per Imp. Gal.
>
> "Over 5 miles—1¾c. per Wine Gal.—or 2.10c. per Imp. Gal.
>
> "These commission rates apply on deliveries to both dealers and farmers. You will therefore note from the above figures that the prevailing commission rates in Montana are somewhat higher than those prevailing in Alberta."
>
> . . . . . .
>
> "Therefore, if we were to close one-third of all our commission agencies in Alberta, theoretical savings in depreciation, taxes and all other direct operating expense—exclusive of commissions—would be approximately $30,000 per annum. This saving would be far more than offset by very substantial increased transportation costs as we will deal with later."
>
> . . . . . .

"Exclusive of main plants, we operated 267 bulk agencies as of Dec. 31, 1938. Our information is that at 129 of these agencies we have no competitor with above-ground storage; at 79 points we have only one competitor with above-ground storage; at 32 points we have 2 competitors with above-ground storage. In other words, we operate only 27 commission agencies in Alberta where we have more than 2 competitors with above-ground storage. We have not taken into consideration competitive agencies with underground storage as in most cases they are in reality, dealers with inadequate tankage to meet harvest requirements if located any distance from the Calgary refinery. Undoubtedly the impression that there is over-duplication of bulk distribution facilities is caused by wrongly assuming that the situation that exists at central distributing points such as Lethbridge, Camrose, Red Deer, etc., prevails at all other towns throughout Alberta, which, of course, is not the case as the above figures reveal.

"We have made a detailed study of what savings could be effected by closing our smaller agencies. With the exception of those located within convenient trucking radius of the Calgary refinery, our study indicates that savings would be offset by increased transportation costs. If we close such agencies we would then have to supply their requirements by truck from the nearest agency where the product in question was carried in bulk. The average cost for so doing would be ½c. per gallon inter-station commission plus 1c. cartage, or a total added transportation cost of 1½c. per gallon. We will cite a few examples to illustrate: Our total sales of White Products at Therien amounted to 26,900 gallons in 1938. Total direct expense for rentals, taxes, depreciation, maintenance, was $134.67. If we closed this agency it would have to be supplied by truck from St. Paul at an inter-station transfer expense of 1½c. per gallon, or $213.32, or an increased expense of $78.65."

. . . . . .

"However, the above comparison of savings to be made in direct expense by closing commission stations as against extra costs incurred for transportation, is not the whole picture by any means because in most cases we would have to provide underground tankage facilities in the town where we housed the agency unless the dealer did so at his own expense, and in either case he would demand and undoubtedly secure a discount to look after farm sales equivalent to present commission rates."

. . . . . .

"MR. FRAWLEY: Q. In your brief at page 16 in Exhibit '314' you discussed the question of over duplication of bulk distribution facilities, or perhaps it would be fair to say on your part that you call it alleged over-duplication of bulk distribution facilities. Now reading through your brief I am not able to come to any conclusion that you find it possible to close up any of these stations. Do you leave the Commission without any constructive suggestion as to closing out some of the Imperial bulk distributing plants?

"A. In reply to your question, we do not take the position that 284 is the final figure as the number of agencies we need in this province. In our effort to market as economically as we can it might be decided that we will need 300 or we may need 250. We examine each town and each

problem on its own merits, from the standpoint of operating as economically as we can. I think I can perhaps better illustrate it by being specific and taking the Leduc area, which would be a cross-section of any other part of Alberta."

. . . . . .

"Now coming to the question of duplication at Leduc. At first glance I can quite understand why it would seem that there is no necessity for us to have agents at Calmar, Leduc and Thorsby, three points there in that vicinity."

. . . . . .

"Now it would seem at first blush that we have more agencies there than are necessary. It would seem like duplication which costs money and if it were it would be our job to do something about it. But these are the facts as we see them. At Leduc our sales last year were 51,662 gallons, at Calmar 98,126 gallons, at Millet 63,460 gallons and at Thorsby 79,149 gallons. The freight rate from Calgary to Calmar, Leduc and Thorsby is identically the same, 3.12 cents per gallon. Therefore, if we were to use Leduc as the central point and retruck from there, we would have to absorb the increased transportation cost. No doubt about that. Now at Calmar there we have two storage tanks, one for Three Star and one for Acto. We have two storage tanks at Leduc and a very small one. We have two storage tanks at Thorsby and by virtue of having these storage tanks we are able to make transportation savings, as compared with shipping it to Leduc and then retransporting it, of $1,185.74 a year at Calmar; of $945.08 per year at Thorsby. If we were to eliminate our agency in Leduc and supply from Wetaskiwin our transportation cost would go up $567.38 per year. Now let us compare these transportation savings, and I am assuming for the moment that that area will remain on rail, that rail is going to be the most economical and I have every confidence it will. Now that freight saving at Calmar of $1,185.74 which is a sizeable sum, compares with our direct expense of operating Calmar of $222.21 per annum. The freight saving of $567.38 at Leduc compares with the direct charges at Leduc of $285.57. When I mention direct charges that includes taxes and depreciation. At Thorsby the freight saving is $945.08. As against that we have direct charges of $296.76. Let us look at the investment for a moment. The freight saving at Calmar is $1,185.00 a year. The investment is $3,600.00. At Leduc the freight saving is not as great, $567.00, because the sales are not as good. The investment is $3,022.00. At Thorsby the freight saving is $945.00 as against an investment of $3,182.00. We consider that good business. Now let us take Millet. At Millet we have no tankage. In our desire to reduce the number of agencies, we have not gone into Millet with tankage. Probably we made a mistake. That is why I say I do not know whether 284 is the right number. At Millet the rate on Calgary to Millet is 2.88 cents per gallon as compared with 2.80 cents to Wetaskiwin, a difference of 8/100ths of a cent per gallon. We could not obviously truck that distance for 8/100ths of a cent per gallon, but we are trucking at the present time. If we were to put tankage in at Millet this is our estimate. Our sales there are 63,460 gallons. Let us assume we put in two 13,000 gallon tanks there, one for Three Star gasoline and one for Acto.

"MR. FRAWLEY: Q. How do you serve it if you have no tankage there?

"A. We truck it from Wetaskiwin and that is what costs money. If we put in tankage there, two tanks, one for Three Star and one for Acto, our freight savings over our present method would be $644.60 per year. Our estimated direct charges if we put in those two tanks and the warehouse would be $245.00 a year. Our investment would be around $3,300.00. But the point that we have to look at is this, that as against the direct charges of $245.00 a year at Millet, if we put a station in we will make transportation savings of $644.00 and we will be in a better position to give service and we will have a stock there to take care of requirements during the peak season. And we have to examine each point in Alberta on that basis. Now let us come to the truck question. I realize that there is more than one truck operating out of Leduc and those other points. There are several trucks operating. But those trucks are not full-time trucks."

. . . . . .

"Now coming to the question of trucks, I think I should carry on. Our agent at Millet, full-time agent, devoting his full time to our business. Our agent at Leduc is in the implement business. Our agent at Calmar is in the implement business. Our agent at Thorsby is in the implement business. The British American agent at Leduc is a garageman. The Gas and Oil Products at Leduc is a garageman. The Union Oil, implements; Maple Leaf, garage. At Millet, the Maple Leaf agent, garage. British American, implements. At Thorsby, the British American agent is a barber. The Great West Distributors, an implement agent. Hi-Way, trucker and dealer. Calmar, British American, hauling from Calgary. Maple Leaf, Calmar, implement agent and trucker.

"THE CHAIRMAN: There are not any lawyers?

"A. Even a lawyer needs a barber once in a while. The reason I mention just what business these agents are in, is that it has a real definite bearing on trucking costs. Most of these agents have trucks, anyhow, and they are only using them part time in the oil business. I have had men who have given some thought to the thing in the face of divided business, that assumed that the entire expense of all these trucks is charged up against the oil business. That is a most erroneous impression, because these trucks, the garageman has a truck and he is using it for his various purposes. When he wants to make a delivery to a farmer, really all he is out is the cost of the gas and oil to deliver it there. The implement man needs a truck for various business besides the oil business. Another angle is this, that regardless of whether there is one truck or five trucks, the maximum commission we pay is 2 cents per gallon. We find that at points where we have no competitors, where there are no other trucks, even at points such as that, our agent requires a commission of 2 cents a gallon to deliver. Because there happen to be three or four trucks in a community, the consumer is paying no more. He is just paying 2 cents, the same exactly as he is where there is only one truck. Because that is the least he can do business for. And we find this in a community, as sales increase that one truck ceases to be adequate, or we will say, one truck is to be used full-time, and then it ceases to be adequate, and you have to get a second truck, his expense goes up, and

he still requires his 2 cents per gallon commission, because he has to get a second truck and a second man. We find from experience that a part-time agent can truck for 2 cents just as easily as the full-time agent or the man who hires somebody. So this duplication in trucks, part-time trucks mostly, is not adding in our opinion to the expense that the farmer has to pay. In any event, whether there is one truck or five trucks, it is now 2 cents per gallon commission."

Mr. Miller also addressed himself to this question and made the following observations:

"It is claimed that the multiplicity of bulk plants is uneconomical and unnecessary, and consequently increases the cost of the product unnecessarily. That is questionable, in view of the local conditions in the West, which we have mentioned previously, and the peculiarity of the requirements of the business, including the fact that half the sales are made in a four-month period from July to October, which makes it absolutely essential that not only should the distribution be wide to give equal facilities to all, but capacity must be sufficient to take care of the period of peak business.

"During the rush season of the year many companies run out of stock, and even though there may be three or four companies in one town, there have been times when inventories were depleted and consequently additional cost to the consumer was entailed in harvesting. Even with existing distribution this invariably happens."

. . . . . .

"Dealing specifically with our present system of distribution the majority of agents in Western Canada generally handle our agencies in connection with other lines of business such as garages, implements, hardware, etc., which enables them to make general other use of all the facilities required in the operations of our agency, such as office space, heat, light, telephone, trucks, employees, etc. As an illustration, agents use their trucks for hauling gravel, grain, implements and other merchandise, all of which is a considerable factor in reducing cost. They haul out petroleum products to farmers and bring back grain, live-stock, machinery, etc., thus ensuring a full load each way."

From the foregoing evidence, it is apparent that the efficiency of the Imperial type of distribution system depends upon there being a large number of bulk stations. These permit of meeting all calls for all products at all times and, at the same time, decrease the cost of transportation to an extent that the elimination of any considerable number of them would appear to be an uneconomical proceeding. We think it cannot be said that Imperial Oil Limited operates more bulk stations than it needs for its particular system of distribution. We also think that its system of distribution is an efficient one.

The British American Oil Company Limited has, as we have before mentioned, changed its method of distribution so as to

eliminate a large number of the orthodox bulk stations formerly operated by it and instead has set up a lesser number of larger bulk stations, which will be operated by agents who are paid a salary instead of the commission formerly paid. However, the new method involves the setting up of wholesale facilities at retail stations to take care of the distribution of petroleum products to the farmer trade in those localities which are not near to the large bulk stations and so cannot be conveniently served from them. This will mean that there must be a very great number of these combination stations and in the result, this company will, as we understand the position, have more wholesale outlets than it had before. It would seem to us that this will mean increased transportation costs; it may be, however, that there will be, as the company anticipates, compensatory advantages.

We do not wish to seem either to approve or disapprove of the British American Oil Company Limited's type of distribution as compared with Imperial Oil Limited's type of distribution; we merely wish to say that it has not been established to our satisfaction that the Imperial's distribution system, which is the one with which we are primarily concerned in determining whether or not the rate of return on invested capital in its marketing branch is a reasonable one, is either inefficient or unnecessarily costly.

All that we have said does not imply that there may not be an unnecessary number of bulk stations; if there is, it is because there are too many competitors and the cure, if any, is the elimination of competitors and not the reduction of the number of bulk stations of each competitor. Since, however, it is the essence of the present competitive system that competition should be free and unlimited, we cannot see how this is to be accomplished and as we do not believe in monopoly, unless it be under strict government control such as in the case of public utilities, we do not think that the elimination of competitors should be attempted.

Duplication of Retail Service Stations

Most of the marketing companies own a number of service stations in the cities and, to a limited extent, in the larger towns. These stations are usually leased by the owners to individual operators who are not either on salary or commission but buy their products from the wholesale marketers and sell to the public on their own account. The rentals obtained from these operators are considerably lower than the taxes, depreciation and other expenses incident to maintaining the properties, in fact, on the average, the

rentals are such that the total expense of maintaining the properties, including taxes, depreciation and repairs, exceeds the rental obtained by more than 1½c. per gallon of gasoline sold through such stations. This excess of expense over rental revenue, sometimes called "service station absorption", is treated as part of the wholesaler's marketing expense. If duplication in service stations is affecting the tank wagon price, it is doing so through the effect of this expense account on the returns of the wholesalers.

In the case of Imperial Oil Limited, the total company owned service station expense for the year 1938 was as follows:

Taxes	$32,155.37
Rent	3,921.00
Light	8,227.89
Depreciation	25,304.42
All other expenses	22,798.62
	$92,407.30
Less rentals collected	39,214.07
	$53,193.23

The above figures represent the net cost to Imperial of the operation of 69 service stations, of which 62 were constructed on land owned by the company, the balance on land leased from other parties. The expense includes such items as service station supervisors' salaries as well as all expenses directly attributable to the properties.

The total volume of gasoline sales through these 69 service stations during the year 1938 was 3,229,114 gallons. Ignoring the sales of lubricating oils, greases, tires, batteries and miscellaneous products, the total expense of these stations represented a cost of 1.65c. per gallon of gasoline sold through such stations. In the whole marketing picture, however, this cost is not nearly so important, as the total sales volume of all gasoline and other motor fuel in the province was 23,699,017 gallons, the cost of service stations being only .22c. per gallon, again ignoring the sale of lubricating oils and other products. Considering this expense in relation to all other marketing expenses, totalling $1,021,698.80, the proportion of the total marketing expense attributable to service stations is 5.2%. In relation to total prices charged to dealers and farmers for all products, amounting to $6,413,520.81, it may be said that service station expense represents only .83% of the total price.

It thus appears that the service station expense which the wholesale marketer bears, is negligible when examined in the light of the total marketing expense, and that the prices charged by the wholesale marketers for petroleum products cannot be said to be materially affected by such costs. If, however, duplication of retail service stations does add to the cost, no matter how small the addition, it should be eliminated if it is possible so to do. It would seem reasonable to expect that the elimination of small service stations would decrease over-all costs by increasing the gallonage at the larger stations. Since, however, we find that the cost of some of the large volume stations is higher per gallon than some of the small volume stations, we are not too sure that such an assumption might not be a dangerous one; but however this may be, and granting that there are too many service stations, which we think is the case, we are inclined to think that the difficulties attaching to the elimination of the surplus are well-nigh insurmountable. If one takes any given intersection on each of the four corners of which a marketing company has a service station, how is it to be decided who shall withdraw from the location? If the location be an attractive one, in the sense that the motor traffic is great at this intersection, no company will withdraw voluntarily, and it seems to us that to compel withdrawal with fairness, requires a degree of wisdom which we at least do not pretend to possess.

Then, again, it is to be borne in mind that it is important to each wholesale marketer to maintain and if possible increase his gallonage. If any marketer has his gallonage reduced by the elimination of service stations, it automatically follows that in the over-all picture, his marketing costs are increased as the gallonage is reduced. In the result, we think that there is no sound basis upon which may be rested the elimination of existing service stations by government intervention and that this should not be attempted.

With regard to new service stations, we think it may be possible to slow down the increase of unnecessary service stations by a restrictive licensing system, but here again great obstacles stand in the way of a licensing body that wishes to be just rather than merely arbitrary in its decisions. It is difficult to say to any man that he shall not be allowed to enter upon any business that he may see fit and in respect of which he is willing to take all risks. Furthermore, it is a great question as to when and where service stations are necessary; if competition is to be free and unrestricted there should be outlets available for new refineries and those marketers who, through initiative and business acumen, are increasing their sales of petroleum products. It may be that a restrictive licensing system

may do something to retard the growth of unnecessary service stations, but the saving in wholesale marketing expenses would be small while the risk of unduly trammeling and fettering freedom of action in competitive endeavour would be great.

The following excerpts from Dr. Frey's evidence are in point and of great interest:

"THE CHAIRMAN: Well, now granted as you seem to think Doctor that there may be an unnecessary duplication of service stations, to some extent at any rate?

"A. Yes. That is, I say without regard to the companies operating, that in the total number I can see no reason to believe the present number is absolutely indispensable.

"Q. Now that being so and having heard this discussion about the difficulties of this problem have you anything to suggest as to how that duplication can be done away with, by any means whatsoever?

"A. I have faced it at home and the deeper we got into it the more dangerous we found it. We recognized that we were dealing with not service stations but with human beings, just plain out and out proprietors."

. . . . . .

"Now we recognized in the United States that where the business there could be conducted with less than 350,000 service stations—how many less I do not know but we think it could be reduced. But just as soon as we started this reduction problem we were into a polictial mess up to our necks, because those individuals operating service stations were individuals, were citizens. They had a vote, and they not only had a vote but they had friends.

"Q. Who had votes?

"A. Who had votes and to say that as a matter of political expediency we backed away from it is perhaps just putting the thing politely, because it was loaded with dynamite. And so to justify ourselves we had to find some way to explain why we were not doing something about it. We always had to save our face in a situation of that sort. We came to the conclusion that the best face that we had in the matter was that if we let the thing run there would be resulting competition and considerable liquidation. Now, then here you have a law concerning the licensing of filling stations. I grant the first premise that there have been mistakes in the construction. As to how much unnecessary expenditure is being carried by the Province would require another investigation as comprehensive as the one you have just gone through perhaps. That is, it is not an easy matter. You have to study many, many things concerning these filling stations even in the two areas in which they exist in considerable number. Now the Province have had over a number of years an opportunity to restrict the number of stations. It has not done so. The inference then is one of two things, either it was politically impossible or the Province was of the opinion that more filling stations were necessary. Now it seems to me then that we have these

two things so badly mixed up, the problem and the political aspect of it and the economic aspect of it that it is just dynamite anyway you touch it. Here we have a number of companies that are fairly well established. Mr. Halverson, when I asked him the question of what they have done in service station expansion, told me that the number of stations, that the net increase since 1930 was four. Now that small number might not be true for other companies but I have not had an opportunity to inquire and see what other companies have done in the way of building service stations. Certainly if the number was correct, the number of service stations owned by Imperial was correct in 1930 then the gain since 1930 has not been in proportion to the increase in gallonage and they might be justified—I am not saying they are—but certainly there are other companies that might not be. Now the next thing is, there is a value in an increase in service stations by reason of the competition that is created for these companies for the gallonage that is represented by these service stations in total. Therefore as competitive factors they are not wholly without value. Service stations chisel on each other and in that chiselling the actual price paid by the consumers in Alberta is definitely not the posted price. Now the extent of that chiselling is anybody's guess without a careful survey and I do not believe that a Government could make a survey which would determine the amount of chiselling because that would be an invitation for the filling station operators to cover up. But there they are and they are trying to get business from each other. There is another phase of it and that is what are you going to do with some native son, if I may call him that, who wants to go into the oil business? Are you going to tell him he cannot do it, that there is no place for any further competition in that business in Alberta? I do not know whether the Province is prepared to go that far and I doubt whether such a statement on the part of the Province would be greeted with enthusiasm by said native son who wants to go in business.

"MR. FRAWLEY: Or his friends?

"A. Or his friends. Now on top of that as I see it here is a company called the Imperial that is building a new refinery. I do not suppose that they are building that just exactly to present size. There is probably some expansion in that thing. And then there is the B.A. that has just built one. They probably did not build that refinery just to fit the immediate situation. They too probably were looking into the future. I understand that Mr. Mayland is building a refinery. I have an idea that Mr. Mayland actually expects to increase his gallonage the same as the others do. Now they are not going to go along each one taking his status quo position and simply moving ahead on the total increase in gallonage. Each one of these companies and all of the others, but I mentioned these three because they are more recent in the matter of refining construction, but each one of them is going to do everything possible to maintain his place in the picture and he is going to get his quid pro quo and just as much more as he can. And that to me is the essence of the thing. Now I do believe that it is desirable for the Province to exercise considerable discretion in the matter of whether more service stations are allowed. But there is also something that touches the con-consumer that should not be disregarded. I venture to say and I am

going to cite cases that there are villages in the Province of Alberta in which it would be impossible for anyone to get a license. For perfectly good reasons and that is that those who have the business are perfectly well satisfied to keep it as it is and that any newcomer is just a pain in the neck. He is likely to chisel in on some business and those who now have the business are satisfied with their getting what they are. What does that mean? It means that locally by reason of the fact as I understand it that their license has to be referred back to the community in which the license is granted, that those who are in position, is that reasonably correct?

"MR. FRAWLEY: Q. I think that is, whether it is by statute or by practice, I think that is going on.

"A. By reason of the fact that it is referred back to the community, those who have the business, and I am talking about the individual operator, are in a position to hold that business and what does that mean? It means that they can meet across a glass of beer and decide that the margin in their operations is going to be 5½ cents or 6 cents or 6½ cents or what you will and the only thing there is to prevent a rise in that margin is the competition which comes from the jobber operation, in which there is a threat that the price will be lowered by reason of standard tank wagon price, so this whole problem of filling stations to me is just filled with dynamite, any way you turn to it.

"THE CHAIRMAN: Q. I understand that, Doctor, but leaving aside political considerations because, believe it or not, for once you see a Commission that does not care a tuppence about political repercussions, but from the economic side only, if I am following you aright, you think that the good of cutting down service stations by any means may in the end be outweighed by the disadvantages of eliminating competition.

"A. There is that possibility and it is a very strong possibility. I should rather say that it would be a safer action to use every possible discretion in preventing any increase in the number, with the increase in gallonage taking up some of the slack and with the oil companies ultimately recognizing that their 'dog' stations, it does not pay to seek to maintain them.

"Q. Now if you do that is there not the danger that you yourself have alluded to, of newcomers who want to get their place in marketing with a new service station?

"A. Yes, there definitely is.

"Q. If the licensing department were to take the position, 'Now there are enough stations now, no new licenses will be issued,' then there is no room for expansion by new competitors?

"A. That is right.

"Q. And you do not approve of that, as I understand it?

"A. I do not approve of that."

. . . . . .

"THE CHAIRMAN: Q. I take it, Dr. Frey, that with your wide experience and profound knowledge of this subject and after having been

disturbed by a study of it for a number of years, that although you grant there may be too many service stations in this province, you have no concrete recommendations either as to how the surplus may be eliminated or as to how there might be some restrictive action on the part of any governmental body in the future that would adequately permit of proper expansion by new competitors and at the same time restrict the number of stations which should be allowed; you have no recommendation to make to us?

"A. That is correct, I have no recommendation to make because I never had felt, with all the study which I had given to it, and I certainly was faced with the problem most viciously over a period of two years, I never felt that I had the answer.

"Q. I mean now, exclusively from an economic standpoint, you do not see the answer?

"A. That is right.

"Q. Without any political forces bearing on it one way or the other; from the wholly exclusively economic standpoint you have no answer yet which is satisfactory to yourself?

"A. That is right."

Dr. Frey is a marketing expert recognized as such throughout the United States; he has made a study of this question for years; he has had a service station sample over the whole of the United States such as we do not possess. If then his last word is that he is unable to make any recommendation which in his judgment would be a practical one, for the elimination of unnecessary retail stations, it is perhaps understandable that we who have not his experience nor his marketing wisdom do not feel that we should make recommendation.

To come back to the effect of service station absorption, we are of the opinion that the prices charged by the wholesale marketers are not materially affected by such costs. We think that this service station absorption is a kind of undercover competition but none the less legitimate competition. Competition, whether under cover or above board, must be met, and so service station absorption is one of the factors that has a tendency, sooner or later, to lower the tank wagon price. We believe that an attempt to reduce service stations through government intervention is not desirable, first, because it is not a practicable thing to do, and second, because if done arbitrarily it tends towards favouritism and monopoly, neither of which commends itself to us.

In the result, we are of the opinion that service station absorption should be considered a part of an efficient operation and that the company whose rate of return is under consideration, cannot be

said to have an unreasonable rate of return because of any service station absorption costs.

Free Deliveries to Farmers

We have heard a great deal of evidence concerning the question of whether or not the farmer customer enjoys free delivery of petroleum products and concerning what savings in expense could be made if the marketing companies discontinued this so-called free delivery. The policy of the two largest marketers, the Imperial and British American companies, with respect to deliveries to farmers has not in the past differed to any great extent. Their chief marketing officers do, however, differ as to the advisability of discontinuing the so-called free delivery to farmers.

Imperial Oil Limited charges farmers the posted price for motor fuel delivered on the premises of the farmer in barrels. The commission agent who makes the delivery is paid 2c. per gallon which is his total compensation for operating the bulk station, including filling the barrels, and for the cost of delivery, the agent supplying his own truck and out-of-pocket expenses. If the farmer takes delivery at the bulk station, he still pays the same posted price and the commission agent still receives the same commission of 2c. per gallon. In this sense it may be said that the farmer who takes advantage of the delivery service, for which the agent is paid, gets delivery free as compared with the farmer who takes delivery in his own vehicle at the warehouse.

The dealer in the agency town, however, enjoys a discount of 1c. per gallon below the posted price if he deals exclusively with Imperial. The great majority of dealers have exclusive contracts and therefore most of the dealer business is at 1c. below posted prices. The Imperial agent receives only 1c. commission on these transactions, however, so that Imperial receives the same net amount per gallon, after paying commissions, whether the products are sold to dealers in the agency town or to farmers who pick up their goods at the agency warehouse or to farmers who take delivery on the farm.

Now most farmers take delivery on the farm, and most dealers are in the agency towns and buy at 1c. below the farmer price. The commission for farm delivery being 1c. more than for dealer delivery, and the farm price being 1c. more than the dealer price, it seems reasonable to conclude that the cost of the farm delivery is included in the farmer price, and that deliveries to farmers are not free deliveries.

The British American company charges the farmer the same price as Imperial whether the farmer takes delivery on his farm or at the warehouse and charges dealers the same prices as Imperial, namely, 1c. below the farm price. The only difference in policy between the two companies is that the British American commission agent, under the system employed prior to 1939, received 1c. for dealer delivery and 2¼c. for farm delivery. In this case the additional price of 1c., paid by the farmer, does not pay all of the cost of the delivery. On the other hand, the commission agent receives the extra 1¼c. commission only where delivery is actually made, whereas Imperial pays the full 2c. commission on farmer sales whether delivery is made or not.

Mr. Miller is the chief marketing officer of the British American Company. We now quote from that part of his evidence which relates to dispensing with so-called "free delivery."

> "Our view is that it would be more satisfactory to have one price f.o.b. warehouse for farm deliveries, providing the authority or government agency would enforce compulsory elimination of free delivery; in the event of this not being possible, two prices, one for delivery and the other f.o.b. our warehouse may be advisable and it is our intention to establish same in the future notwithstanding the probability of increased costs on individual deliveries; in other words, I am afraid that, while deliveries are getting smaller to the farmer each year, that is the capacity, the total gallonage delivered to each individual farmer is getting smaller, there is more f.o.b. the warehouse; in other words, a larger percentage f.o.b. the warehouse and the other balance wanting delivery in certain seasons of the year, means possibly added costs on those delivery charges either to ourselves or to our agents inasmuch as they have to maintain equipment and suffer depreciation on equipment whether it is used or not."

Mr. Halverson, of Imperial Oil Limited, has a very different opinion. He says:

> "But there are certain intangible advantages, for one thing these agents when they go out with their trucks are able to pick up our steel barrels, we would not have nearly enough barrels to-day to take care of our business if we did not have these trucks because they keep the barrels moving and they give many services to the farmer besides merely delivering. At the beginning of threshing, as I mentioned, they pick up his wheat and bring that in and they supplement their own earnings that way and they are a real accommodation to the farmer as well and by having these trucks they are able to use these trucks for other purposes and supplement their earnings and it is questionable if they had no trucks at all, it is very questionable, whether they could do business for 1 cent per gallon flat. When I assumed there would be a reduction of ½ a cent I may have been assuming too much, for even if they were not delivering to farmers they would still have to deliver to dealers.

"Q. Well, you say they would still have to deliver to dealers?

"A. I would think so.

"Q. But that is not the same kind of distribution?

"A. No, but they would need the trucks for that though.

"Q. Yes?

"A. And if they didn't have a truck they could not supplement their earnings and perhaps they would need more commission. It is a big question.

"Q. But if you put every farmer on a cash and carry basis, make him come in and get his gasoline supplies, just the same as he has to come in and get his repair parts for his binder when he breaks down in the Fall, as he has to come in and get his week's supply of groceries, couldn't you save marketing costs?

"A. I mentioned that theoretically we could save ½c a gallon although I doubt very much if it would be that much.

"Q. It is only the accumulation of these savings that is of interest ultimately?

"A. Yes.

"Q. I mean one particular one does not mean anything and I am just wondering, I want to be clear first as to whether there is anything in my suggestion that the tank wagon price charged in the city, and a good deal of the volume is got out of the city, that that helps to pay, where there is no delivery, helps to pay for that other free delivery?

"A. In a way that kind of reasoning is not quite correct because we get an extra cent from the farmer to cover that service so the city man is not paying it. When we deliver to the farmer we get an extra cent to cover that extra service, an extra cent per gallon, so the farmer really is paying his own way."

. . . . . .

"Q. Mr. Halverson, there has been a discussion arising out of the question put by the Chairman that amounts to this, should there or should there not be two prices for the farmer, depending upon whether he comes in and takes delivery at the distribution plant or whether delivery is made to him. Now, without going into a long discussion of this matter, would you be good enough from your experience to state as concisely as you can what are your views on that subject, which I think the Commission will welcome?

"A. From time to time we try to experiment with various things and fortunately we tried that in Saskatchewan three or four years ago. We arranged a price ex warehouse to the farmer of 1 cent less than the delivery price and this is how it worked out in practice. Those farmers who lived within 4 or 5 miles of the plant were more inclined to call for their products and during the off season when the farmers were not busy they would call at the plant for their products from a greater distance.

But during the busy season of threshing and sowing, when the farmer was busy, he wanted a delivery service. The farmers who lived more then 5 miles away wanted a delivery service. So the net result was that our agents became a convenience where they were called upon to make delivery service to the farmers living 8 or 10 or 15 miles away from the agency and were deprived of the revenue of their sales to farmers living closer. And they were also deprived of that 2 cents commission during the off season. So that our agents came to us and said they would discontinue delivering to farmers entirely because it did not pay them unless we would pay them a 2 cent commission on all farmer deliveries at all seasons of the year. So we were faced with the situation then of abandoning deliveries to farmers, in which case our agents would have given up their trucks and in which case we would not have had trucks to deliver to our dealer trade; and furthermore, our agents very definitely told us, a great number of them, that if the remuneration that they got from delivering to farmers were taken away from them they would want a higher average commission for delivering to dealers. So in practice it did not work out. It would have meant, if we had not reversed our position, that the farmers would have been deprived of the delivery service and we in turn would have had to pay the agents a higher commission rate per gallon for delivery to dealers or to farmers at the company warehouse.

"Q. And that is what you wanted to say on that?

"A. That has been our experience and we tested it out for an entire year.

"MR. FRAWLEY: Q. You have not the slightest objection in the world to giving a farmer a cash and carry price if it would work out but you just do not think it would work out?

"A. That is right.

"Q. I must confess I was struck with what Mr. Miller said about it. He is getting very close to it. For a warehouse door sale he pays 1 cent commission and for a delivery on the farm sale he pays 2¼ cents commission. If that is so that company with a fairly wide distribution has gone a long way along the line of the cash and carry principle. But they do not look at the other side of the picture and give the farmer the benefit. They say to the agent 'You have not done anything at all but make delivery at the door and you will get 1 cent commission for that.' There is a lot of sense in that. But why should not there be an extension of that to give the farmer the benefit of it for coming in? He does all the service?

"A. I do not wish to discuss the policy of our competitors. I wish to refrain from that. But I think any competitor doing business on a big scale in this province that thinks it can discontinue delivering to farmers and hold its position is mistaken. They, perhaps, feel that if we all did it that it would lend itself to their system of distribution but, of course, we have got to look at it from our standpoint."

. . . . . .

Mr. Priestly, representing the U.F.A. Central Co-operative Association Limited, gave the following evidence:

"I wish to say at the outset that the parent organization, the United Farmers of Alberta, is in full sympathy with the particular aim of this Commission, namely, to see whether the price of fuel oils can be legitimately reduced to the consumer. We are a farmers' organization and only entered into the distribution of fuel oils in a co-operative way in the hope that we might make some contribution to that end. We represent directly a substantial number of farmer members and we speak indirectly for many more."

. . . . . .

"MR. BROWNLEE: Q. Now, Mr. Priestley, there are two questions that we suggest you might, with respect to which it was suggested you might express an opinion, we will take first the question of free deliveries in the country districts, you heard the discussion yesterday and have you anything that you wish to say to the Commission with respect to that question of free deliveries?

"A. Last night, in view of the discussion of yesterday, and the somewhat unwelcome publicity which resulted, we took this matter into consideration and if you take the Leduc situation which has been so frequently discussed as a case in point, prior to yesterday's new prices, I have not had an opportunity of seeing the tank wagon price published as of yesterday, but prior to that time, the price on Maple Leaf gasoline delivered to the farmer on his farm at Leduc was 19.6 cents plus tax; the price to the service station operator in Leduc was 18 cents, 18.6 cents plus tax. The oil dealer has 2 cents gross commission on the business to the farmer and 1 cent gross commission on the dealer sale and it is our conviction that the price to the motoring public, being based on the dealer's cost, they do not bear any portion of the farmer delivery expense which in fact is pooled among all farmers buying at the Leduc station at tank wagon prices.

"Q. So that your viewpoint is the interpretation that has been placed on yesterday's evidence in the press that the general motoring public is bearing the cost of the free delivery service to the farmer in rural districts, is not correct?

"A. That is not correct.

"Q. And for the greater part, based on those figures you have given us, the cost of that delivery service is carried by the farmer himself in the price which he pays but it is pooled among the farmers who are served by the agent doing the free delivery."

. . . . . .

"MR. BROWNLEE: Q. Now, Mr. Priestly, you have told me that the effect of the price is to pool the delivery costs among farmers in a certain area. You mean by that that a farmer some distance from Leduc pays the same cost as the farmer nearby?

"A. Yes.

"Q. From a co-operative standpoint, do you consider that that is fair or unfair or desirable?

"A. I think it is desirable in an attempt to build a co-operative community. I believe the farmer should not be unduly penalized, although the economic facts under our system are against the idea, but I do not believe he should be unduly penalized because he lives 10 miles out of town, whereas another farmer lives in a quarter-section adjacent to the town."

. . . . . .

"I am trying to build a co-operative community and I do not like the idea of having farmer Smith higgling as against farmer Jones as to whether he is a mile nearer town or not, and whether he should not pay for service at such and such a price. But to eliminate the policy of free delivery, which is an element of pooling, would mean that the farmer in the remoter parts of the area would have to make a bargain with the commercial trucker who might be placed in a somewhat independent position in respect to the farmer, whereas the agent now deals with all farmers whether near or far, and provides delivery service and every farmer has the advantage of it."

We quote from Dr. Frey's evidence as follows:

"Q. The differential, Dr. Frey, in the commission, that is the 1 cent for dealer delivery as compared with the 2 cents for farmer delivery, coincides with the differential in the price that the farmer pays as compared with the price the dealer pays, is that not correct?

"A. Yes.

"Q. And apart from the other thing which you mentioned, it is quite clear from that, that there is no free delivery to the farmer inasmuch as the farmer pays the difference in what is paid to the commission agent for the delivery, is that not the logical conclusion?

"A. He pays one cent more than the dealer. I think it might be just a little bit difficult to determine what percentage of that is transport but some part of it is transport and it is not free delivery because part of that delivery cost is included in the commission.

"Q. Well, speaking from the point of view of the company, is it not immaterial to the company whether the commission agent delivers to the farmer or whether he delivers to the dealer, for the reason that the company nets back the same amount of money from each transaction?

"A. The company nets back the same amount in either case.

"Q. So that from the point of view of the company it is immaterial whether the delivery is made to the farmer or not, and therefore, from the point of view of the company, the delivery cannot properly be termed 'free,' is that not a reasonable conclusion?

"A. I think that is reasonable."

We are of the opinion that the delivery by the commission agent to the farmer which has been described as "free delivery" is wrongly described, and that the farmer consumer is paying for the service which he gets. As to the suggestion that the companies be

required to establish an f.o.b. warehouse price of 1c. less than the delivered price so that farmers who do not choose to take advantage of the so-called free delivery may gain a 1c. advantage by doing their own hauling, we think that the farmers close at hand would take advantage of this lower price and that the farmers far away would continue to demand, and because of competition, receive delivery to them on their farms, and that this would have the effect of bringing about a revision of the commission paid to commission agents at bulk stations in an upward direction, and so we do not see that in the long run the marketers would be making a saving by instituting the proposed change.

In any event, since the net back to the marketing company whose rate of return we have under consideration is the same whether the farmer gets delivery on his farm or takes delivery at the bulk station, we cannot see that the rate of return on invested capital could be in any wise affected by the much discussed practice of making so-called free deliveries.

Drums

Steel drums play an important part in the distribution of motor fuel in all parts of the province except in the larger cities. Most of these drums are owned by the oil companies; the customers seldom provide any containers. Drums, holding 45 gallons of fuel, are customarily filled by the company agents at the various bulk stations throughout the province. The agents then deliver the filled containers to farmer customers and leave the containers with the customers until the fuel is consumed. Consequently, a very large number of company-owned containers are always in the hands of the customers thus requiring a large supply of the containers, particularly in the periods of peak consumption.

Steel drums are also used by many of the commission agents for affecting delivery to underground storage of dealers and service stations.

The use of drums as we have it in Alberta is not customary in the United States, as Dr. Frey explained in the course of his evidence, from which we quote:

> "One of the most striking details of marketing in Alberta is drum delivery, which is almost non-existent in the United States. I did not know that there was any such thing as drum delivery in the United States until the period of the Code and then I found that, when we attempted to define 'jobber,' which was defined in terms of capacity to store gasoline and products, it was then that I found that there were a

few drum delivery points where our general definition of a jobber would not fit; those areas in which we had it are principally in the Rocky Mountain area and in a few very interior and isolated spots in the so-called desert and basin region between the Rocky Mountains and the Sierras on the west, but in the eastern part of the United States and all through that part which is generally labelled the Standard of Indiana territory, which embraces the ten Mid-West States, we have no drum delivery. Now to me this appears to be an indicator of low density gasoline demand. The lack of all-weather roads and the mixture of other business with gasoline. It is not, it rather is a geographical response than anything else. I now come to the question—

"MAJOR LIPSETT: Q. Before you pass from that, Dr. Frey, how is the delivery made in the States to the type of consumer who gets the drum delivery in Alberta?

"A. It is almost entirely made by tank wagon; tank wagons usually having 800 to 1,500 gallons, United States gallons capacity."

. . . . . .

"A. It seems to me it would be asking a great deal to have the oil companies give drums to the farmers free and yet really that is essentially what they have done.

"Q. They have really given them to them free?

"A. Yes.

"Q. Yes, now what do you think about that. Is that a vicious practice or a good one.

"A. From the looks of things they could not escape it but as a general principle I would not want to enunciate that oil companies should give farmers drums free, nor any other customer drums free.

"Q. What is the practice in the United States of America?

"A. It has been abandoned so many years except in very unaccessible areas that it hardly counts with us at all. Except in the instances which I cited either in the remote places in the mountains or in those fishing caches up along our Alaska coast. I think it is undesirable for an oil company to give any kind of equipment, including drums, free. I do not think that oil companies should equip a commercial consumer with tanks and pumps. I do not think they should equip their dealers with tanks and pumps and air compressors and all the rest of it free. I think the consumer and reseller should pay for equipment.

"Q. Well you said the practice had been abandoned in your country. Do you mean that was the practice of the country in its pioneer days and had to be done and it was abandoned later?

"A. Well it was so many years ago that most of us who know current conditions of the industry cannot even remember. I have had it brought to my attention by reports from people who have had many years of contact with the industry. The practice in the Middle West was abandoned about the time I was born and in the South West, down through New Mexico and Arizona it continued until about 20 or 25 years

ago, at which time there was the so-called case and tin business. It was not drums there but the hauling was done in a flat wagon, that we would have to consider as the counterpart of the modern stake truck and the package was two five-gallon tins in a wooden case. The same practice that is going on in other remote parts of the world where tinning and casing is still practised but in those areas where drums are, back in the remote mountain areas, the person who does that business is usually called a jobber and he owns the equipment with which he is hauling. And if he owns the equipment with which he is hauling. We find for instance in the Rocky Mountain areas we have areas where that is going on now, where the jobber drives his truck 50 or 60 miles perhaps down to the point of supply and hauls back the drums of gasoline on his truck.

"Q. And he owns the drums?

"A. He owns the drums.

"Q. But the practice as we have it in Alberta, you say does not exist in any part of the United States?

"A. Practically non-existent in the United States.

"Q. Take then two comparable parts, a typical section of rural Alberta that you went through, from here to Red Deer, and a comparable area down in Iowa, how does the Iowa farmer, living about that distance from his supply point, and with about the same sort of roads and other conditions generally being the same, how does he get his gasoline supply?

"A. Well the farmer in Iowa gets his gasoline supply usually from the tank truck.

"Q. Direct from the tank truck?

"A. Direct from the tank truck.

"Q. Which goes to his farm?

"A. Which peddles a route and the tank truck stops, as it goes along, and asks the farmers whether they want some gasoline, kerosene or whatever it happens to be, or they may receive orders. I have been in a place, in bulk plants or in jobber points a good many times when the farmer, being in town, stopped in and said, 'Next time you are out, Bill, I want a couple of hundred gallons of gasoline,' or whatever it happens to be or in the harvest season they will get a hurry-up call and say, 'How fast can you get out here with some gasoline,' but the thing is handled in tank trucks, almost 100 per cent.

"Q. Then what is the receptacle on the man's farm?

"A. The farmer either owns drums or a tank or tanks; in some cases he may even own underground tanks and drive his tractor up to the filling point just the same as you will see in some of our filling stations.

"Q. So the farmer owns the receptacle or receptacles on the farm into which the tank truck of the supplier makes delivery?

"A. Yes.

"Q. That takes us then right to the question of price—

"MR. HARVIE: Q. Pardon me, is that practice more or less universal throughout the States?

"A. Almost entirely throughout the States. The only exceptions that I know of are in areas of very low density of population.

"MR. FRAWLEY: Q. Why did you say a moment ago, Dr. Frey, that the practice was inescapable here, the manner that the free barrel came about?

"A. I think it came about here by reason of the fact that very few of the country points do business enough to justify exclusive dealers in petroleum products and that the merchant here is a mixed merchant. He may be an elevator man, a hardware man, an implement man or any one of a number of other things or he may sell life insurance, fire insurance and many other things and incidentally carries on this business of distributing petroleum products and his tank truck would be worthless except for the purpose of the delivery of these petroleum products, so he really is making the truck do more than serve as to one industry in his operation and it seems to me that in the less populous areas in the province, that we must continue to expect that type of service until the road conditions and the density of population advances to the point where it would justify getting the tank truck operation. You see your density of population here, as I recall, is about 2.75. Our density of population Iowa is, if I recall it, 42, so that you really have a different problem here."

. . . . . .

"THE CHAIRMAN: Q. Before you leave barrels, please, Mr. Frawley; Dr. Frey, you know something of our density of population now and you have learned a very great deal about the situation here in Alberta on your two visits, would you say that we had passed the point or stage, the pioneer stage, and that the farmers should buy their barrels or not?

"A. I would like to divide the question into two parts and first state that Alberta is still frontier. It is one of the few frontiers still left in the Americas, in North America, and the next thing that I would like to state is that it strikes me as a general principle, and not as a consequence of the first statement, but that the farmer should supply the equipment that he needs to carry on his work and part of that equipment is storage for gasoline. Now then I make that as a general statement, knowing no solution for dealing with the situation. The farmer must have the drums. He must have the gasoline, if he is to continue power farming, but just how this peculiar situation would work out as between companies that never contributed any barrels and companies that have contributed many barrels and farmers who have bought barrels and farmers who have not bought barrels, it seems to me it is a puzzle to know how it will work out.

"Q. I am speaking of the future. Perhaps the companies that have furnished barrels cannot collect them back but I mean starting as from to-day, from September 1st, as from scratch, it is true the farmer cannot carry on business without containers for his gasoline?

"A. Yes.

"Q. Equally he cannot use the gasoline unless he has tractors?

"A. That is right.

"Q. But he is not given the tractors?

"A. No.

"Q. Now why should he be given the gasoline containers?

"A. I do not, I cannot really subscribe to the idea that he should be given the containers. Theoretically they were loaned and perhaps when there were fewer competitors here, the companies that did that may have thought they were justified in that they got the drum back and no one else got the business, but from what I have learned here, there has been a very, very great deal of difference in the contribution of drums to the main cause."

As we have said, the custom of loaning containers to customers requires a very large number of drums to be carried at the expense of the companies. In the case of Imperial Oil, we find this company had in use at the end of 1938 a total of 94,680 steel barrels which cost new the sum of $884,287.02. This is indeed a substantial investment in equipment that apparently is not required in the United States. Drums in the past have been a substantial item of expense to Imperial Oil Limited but we find that the above investment had been written down to $19,104.06 by the end of 1938. The marketing expense of this company during 1938 contained an expense item of only $23,370.71 in respect of drums, of which amount only $10,563.61 was depreciation, the balance of $12,807.10 being repairs.

This amount of expense in 1938, however, is a great deal less than the yearly cost of maintaining the present supply of barrels. This is due to the fact that the company, having practically written off its investment in drums, intends to change its policy so as to avoid this heavy expense in the future. We quote Mr. Halverson's evidence in this respect:

"It is obvious in Alberta that steel barrels are required in immense numbers to service the farmers. Up to the present we have been loaning barrels to farmers. We intend to carry on loaning the steel barrels we now have so long as they do not need replacement. When additional barrels are needed, it is our present intention to sell the farmers non-returnable barrels at cost. As of December 31, 1938, the depreciated value of all our steel barrels in Alberta was only $19,104.06. Our steel barrels, therefore, including maintenance, represent to-day a very small charge against marketing expense. On the other hand, the farmer enjoys the use of thousands of these barrels without having been put to the expense of buying them. At the present time a 15-gauge galvanized barrel of 45-gallon capacity costs approximately $8.35 laid down at Calgary. A 15-gauge lubricating black barrel of 45-gallon capacity costs approximately $7.17 laid down at Calgary. As we have at present

94,680 steel barrels in Alberta, you can readily see what a tremendous investment on the part of the farmers for steel barrels would be required if they did not have all these barrels on loan from us. Many of our barrels loaned farmers are being used by local oil companies who have thus saved themselves the expense of buying these barrels to carry on their business."

We quote the following from the evidence of Mr. Miller:

"A. Again, in Western Canada a large drum investment is necessary in order to give service to the farmers, particularly during the peak harvesting season. In Eastern Canada, on the other hand, very few drums are required other than for lubricants. In Western Canada greater facilities, storage, trucks and otherwise, are essential for distribution over a wide area, but notwithstanding this, a much smaller gallonage is handled than in the East, as we have already outlined.

"Before passing into distribution, it might be interesting to note that our drum investment on the prairies has run as high as a million and a half dollars, of which one-half million would be applicable to Alberta, or, in other words, the drum requirements over the Prairies have approximated 15% to 30% of the total investment. This is an additional expense that the 'transient' or 'in and out' operators do not have to contend with, as they naturally use the equipment of the major companies. I mean by that, that in the Prairie Provinces, and that also applies particularly to the Province of Alberta, the oil industry have over the past ten years been the only companies that supply containers in order that the farmers can secure their products, not only from the company that supplies them with the container, but from the Turner Valley or any other company or price-cutting operator where they feel fit to buy. In other words, these drums entail a large investment, and they are not only used for our products."

. . . . . .

"A. . . . Drum write-offs are pretty tough in many cases because of the abuse these containers get and the mere fact they are supplied free by the oil industry, notwithstanding the fact they cost us $9.00 apiece. Otherwise, I suppose if they were charged for they would not get the same abuse.

"THE CHAIRMAN: Q. What is your view about that, as to that practice continuing?

"A. Well I think—

"Q. We have had other views about it and we will welcome yours?

"A. Well, at one time these drums were, probably it is a mistaken idea to say that they were not loaned before, they were loaned except we received $8.00 for the drums and if the drum did not come back in good shape, we did not refund or we only refunded that portion less the cost of repairing the drum and we had the use of the $8.00 while they had the use of the drum. Then it came to loaning drums and as far as I can see it is something that never should have been. I think that our products should be sold f.o.b. our warehouse in the same manner as in

the United States. The United States went through a drum situation similar to what we have done in Canada and they got away from it and in many areas of the United States to-day you cannot even buy a drum. They do not sell them and they do not loan them and I think that the consumer—

"Q. That is to say they have to get their drums from somebody who is in the business of making drums?

"A. That is right, sir. The consumer I think should furnish his own container for the product the same as the dealer has to furnish his own equipment for the product he buys."

Mr. Halverson, as shown by his evidence before quoted, proposes to cope with the problem of drum delivery for the future, as and when the drums now outstanding need replacement, by selling to the farmers, non-returnable barrels at cost. If the idea be to have safe, although non-returnable, containers which, after making one trip, are used for storage of petroleum products on the farms and into which container delivery is made from Imperial bulk stations in Imperial drums, then the farmer has the cost of providing storage for which he should no doubt pay, but the Imperial commission agent would have to wait at every farm until the petroleum products had flowed out of the drums into the farmer's container, a process that would be so slow as to be impracticable unless the Imperial is prepared to revise in an upward direction, the commissions paid to the commission agents who would thus be deprived of other remunerative occupations. Such a revision of commissions would involve a marked change in the marketing structure without, in our view, reducing the cost of the marketing system.

If, on the other hand, the plan is that the drums which the farmer customer is required to buy are to be used for deliveries as at present, then, as we see it, one of two situations must arise. Either the farmer customer takes his drum to the bulk station to be filled, in which case he would be making his own delivery, which as we have pointed out would in time be reflected in the price to him, or in a revision upwards of the commission agent's commission; or the farmer customer would have to provide a duplicate set of containers, so that when delivery was made to him as at present, he could return a corresponding number of empty drums. This would be a great expense to the farmer and we are inclined to think that if he were forced to go to this expense, he would not be content to take back and run the risk of finally ending up with worn out drums in the place of the duplicate set of new drums which he had been forced to buy. If this be so, the only way round the difficulty would be for the farmer to mark his own drums (as is done, we understand,

in the case of cans used for milk deliveries). This would involve the commission agents selecting each farmer's particular drums from all of the drums on hand before making delivery to him; this would be a lengthy proceeding which we are satisfied the commission agents would not carry out without additional compensation from the marketing companies.

The scheme of having farmers buy their own drum, as we see it, is further complicated by the fact that there are outstanding at the present time a great number of drums on loan, and so, if all farmers were treated alike, it would be necessary to call in all drums which each marketing company owns and sell them to the farmers, when, of course, the same difficulties would arise with respect to them as in the case of new drums, because the old drums would differ in worth according to the length and kind of use which they had had.

We are not unmindful that Mr. Miller has pointed out that in the United States the oil companies do not supply free drums and in some cases do not even sell drums, and that he has emphasized that petroleum products sold to farmers in this country should be sold f.o.b. the bulk stations, as in the United States. We think, however, it is overlooked that in the United States farmers are supplied by tank truck and that the farmers do not pay for the tank trucks. We have no doubt that when the condition of the roads and the density of population make it profitable so to do, both the British American Oil Company and the Imperial Oil Limited and other refiners will adopt the tank truck as a means for farmer distribution. When this comes to pass, it will be right and proper that the farmers should be required to provide their own receptacles on their own land. In the meantime, while drums are used as substitutes for tank trucks in which to make delivery of petroleum products, and while, for the reasons before given, it remains impracticable to deliver into farmers' storage facilities from drums, we do not see why the farmer should be called upon to pay for the drums any more than he should be called upon to pay for the tank trucks, if and when they are put into operation.

As we see it, the farmer either is or is not to get delivery from the marketing company. If he is to get delivery and it is less costly to the marketer to leave drums with him than to empty drums into a farmer's storage tank, it is obviously to the advantage of both the marketer and the farmer that the latter should not be required to provide storage. If the farmer is not to get delivery, as at present, and present prices to the farmer are just, then the farmer's attendance at the bulk stations for the carriage of goods in his own receptacles must inevitably lead to a reduction of the farmer price.

As we do not think that the marketers would find it practicable to fill farmer's tanks from drums, and as we do not think that the marketers would find it desirable to upset the arrangement with the commission agent, who is partly employed in making deliveries to farmers, and at the same time reduce the price to the farmer, we see no likelihood of great change in the present distribution system until such time as it is practicable to make use of tank trucks.

We do not overlook the fact that the Imperial Oil Limited and the British American Oil Company and some few other companies each have put much money into drums, and that these drums are used by some farmers, to whom they were loaned expressly for the carriage of the goods of the loaning marketer, to get delivery of petroleum products from other marketers who have not supplied any drums. We would think that to cope with this dishonest practice, the marketing companies which provided all outstanding drums might, by agreement between themselves, arrange to settle the question of ownership and to identify and mark their drums, and furthermore, arrange that farmers using those drums specifically contract to use them for no other purpose than for the carriage of petroleum products from the bulk stations of the marketer whose name or identifying mark the drums bear. If this were done, any other use of these drums, by a farmer or a marketer who did not own the drums, might be properly deemed a conversion and subject him to the usual consequences attendant upon conversion to his own use of someone else's property without colour of right. Attention to such a matter should not so much be the concern of the marketers as of the police who are engaged to prevent and take steps leading to the punishment of crime.

However this may be, we are of the opinion that the use of drums for delivery to farmers by marketing companies is, under existing conditions, neither a wasteful nor an inefficient proceeding and that the investment in drums is a legitimate one and so, in our judgment, the rate of return on invested capital by the company whose rate of return is under consideration, cannot on this account be criticized.

Jobbers and Truckers

There has been and always will be, criticism of the intervention of middlemen in all branches of marketing endeavour. Jobbers came into the petroleum industry as a recognized part of the distribution system because the refining companies failed to expand their distribution outlets fast enough to carry off an ever-increasing supply of refined products.

With the surplus of the refineries thrown on the wholesale market, the jobbers purchased the marginal surplus and went into competition with the dealer and the company-owned service station. The jobbers entrance into the distribution field served to expedite the over-development of the marketing structure. As we have said before, over-production of crude induced an over-production of refining and an over-production of refining led to a frantic effort to secure new channels of distribution to get rid of a surplus of refined products, and in the result we have the jobber. The question is, has the jobber made a place for himself in the distribution of petroleum products from which he cannot, or should not, be removed? Since most of our marketing practices come from the United States, we quote from Dr. Frey's evidence as to jobbers and truckers in that country.

> " . . . I would like to state that there is a good deal of confusion about the word (jobber), especially when attempts are made to relate the jobber in Alberta to the equivalent in the United States, who rarely is what we think of as a jobber. In the United States our jobbers are usually local organizations, although some of them have chains. They usually fly the flag of the refining company that produces the products they sell. The jobber does not sell by brand in most instances in the United States. He is a Texas jobber, a Sinclair jobber, a Mid-Continent jobber and so on around the list. Ordinarily, as a jobber, he owns all the equipment with which he works. Ordinarily he assumes his own credit risks and he may own service stations—usually does own service stations—which he operates either as a jobber or leases to service station operators. But he is not buying gasoline from a refiner, certainly not one of the major refiners, to sell it under his own name without any marketing assistance from those refiners. Our jobbers are usually tied in to the major marketing plan and while they operate as an independent business man they have the benefits of the experience of the various other jobbers and marketers who are associated with that system. Further than that, these jobbers in the United States, even operating locally, have a great deal more money invested in their bulk plants. The average bulk plant in the United States costs about $17,500.00, and is typically a fairly large local distributor. I think that we should keep that in mind when we are thinking back and forth from the United States to Alberta; that we use the same words but the words do not have the same meaning. Now, there are jobbers in the United States that approximate in organization the jobber organization of Canada. These jobbers usually call themselves independents or some of them even go to the extent of calling themselves independent independents, because they buy in the open tank car market; assume all the responsibilities including the establishment of their own trade-names and the development of their own good-will as individual entities, with no association whatsoever with the major companies. Yet we cannot say that even that type of operation is absolutely free from some dependence upon the major company, because some of them in order to assure themselves of a constant supply of gasoline enter into contracts with the major refiners to supply a substantial part of

their requirements. There is another type of operation here in Alberta by a company that operates a refinery that is developing a new type of outlet. This particular operation mixes the type more than the first company mentioned. The channelizing is not as close in the second company as it is in the first. This company has a type of distributor, which I believe they refer to as a dealer-distributor, who functions something like the United States jobber but is different in one principal respect, and that is that the mechanical equipment is all in the same general layout. Truck haulers. We have truck haulers in the United States the same as you have here."

. . . . . .

"He certainly is one of the most independent marketers that exists in Alberta and is a counterpart of that same type of operator in the United States. That individual rarely possesses more than hauling equipment and he makes his own market as he goes along. He is damned up and down by those who have more perfectly channelized systems. The marketing, however, is not perfectly channelized. The methods of the older companies in the area are usually most perfectly channelized and the new companies usually try short-cuts which lend themselves to smaller organizations."

We quote from the evidence of Mr. Priestley, who is Chairman of the United Farmers of Alberta Central Co-operative Association Limited:

"THE CHAIRMAN: Yes. Perhaps that is one apppproach to it but in the end, however it is approached, I would be very much interested in hearing Mr. Priestley's views, representing the great farmer class as he does, as to whether he sees some necessity of the middle man.

"MR. BROWNLEE: That is the question.

"THE CHAIRMAN: I mean over and above your other contracts here. That is the bigger question, the consumers in Alberta have a middle man intervening between the refineries and themselves as distinguished from the refineries marketing department or organization doing that work.

"MR. BROWNLEE: Yes, my Lord, and now I will ask Mr. Priestley that very question and I will put it this way and we will illustrate it by this chart, Mr. Priestley, here, and this may be taken as a typical district in Alberta, Exhibit '320', and here we have three refinery companies, the Imperial, British American and the Gas and Oil Products, Limited?

"A. Yes.

"Q. And you also have the North Star Oils which is a jobber; the Great West Distributors which is a jobber and the Maple Leaf Petroleum Limited, which is a jobber. Now taking that as a typical picture throughout the province, what would you say might be the result if by legislation or otherwise these jobbers were eliminated from the picture, would it be to the advantage of the consumer or against him?

"A. Well, I would have to preface the direct answer to that question by stating that it depends to my mind considerably on the psychological

attitude of the people of the province towards restrictive legislation. If the people of the province were seized with the idea of the rationalization of the industry, to use a term which was current some years ago in Britain, and the great majority of them got behind the idea, something might be effected, but if that postulate could not be granted, I would say that the effect at a place like Leduc which Mr. Brownlee has suggested as an example, would be to place the distribution of the petroleum products in the hands of the three companies that are refining and marketing at that place, two major companies and one small company; that the consumer would have less say in the ultimate price to himself that he now has, because the jobber in my opinion does act or can act as a mobilizing factor for the consumer. He is a competitor. He enters the field. He is a disturbing factor.

"Q. To the refiner?

"A. To the refiner. He enters the field and gathers around him a certain number of persons by his energy and good-will and his sales appeal; true he may be selling under a brand name, an identical product of somebody else who is already in that field, but he goes into that field and secures a portion of the business and thereby assists in breaking down the monopoly which would otherwise prevail."

We again quote from Dr. Frey's evidence as to the usefulness of the jobber in the marketing picture in the Province of Alberta:

"So that the jobber is not a result of any recent happening. He has been here a long time and he was functioning in more or less the same position as all of the other companies. Now, I think it was Mr. Halverson who testified that there were jobbers large enough at the time the Imperial refinery was built, to construct a refinery for themselves, had Imperial not been able to sell them products and that the chief difference between some of those jobbers and Imperial or British American, more recently, would be that they were, they did not consider it desirable to build refineries in view of what they could purchase it for from refineries in existence.

"Now some of those jobbers are much more concerned about products, petroleum products, other than gasoline, than they are in gasoline. You might say that gasoline is necessary to complete their line but several of them apparently are much more concerned about distributing lubricating oils than they are in white products. They certainly must, if that is the case and for that particular type of operation, justify themselves largely in the product in which they are majoring than in the products in which they have a minor interest.

"They are doing a distribution job similar to that of the other companies and in so far as they are not charging more than the companies that have the refineries, it seems to me that they are performing a service in the province and their justification for being here is in the fact that they are able to stay in the picture in competition with the other marketers and that they are providing services at no higher prices generally, certainly not on most of the common products, than those who are distributing through integration.

"Q. Well, they have not done anything which has been reflected where the man on the street can see it most usually, in the tank wagon price?

"A. I think that is again one of those things that is so subtle that we are commonly not given to accepting the subtleties of competition. We think that all competition must be immediately price competition; prices ultimately reflect the total of competition of the competitive effect and not just the price effect."

In Alberta, prior to the construction of the Imperial Oil Limited's refinery at Calgary in 1923, all marketers of petroleum products may be said to have been jobbers. Later on other refineries were constructed. Impetus was given to construction by the discovery of crude oil in commercial quantities in northern Montana and, later, the discovery of naphtha in Turner Valley. These refineries have followed the United States pattern of marketing and are concerned to get jobber accounts so that their refinery surplus may be disposed of.

We do not see that the jobber has ever directly reduced the price to the consumer, but there are intangibles in any real competition which have that tendency. If the major companies are pressed to retain their gallonage, their prices tend to come down.

We think that the competition of Alberta jobbers and truckers is a real one, and that any attempt to eliminate them from the marketing systems now in use would have the effect of increasing the number of refineries needlessly, and, moreover, would interfere with the competition of a class whose members are keen competitors, because they are small enough to accommodate themselves to ever-changing conditions more readily than the large organizations can.

So long as the jobber is not merely a marketing arm of a refinery because of being a controlled subsidiary, or because of a long term contract to sell that particular refinery's goods exclusively, we think he plays a useful part in competitive petroleum distribution.

Having regard to all of the foregoing, we have no hesitancy in saying that the rate of return on capital investment of the company whose return is under consideration, cannot be criticized because of this company marketing a part of its products by sale to jobbers.

Service Station Contracts

Some question has arisen as to whether or not the so-called "100% contracts" between marketers and operators of retail outlets, which provide that the operator will only handle the goods of the

marketer with whom the contract is made, have the effect of needlessly increasing the number of service stations and of slowing down competition.

Contract sales of "white products" in Alberta are made by the marketing companies at posted tank wagon prices, except in the case of service station operators, large consumers and other dealers, such as garages, who are given a discount of 1c. per gallon off the posted tank wagon price. All of these people who get this discount of 1c. per gallon, enter into the "100% contract," i.e., each contracts to deal with one marketer to the exclusion of all other marketers. There are some few instances of service station operators and dealers handling the petroleum products of more than one marketer but generally speaking, such operators and dealers buy at the posted tank wagon price. We have evidence to show that in the case of at least one marketing company, the 1c. discount is allowed to those who do not contract to deal exclusively, but this is not the general rule.

There is some force in the suggestion that if all service stations and dealers were free to, and in fact did, carry the products of several marketing companies, each marketing company might have a greater opportunity of getting gallonage from the others, and that there might not be the same need for so great a number of service stations; but there is also force in the reasons which may be advanced against government intervention to bring this about.

We shall first refer to what Dr. Frey tells us is the situation with regard to 100% contracts in the United States:

> "Here most of the service stations are company owned and leased to operators, usually on 100% dealing contracts with the supplier. The number of so-called 'split' stations is small. In the United States the 100% account is almost universal from the Rocky Mountains to the Appalachians. There are very very few split accounts anywhere in that area. That is, the bulk of the United States does not have split accounts. In the eastern part of the United States we have a considerable number and on the west coast there are a few, but very few. The general pattern for distribution in the United States is on a 100% basis with the supplier."
>
> . . . . . .
>
> "Country stations in Alberta usually are not 'drive-ins' . . . and generally are not owned by the supplier, although they may operate and usually do on an exclusive contract.
>
> "An exclusive contract is not a thing peculiar to the oil industry. One finds it in various other lines of merchandizing. You will find shoe stores for example that have an exclusive contract or at least an exclusive arrangement with the manufacturer."

From the foregoing, it is quite clear that the Alberta marketers have adopted the pattern for distribution under 100% contracts which is common in the United States. This fact does not necessarily lead to the conclusion that the pattern is a good one and so, having come to the conclusion that the 100% contract is not an evil, we think that we should give reasons for our finding.

In the first place, unless it were shown that these contracts are contrary to public interest, which, in our view, is not the case, we think it would be wrong to deny marketers and service station operators, dealers or large consumers their common law right to contract with each other as they may see fit.

In the second place, we cannot see how any marketer may be sensibly told that he shall have nothing to say, or only have a say in connection with four or five other marketers, as to the type of service which is to be given by the retail operator with whom he has contracted.

In the third place, such a course would increase the cost of the marketing companies by requiring them to make deliveries to a vastly greater number of retail outlets than is now the case, and this without any consequent increase in gallonage.

In the fourth place, since either the marketing company or the operator owns the retail outlet, we think it would be quite inequitable to compel either one to make use of that property for the service of marketers who have no proprietary interest and no capital investment in the property.

In the fifth place, this course, if adopted, would serve to deny loyalty to any one marketer and destroy the initiative and the competitive spirit of retail vendors.

Taking into account all of these considerations, we think that they overshadow the benefits that might flow from Government insistence upon the doing away with the 100% contracts.

For the reasons given, we are of the opinion that the rate of return on investment of the company whose rate of return is under consideration, cannot be criticized because of that company having entered into contracts with the operators of retail outlets for the exclusive sale of products supplied by it.

We think that we have examined into all of the subjects discussed before us which relate to a possible reduction in capital investment for marketing, or relate to a possible reduction in marketing costs in connection with marketing. As a result, we feel that we may

safely say that the rate of return on invested capital, which Imperial Oil Limited enjoyed in the year 1938, is not only reasonable on its face but reasonable in fact.

This conclusion is indicative of the spread between the tank car price and the tank wagon price not being too great.

As in our consideration of tank car prices, we have now to determine if the differentials between the tank wagon prices of the various grades of motor fuels are reasonable, even though we have found that as a group the tank wagon prices are not unreasonably high.

The tank wagon prices at Calgary form the base for prices at all points in Alberta, except in that part of the province which is roughly from Lethbridge south to the border. Hence the price differentials at Calgary apply throughout the greater part of the province, the only difference in price at any point being the addition of freight from Calgary to that point.

The Calgary tank wagon prices (from wlhich a discount of 1c. is given to 100% dealers) are presently as follows:

	Tank wagon price per gallon
Ethyl gasoline	18c.
Standard gasoline	16c.
Third structure gasoline	13c.
Tractor distillate	12c.

There is a competitive discount of ½c. per gallon on third structure gasoline and 1c. per gallon on tractor distillate in the area contiguous to the city of Calgary, and there are various discounts on these same two products in the area south of Lethbridge, due to Montana competition. At all other points in the province, however, the differentials are the same as those between the Calgary posted tank wagon prices shown above, namely, 2c. between ethyl and standard gasoline, 3c. between standard and third structure gasoline and 1c. between third structure gasoline and tractor distillate.

The differentials in the tank car prices of these products are 1c., .8c. and 1c. respectively as compared with the tank wagon price differentials of 2c., 3c. and 1c. Obviously, then, the marketer enjoys a greater apparent profit on ethyl gasoline than on standard, and a much greater profit on standard gasoline than on third structure gasoline and distillate.

We have ample evidence to demonstrate that there is a higher cost in marketing ethyl gasoline than standard gasoline. We do

not know how much greater this expense is, but in view of the fact that the expense is greater, and having in mind the customary differentials in the prices of these two grades of gasoline in other parts of Canada and the United States, we are of the opinion that the differential of 2c. between the tank wagon price of ethyl and standard gasoline is reasonable.

The differential between the tank wagon prices of third structure gasoline and tractor distillate being the same as the differential in the refinery tank car prices of these products, which we have found to be reasonable, and the cost of transporting and handling distillate being not less than this cost in respect of third structure, we are equally of the opinion that this differential is not too great.

We find, however, that whereas the tank car price differential between standard gasoline and third structure gasoline is only .8c., the tank wagon price differential is 3c. The marketer therefore enjoys a gross profit on standard gasoline of 2.2c. more per gallon than he does on third structure gasoline. This suggests that the marketer handles ethyl and standard gasoline at a substantial profit and third structure gasoline and tractor distillate at a loss. But be this as it may, it is obvious that the prices of third structure gasoline and distillate must by reason of their inferior quality, be substantially less than the prices of the higher grade fuels, otherwise the consumers would purchase only the better fuels, leaving the distillate and lower grade gasoline unsold, which for the reasons given in discussing tank car prices, cannot be. On the other hand, it is obvious that too wide a spread between these various grades would result in consumers using the cheaper fuels instead of the higher quality products, which would likewise have an uneconomic effect on the refinery operation which would shortly be reflected in both the tank car and tank wagon price. It follows that the differentials between these prices cannot be regulated so as to be uniformly comparable with the tank car price differentials.

We were concerned, however, to ascertain whether or not these tank wagon differentials result in discrimination against the consumers of any particular grade of motor fuel. The foregoing prices indicate that the farmer, who is the largest consumer of third grade gasoline and the exclusive user of tractor distillate, enjoys a relatively low price as compared with the dealer who caters to the motorist and uses a much greater proportion of the higher priced standard and ethyl gasolines. If then there be discrimination in price differentials (and we do not say that there is) it is in favour of the agricul-

turalist, who is the largest consumer of the lower priced products and who is perhaps entitled to the greatest consideration.

In our view, the following points are worthy of note in connection with wholesale marketing:

1. That speaking of the industry generally, the evils of over-production have led to too many refineries and this, in turn, has led to an over-developed marketing system as a means of release for the refined products.

2. That the marketing system evolved is efficient and provides good service, but generally speaking constitutes a high cost mechanism.

3. That in Alberta, we have followed the general marketing pattern developed by the Industry in the United States.

4. That although we have a large number of marketers, only some few companies have the large part of the total volume of business.

5. That the conventional type of wholesale marketing follows the general scheme of there being numerous bulk stations operated on a commission basis to which products are shipped by rail or truck and from which deliveries are made by the commission agent to service stations, dealers and farmers within a radius of approximately 20 miles from the bulk station.

6. That in the cities of Calgary and Edmonton, there are large combination warehouse and bulk stations operated on a salary basis from which products are delivered to city service stations and dealers by tank wagon or truck.

7. That in the cities, the wholesale marketing companies, general speaking, own the service stations and lease them to operators. In the country the great number of service stations are owned by the operators. In both cases it is the rule that the operators make outright purchases of their petroleum supplies and resell to the public as independent vendors.

8. That although the cost of the wholesale marketing of products is ascertainable, the cost of the wholesale marketing of any one product is not ascertainable because the marketing of gasoline, for example, is done in conjunction with the marketing of other motor fuels, lubricating oils, greases,

tires, batteries, pumps, candles, wax, anti-freeze and so forth, and it is not possible to segregate the cost of the handling of one product from the cost of handling each and all of the others.

9. That the marketing profit performance in relation to invested capital of Imperial Oil Limited has been examined on the theory that, if the marketing operation be efficiently and economically performed, with a resulting profit that does not provide an unreasonable return on investment, then there is a strong indication that the marketers have not unduly influenced the price to the retailer in an upward direction.

10. That the Imperial operation has been selected because it is the conventional operation; because it is impracticable for the reasons given to effect a consolidation of the financial statements of all of those engaged in marketing; because it has the largest and the widest distribution; and because it has a normal proportion of volume in respect of the various petroleum products.

11. That as Imperial Oil Limited does not segregate the operations of its marketing department from its other operations in its records, we have taken the prices used in our refinery analysis, and used them as a refinery door purchase price for the marketing department, to which must be added sales tax and the cost of any packages used.

12. That this serves to show what the performance would have been had the Imperial marketing branch been obliged to buy its products on the same basis as the jobbers.

13. That with due allowance for depreciation, the total capital employed in marketing operations of Imperial Oil Limited, as at December 31st, 1938, is found to be the sum of $3,681,634.93.

14. That the net profit on the marketing operations during 1938 amounted to $389,080.89.

15. That insomuch as during 1939 the average tank wagon price of motor fuels was reduced by .58c. per gallon, this reduction, if it had been in force in the year 1938, would have had the effect of reducing Imperial's net profits in that year to $278,721.36, which is a return on the above investment of 7.56%.

16. That we have tested the exactness of the above return on investment by considering:

    (a) As to whether or not the capital said to be invested was actually invested.

    (b) As to whether or not the investment if made was a prudent investment.

    (c) As to whether or not operating costs may be said to have been excessive by reason of improvidence or inefficiency or both.

17. That it has been found that the capital said to have been invested was actually invested.

18. That we have examined into all of the subjects, the discussion of which in any way suggested that the capital investment was not prudently made and that savings could be effected in operating costs.

    These subjects may be listed as follows:

    (a) Undue expansion into outlying districts.

    (b) Duplication of bulk stations.

    (c) Duplication of retail service stations.

    (d) So-called free deliveries to farmers.

    (e) The loaning of drums to farmers.

    (f) Intervention of jobbers and truckers.

    (g) Retail service station contracts for the exclusive marketing of a wholesale marketer's products.

19. That notwithstanding all that has been said under the above enumerated heads, we find that it has been established:

    (I) That there has not been capital investment which is not prudent investment.

    (II) That there has not been excessive operating cost due either to improvidence or inefficiency in operation.

20. That, in the result, we find that the rate of return on investment of the company whose rate of return is under consideration is not only reasonable on its face, but reasonable in fact.

21. That we find that the tank wagon price differentials between the various motor fuels are fair and reasonable.

RETAIL MARKETING

We now come to an examination of the operations of retail marketers and the retail prices paid by customers at retail outlets. As we have before pointed out the retail marketer buys motor fuel delivered at his place of business by the wholesaler at the wholesaler's posted tank wagon price, less a discount of 1c. per gallon in the case of all those retailers who have contracted to deal with one wholesaler to the exclusion of all other wholesalers. As the great quantity of the motor fuel sold is sold to retailers who have entered into the "100% contract", the posted tank wagon price less a 1c. discount may be said to be the typical price to retailers for the purpose of our present examination.

In the large cities the wholesale marketing companies in the main own the service stations and the principal equipment therein and lease them to retail operators who conduct their retail operations as independent vendors. For example, in the city of Calgary during the year 1938, 90% of the total sales of gasoline to retailers by Imperial Oil Limited were sales to operators of service station premises owned by that company. In the city of Edmonton during the same year, sales to retail operators of company-owned stations were 77% of the total sales of this company. We do not propose to repeat all that we have said concerning "service station absorption" as a part of the wholesaler's marketing expense but it is perhaps fitting to again point out that the rental which the retail operator pays, which is the equivalent of from 1c. to 2c. per gallon of gasoline purchased by him, does not generally speaking provide the wholesale marketer who owns the premises, with a reasonable return upon the capital invested therein.

In the large towns a greater proportion of the retail selling is done by garage owners and retailers other than service station operators and a lesser proportion of the service station premises are owned by the supplying companies. In many such service stations, where the operator is the owner, we find a variety of arrangements between the operator and the wholesale marketing company such as cross leases and mortgage loans granted by the wholesaler for the purpose of improving retail facilities. In these centres we also find many service stations which are combination service stations and garages and others which are combination service stations and wholesale bulk stations.

In the smaller centres we find that there are even fewer service stations and that most of the gasoline sold is sold through curb pumps operated by garagemen, implement dealers, hardware-men and other merchants.

The general retail pattern then is the "drive-in" service station except in the small centres where the retail sale of gasoline is not carried on at a service station in which cases the sale of gasoline is usually a mere side line to some other business and is carried on for the convenience of the motorist who may thus be attracted to the operator's place of business.

It is important to note first that the service station operator in addition to selling gasoline, sells lubricating oils, greases, tires, batteries, accessories and many miscellaneous products, and does work for his customers such as minor repairs, car washing, greasing, etc., and second, that the average revenue of the service station operator derived from the sale of gasoline is usually less than the average revenue derived from the other branches of his service station business. We emphasize this because we do not think that it is generally understood that the service station operator cannot be regarded, from his standpoint at least, as being primarily a vendor of gasoline; he is in truth a merchandiser of mixed goods which he offers together with his services to the motoring public.

It is also important to bear in mind that the relative importance of gasoline sales to other sales and services fluctuates from time to time for all operators and varies greatly as between operators. In this connection, we may say that we made a survey of 17 service stations in the city of Calgary and we found, not only that the average percentage of the total service station revenue derived from the gross profit on the sale of gasoline was but 40%, but also that the variation in individual cases ranged from as low as 20% to as high as 80%.

With this understanding of the business of the service station operator, it is easy to appreciate the difficulty of determining what the proper retail spread on gasoline should be by the test of how much revenue the service station operator must have from the sale of gasoline in order to carry on his business. In fact we are of the opinion that it is not just difficult but quite impossible on the evidence before us to determine the spread per gallon of gasoline which the service station operator normally requires to conduct a profitable retail operation.

If then our approach to what is a reasonable service station spread between the tank wagon price paid by the retailer and the price

charged the motorist cannot be a determination of the cost of operating the service station, we are driven to found our conclusions upon a comparison of spreads in Alberta and elsewhere and upon the evidence of those witnesses whose unquestioned knowledge and wide experience in connection with service station spreads gives weight to their views as to what is a proper spread in given circumstances.

To first deal with the cities of Calgary and Edmonton, the retail spread between the price to the "100%" dealer (posted tank wagon price less 1c. discount) and the price, exclusive of fuel oil tax, charged to the motorist in Calgary was 4c. per gallon from July 20th, 1938, to June 20th, 1938. From June 21st, 1938, to date, it has been 4½c.

The present Calgary tank wagon price for standard gasoline, sometimes called "Q" gasoline, is 16c.; the price paid by the service station operator with a "100% contract" is 15c.; the retail price is 19½c. which, with a fuel oil tax of 7c., makes a price to the motorist of 26½c. per gallon.

The retail spread in Edmonton has been 4c. and 4.1c. in recent years but on November 10th, 1939, it was increased to 4½c. so that the spread in Edmonton is now the same as the spread in Calgary.

Mr. Halverson tells us that in May, 1937, Imperial Oil Limited discontinued the posting of retail prices and that since that time the matter of the retail price has been left entirely to the retailers. As the retailers are independent operators it might be thought that this company or any other wholesale marketer would not be greatly interested in the service station spread, but as we see it this is not the case because if the spread be too high it will have some adverse effect upon gallonage and if it be too low the operator may not be able to carry on. Bearing in mind then that Mr. Halverson, as a director of Imperial Oil Limited, must have a very real interest in these spreads we think that his evidence on the point must be given serious consideration. We quote from his evidence as follows:

> "And I am inclined to think that a 4 cent margin is just a bit too low, when you consider that the man for six months in the year does not have very much business, and of recent years there has been legislation put into effect about minimum wages and maximum hours and my considered opinion is that 4½ cents spread is desirable if you want to live and let live. I think the dealer is entitled to that."
>
> . . . . . .
>
> "Now, in connection with that thing that has been stressed so much about retail margins, in my brief I presented figures from the United States Department of Statistics that the average retail margin in the United States in 1937 was 4.05 per wine gallon or 4.80 per Imperial gallon, with much greater density. I think in Edmonton and Calgary the public

is getting gasoline at a very low retail margin, particularly at Edmonton where it is 4 cents, and I want to reiterate that I think the dealer is entitled to a living wage and that 4½ cents is the minimum."

Dr. Frey gave the following evidence on the point now under consideration:

"Q. First of all do you not think there is something at first blush in any event wrong with there being a 4 cent spread in Edmonton and a 4½ cent spread in Calgary. I am not saying at all now which is the right one?

"A. Also leaving out the question of margins?

"Q. Oh yes.

"A. Just as a matter of observation it would seem at first that the two should be essentially the same. But I do not know positively that there is not any justification for the difference. There may be a justified difference. They are both pretty close to right and neither one can be very far wrong."

In view of the spreads in the United States, where there is greater density of population, in view of the above opinions and in view of the fact that the examination which we made of seventeen service stations did not disclose exorbitant service station profits when operating on a spread of 4½c. per gallon, we think that we may safely express the opinion that the service station spreads on gasoline, now in effect in Calgary and Edmonton, are not unreasonably large.

We turn now to retail spreads in other parts of the province. The retail spreads on ethyl gasoline and standard gasoline at various points selected at random throughout the province are shown in the following table as at December 31st, 1938:

TYPICAL SPREADS BETWEEN TANK WAGON PRICES TO 100% DEALER AND RETAIL PRICES AS AT DECEMBER 31ST, 1938

	Ethyl	Standard
Athabasca	5.7	5.2
Banff	5.9	5.9
Bassano	5.1	5.6
Blairmore	7.7	8.5
Brooks	5.7	5.2
Camrose	4.9	5.4
Coronation	5.6	6.1
Drumheller	5.1	5.6
Edson	5.5	5.5
Grande Prairie	6.0	6.0
Hanna	5.4	5.9
Jasper	5.4	5.9
Lac la Biche	6.8	6.8
Lacombe	6.6	6.1
Leduc	3.9	4.4
Lethbridge	5.3	5.0
Macleod	6.2	5.7
Medicine Hat	4.9	4.9
Olds	4.3	4.8
Peace River	7.5	6.6
Provost	6.0	6.5
Pincher Creek	6.2	5.4
Red Deer	5.3	5.3
Rocky Mountain House	6.2	5.7
Stettler	5.2	5.7
Smoky Lake	6.0	6.5
Stony Plain	4.2	3.7
Strathmore	4.9	5.4
St. Paul de Metis	5.5	5.0
Taber	5.7	5.7
Tofield	4.7	4.2
Vegreville	5.1	5.1
Vermilion	5.2	5.7
Vulcan	5.3	5.8
Wainwright	6.2	6.0
Westlock	4.2	5.7
Wetaskiwin	5.2	5.7

From the foregoing it is clear that apart from Calgary and Edmonton, there is very little uniformity of spread and that the wider spreads are not always at the places where by reason of population, the costs would be expected to be higher. For instance the spread at Red Deer is greater than the spread at Stony Plain or Tofield and the spread at Lethbridge is greater than at Olds or Leduc.

Mr. Halverson's evidence concerning the reasonableness of spreads outside Calgary and Edmonton is as follows:

"THE CHAIRMAN: I would like to ask you before Dr. Frey goes back on the stand and you may be further examined upon it at a later time. But if you will please just consider this. You said 4½c. dealer margin was in your opinion reasonable and proper for the cities of Calgary and Edmonton?

"A. Yes.

"Q. I want you to tell us shortly, if you will, please, what you consider the position with respect to the other points to be served by your company in this province?

"A. Our views on that are not quite so definite. There are very small hamlets and there are towns that are larger. I would say anything up to 6c. would not be excessive, considering all the factors.

"Q. In what places?

"A. A 6c. margin at places like—well say 5c. for a town like Red Deer should be sufficient and Drumheller, whereas you go down the scale and it might be 6c. and that was sufficient for most all points except under extraordinary conditions. I did not make it very clear when I was on the stand before that I consider from the standpoint of the dealer 4½c. is really the minimum he had to have. I consider 5c. the maximum and so under present conditions we recommend 4½c. as the minimum and in no disparaging way we say 5c. as being the maximum. I just want to clear up that point.

"Q. I understand you. Now you think 4c. is not enough?

"A. I do not.

"Q. That 4½c. I do not remember your language, but 4½c. should be adequate for the cities of Edmonton and Calgary?

"A. That is right.

"Q. And 5c. for places like Red Deer and Drumheller?

"A. Yes.

"Q. And places of comparable size?

"A. Yes.

"Q. And from there graduate upward to a maximum of 6c.?

"A. Yes.

"Q. In the smaller hamlets?

"A. Yes, with some exceptions perhaps in the far away places but 6c. should be the practical maximum.

"Q. All right. I want to be clear on that. Thank you very much."

Dr. Frey's evidence touching upon retail spreads generally is of interest and is next quoted:

"Q. So that in the end then, are we coming to the view that 'Hands off service stations' is the wise policy from an economic standpoint?

"A. There is only one thing that strikes me about the service station situation that may be very valuable. I am not saying that it is but it strikes me as a possibility. Some service stations in this province are charging a very large margin. They cannot get those margins locally of course. If, for instance, you have a margin of 6 to 7 cents and I understand that there are places where that actually exists. Now the home people who know that operation certainly are not going to pay 6 or 7 cents when all they have to do is to buy a barrel of gasoline in order to get it at, at close to tank wagon or at tank wagon or close to it, or slightly below it in some instances. Now that type of operation is strictly for the sucker trade, and the sucker trade is you and me and the likes of us when we are out touring and we do not know the immediate local situation. I should say that that type of thing is something that one cannot countenance without comment and my problem is, what can be done about it. It was suggested to me that possibly you could establish the margin of operation and when I looked into that I found that there is no base; the difference in distribution has different bases for that filling station cost, that is the laid-in cost to the service station, the difference may not be great but nevertheless it is not uniform among the companies operating, so it looks to me there as though, if there is anything that can be done, it would be to throw the light of public opinion on what actually constitutes a proper margin of profit, that that type of operator is taking, and I cannot see very much other than that that can be done. It would then be up to the buyer to decide whether he would take that or to try to get the lower price, that is to say, if the posted price also carried with it some suggestion of the margin, where the margin is longer than usual, it seems to me that the public would be adequately warned and that much of the criticism of the price of gasoline might be removed, simply by putting the light of public opinion on it, in which it would be, in which it would hardly be expected that a very long margin would stand.

"Q. That is to say that some requirement should be passed, requiring that there should be posted on the pump the price at which that product was sold to the dealer?

"A. I do not feel that I am prepared to recommend that; I am just suggesting that it is one of the things. Perhaps the industry could suggest something better but it is just one of the things that occurred to me that might be used in order to reduce these unusual margins in some peculiar localities.

"Q. That is posting?

"A. That would require the margin to be posted. You would post three prices; you would post the price at which it was sold, you would post either the difference or the price at which it was bought and the tax and then the consumer would know what he was paying."

Mr. Halverson's evidence following upon Dr. Frey's evidence is as follows:

"MAJOR LIPSETT: There is just one thing more I want to ask you, Mr. Halverson, you heard the suggestion of Dr. Frey yesterday as to posting the price the companies charged the dealers and the tax, on their pumps; now I take it that possibly in Calgary and in Edmonton, owing to the influence of your dealers you do exercise a very considerable influence on the ultimate price to the public but in the case of the other dealers and the dealers in outlying districts, what would your views be as to Dr. Frey's suggestion, as to its practicability and its advantages or disadvantages?

"A. I understood Dr. Frey's evidence to be that the Government might attempt to educate the public regarding correct oil spreads where abuses existed and I would add that the industry should assist where they do exist; to what extent the posting of the price would assist is questionable; I am not a very great believer in posting the price unless all the products are sold at that price; it does not seem honest. However, at the same time I presume that the posting of the price would exercise a restraining influence, that they could not sell above that price; of course I believe that the Government could easily do a real educational job; that if in certain communities where they felt the retail spread or margin was too wide, they directly, and also with the assistance of the industry, should concentrate on those particularly bad spots instead of trying to regulate everything at every other point in Alberta where it was not necessary. I think you would get further and be more effective.

"MAJOR LIPSETT: I think if I got Dr. Frey correctly, and he will correct me if I am wrong, that his idea was that it might be desirable to put, not the posted price at which they could sell, but the price at which the dealer had purchased from the refinery and post that, plus the tax, so that the purchaser would know what spread he was actually being charged; was that the suggestion?

"MR. FRAWLEY: Oh, yes.

"DR. FREY: That was a suggestion along the line of what might be done to throw public light on the subject; now I do not maintain that that is the only way that it could be done; the question 'Have you any suggestions as to how you might throw the light of public opinion on it' and I suggested that as one of the possibilities where the margin was definitely known to be longer than needful; I do not know whether it would work."

We will not attempt to summarize nor will we quote all of the evidence which has a bearing upon retail spreads; we think it enough to say that, after reading all that has been said, we are left with a definite impression that there are wide variations in spreads in places of the same size in this province which may not be accounted for by local conditions. We know that during past years there have been reductions in the tank wagon prices of gasoline. We know that there has been no increase in tank wagon prices since 1936.

We also know that there are places in the province at which the retailers have not passed on the benefit of tank wagon price reductions to the consumers. We think that all of this points to the conclusion that in some places in Alberta there is no free competition but on the contrary there is collusion between operators to maintain a retail spread that is unreasonably large.

The question then arises as to what should be done to deal with the situation. We have had a number of suggestions put forward which we now propose to discuss.

It was suggested that retail prices be fixed by government agency. We are of the opinion that any such course would entail a consideration of conditions in each separate locality in Alberta at which prices were so fixed, which would be a well-nigh impossible task. Moreover, we are of the opinion that this would curtail retail competition to the extent that it presently exists and would work to the ultimate disadvantage of the consuming public.

It was also suggested that the establishment of a maximum retail spread by government agency would accomplish the desired result. As to this we are inclined to accept Dr. Frey's view that the maximum spread would automatically become the spread in force thus resulting in higher prices than now exist in localities where competition is now effective in the establishment of reasonable spreads.

It was further suggested that the wholesale marketing companies had some responsibility in assuring reasonable retail spreads and that these companies should operate pilot service stations so as to establish a top price beyond which the competing retailers could not go. Such a course is contrary to the policy of the supplying companies not to interfere with the retail operator's price to the consumer but this in itself is not a good enough reason for rejecting the suggestion. We do think, however, that the creation of pilot stations by the wholesale marketing companies particularly in the small centres where most of the collusive agreements would appear to be made, would be so expensive an undertaking for the returns to be expected, as to be out of the question. Furthermore, it is our opinion that the supplying companies should not be called upon to spend large sums of money to police the retail trade. If there be conspiracies to unreasonably enhance the price of gasoline, this should be a matter of concern to those charged with the administration of the criminal law.

We were greatly impressed by Dr. Frey's suggestion that publicity might do much to bring retail spreads within reasonable

bounds in those places in which the spreads are now unreasonably great. Although Dr. Frey does not go the length of recommending compulsory publicity, we do not hesitate to recommend that all retail dealers be required by law to post on their pumps, not only the retail price and the government tax as at present, but also the price paid by the retailer for the petroleum product which he is selling to the public. If this be done we think that the retailers who seek an unreasonable spread in any locality will not long remain in business without a change in business policy.

In the result, it is our opinion that the retail spreads in the cities of Edmonton and Calgary are reasonable; this we cannot say about all other parts of the province. It is our opinion, however, that if it be required by law that each retail operator post the price at which he buys as well as the price at which he sells, the situation will probably be put right by the force of loss of trade to those of whom it is known that they seek exorbitant profits at the expense of the buying public.

Having examined into the question of whether or not the petroleum industry, in any of its branches, can be said to be making an excessive profit, and having come to the conclusions before stated, we now come to a consideration of how these prices compare with prices elsewhere.

It may appear to anyone who has bought gasoline anywhere outside of Alberta for less money than he buys at, say, the city of Calgary, that the price in the city of Calgary is a wrong one. The fact is that the Calgary price, though higher, may be none too high. It is to be borne in mind that in different places there are different conditions which may affect the industry's costs, such as a difference in the price of crude oil; a difference in necessary capital investment in buildings due to higher labour and building material costs; a difference in costs because of freight and duty; a difference in costs because of differences in climatic conditions, road conditions, density of population and volume of "through-put". These and doubtless many other considerations that do not presently occur to us, may well be borne in mind in comparing the prices of petroleum products in Alberta and elsewhere.

Since there has been the suggestion that competition "was not working in Alberta", we were not entirely satisfied that the profit performance alone should be taken for a determination of whether or not the tank car, tank wagon and retail prices were reasonable ones, and so we examined Dr. Frey as to how any person interested would proceed to determine as to whether prices were such that the

state should be called upon to intervene. We quote from his evidence as follows:

"Q. . . . How would you proceed to say or to decide whether it was or was not too high, in the sense of a person who was interested in knowing whether the time had come for the State to intervene or not?

"A. The first thing I should have to consider is the profit position of the companies.

"Q. Yes.

"A. And the next thing that I would have to do is to make comparison between prices in various places and prices here, having in mind the difference in the cost of production, transportation differences, market differences; geographic differences, and in geographic differences I would say one would have to consider the employment of land, the nature of the industry and type of climate, variations in the climate and all of the other factors that are geographic and effect economic considerations. I would not isolate any single group of factors in trying to arrive at a reasonable conclusion concerning the nature of the price structure.

"Q. Yes. So that you would look to (1) the profit position, (2) the prices prevailing elsewhere having regard to, always, of course, the differences at those points which have a bearing on the price and at the points under consideration?

"A. Yes, sir, and then you see the next thing would be the size of the market. The inherent risks of the industry and as soon as we would get into the question of inherent risks we would have to consider the locale and locale has a geographic complex and that geographic complex consists of all of the elements of geography as they impress themselves in the occupations and life and economics of the people.

"Q. Yes?

"A. Just to say that one of these has greater weight than another is extremely difficult and in a final analysis I would say that it involves a great deal of judgment as to the values to attach to the various elements which constitute the factors in this interplay of prices."

After reviewing his examination into the Alberta situation, Dr. Frey says:

" . . . I cannot see that the system here is particularly out of line and I do not want to be complimentary to the oil industry, just to do a white-washing job—I would rather not be complimentary than be complimentary but I cannot help but say that I think the economic system is working and working quite effectively toward the ultimate benefit to the consumer and that as prices now stand I cannot see that there is anything radically wrong about them."

. . . . . .

"I would go so far as to state that the competitive system in Alberta is so intense that there is no possibility of a consumer paying more than any other consumers in North America, in considering the geography

under which they live. There is no evidence that I know of that extortionate profits are being made and the consumer is not in the hands of any one company, and no one company is making so much money that we have any fear for the consumer in Alberta. I think the consumers are getting a product of a higher grade than they used to and the profit to the companies operating that indicates that there is no extortion being practiced by those who are engaged in the Industry."

So far as the industry is concerned, we think that, subject to what we have said as to the Field Price, as to a downward trend in tank car prices and as to retail price spreads in some parts of Alberta, we must subscribe to Dr. Frey's views as last hereinbefore set forth.

We say "so far as the industry is concerned" advisedly because Dr. Frey very carefully refrained from discussing any law which emanated from government authority; his position was that, being in the service of a foreign government, it would not be proper for him to do so.

That which we have said with regard to the operations of retail marketers and the retail prices paid by customers at retail outlets may be summarized as follows:

1. That the retail marketer buys at the posted tank wagon price less a discount of 1c. per gallon in the case of all retailers who contract to sell the products of one wholesale marketer exclusively.

2. That as nearly all retailers have such a contract, the typical price is the posted tank wagon price less a 1c. discount.

3. That, in the large cities, most of the service stations are owned by the wholesale marketing companies and are leased to operators who conduct their retail operations as independent vendors.

4. That in the large towns a less proportion of the service station premises are owned by the supplying companies but there are many instances of the wholesale companies holding cross leases and granting mortgage loans to the retailer. In the small centres most of the gasoline is sold through curb pumps operated by garagemen and merchants, the sale of gasoline or other petroleum products being but a side line primarily for the convenience of the motorist doing business with them.

5. That the average revenue of the service station operator derived from the sale of gasoline is usually less than the

average revenue derived from the other branches of the service station business.

6. That out of 17 service stations in the city of Calgary that we have surveyed, we find that the average percentage of the total service station revenue derived from the gross profit on the sale of gasoline was only about 40%, and that the variation in individual cases ranged from a low of 20% to a high of 80%.

7. That in view of the many services which the retail service station operator gives to the motorist and for which he charges, and in view of the many things which he sells to motorists over and above gasoline, such as lubricating oils, greases, tires, batteries, accessories and miscellaneous products, it is impossible to determine the spread per gallon of gasoline which the service station operator normally requires to conduct a profitable retail operation.

8. That since the cost of operating the service station cannot be the approach to what is a reasonable service station spread between the tank wagon price paid by the retailer and the price charged to the motorist, we have of necessity to resort to a comparison of retail spreads in Alberta and in the United States, and to the evidence of those witnesses who, because of long experience in connection with service station spreads, are able to express an opinion as to what is a proper spread under given circumstances.

9. That we find on the evidence that the retail spread in the cities of Edmonton and Calgary of 4½c. is reasonable.

10. That we find that the retail spreads in various other parts of the province cannot be justified by local conditions and are unreasonable.

11. That in these places reduction in the tank wagon price on gasoline has not in all cases been passed on to the consumer and in addition there is such a variation between the spreads there obtaining and spreads in other places of a like size as to lead to the conclusion that there are collusive agreements to unduly enhance the price to the buying public.

12. That aside from criminal prosecution which is a matter for those charged with the administration of the criminal law, it is our suggestion that in all places in which gasoline is sold the retail vendor be required to post on his pump not

only the amount of the government tax and the price at which he sells as at present, but in addition the price at which he bought from the wholesale marketer.

13. That it is our belief that public knowledge of the spread will bring public condemnation and lack of business to those seeking an exorbitant profit at the expense of the buying public.

14. That we accept Dr. Frey's view that the Alberta consumer is not paying more for petroleum than "any other consumers in North America, in considering the geography in which they live".

This brings us to a consideration of those things which may affect prices over which those engaged in the Petroleum Industry have no control.

ETHYL GASOLINE CORPORATION

One of the matters in respect of which we are directed to make inquiry is, to use the language of the Commission, "The operation of the Ethyl Corporation in this province and the effect of the licensing system of the said corporation upon the refining, distributing and marketing of petroleum products in the said province."

The Ethyl Gasoline Corporation is a body corporate, incorporated under the laws of the State of Delaware in the United States of America with its principal offices in New York City. The corporation may be said to be owned by the Standard Oil Company of New Jersey and by General Motors Corporation, because each of these companies owns 50% of its stock. This corporation's business is to produce and sell a fluid which is said to have anti-knock qualities and which, when mixed with gasoline, improves the performance of gasoline motors of all kinds.

The third grade gasoline which is sold in this country does not contain the anti-knock fluid put out by this corporation and we think is on that account undoubtedly lower in anti-knock quality. On the other hand, Standard, or as it is sometimes called, "Regular" or "Q" brand gasoline does contain the tetra ethyl lead fluid produced by this corporation; it is established we think that Standard gasoline is on that account superior to third grade gasoline in anti-knock quality. The "Ethyl" gasoline is gasoline mixed with the anti-knock fluid of this corporation; it is said to be and we think is the highest in anti-knock quality, not because the fluid that is provided by the corporation is different from "Ethyl" gasoline than it is for Standard gasoline but because it is a requirement of the Ethyl Gasoline Corporation that before the trade-mark "Ethyl" may be used, the gasoline to be mixed with the fluid must be strictly in accordance with its specifications and that the mixture must have a minimum octane number rating of 78. The term "octane number" is merely a yardstick for measuring the anti-knock value of gasoline. It is to be noted to avoid confusion that although as before stated there is no difference between the fluid used in Standard gasoline and the fluid used in Ethyl gasoline, the Ethyl Gasoline Corporation speaks of one as "Ethyl Fluid" and the other as "Q Fluid" to differentiate between the types of gasoline into which the fluid is put.

This corporation does an enormous business in Canada and the United States; according to Mr. H. W. Kaley, a Petroleum Engineer, and General Sales Manager of the Ethyl Gasoline Corporation, about

80% of all the gasoline sold in the United States and Canada is treated with this corporation's fluid.

We were concerned to know since the General Motors Corporation owned 50% of the stock of the Ethyl Gasoline Corporation, as to whether or not the high compression engines which are now being manufactured were being manufactured in order to force the sale of the "Ethyl" fluid. We are satisfied on the evidence before us that this is not the case but rather that the Petroleum Industry in the use of this fluid is but trying to keep pace with the automobile industry which in turn is attempting to meet public demand for more power.

It is not to be thought that a high quality of gasoline cannot be produced without the addition of the Ethyl Gasoline Corporation's fluid. The evidence shows that intensive refining may bring this about but we think it clear that the refiners in this country cannot, or at least cannot without much greater cost, produce the Standard or a Premium gasoline, corresponding with the present products, without the addition of tetra ethyl lead as compounded by the Ethyl Gasoline Corporation.

It is of interest to note in passing that the fluid which the corporation provides is, according to Mr. Kaley, a compound of tetra-ethyl lead, ethylene dibromide, ethylene dichloride, kerosene, dye, etc., and that it is a requirement of the corporation that the ethyl gasoline be coloured red before being offered for sale.

We see no useful purpose in discussing the patents of the Ethyl Gasoline Corporation, nor does it seem to us important to refer to the rules and regulations and to the license agreements of this corporation; anyone interested may refer to Exhibits 502, 503, 504 and 510. It is enough to say that the Ethyl Gasoline Corporation has wide patent rights and has made stringent rules concerning the handling of its fluid to prevent lead poisoning and to protect itself as to the quality of the gasoline product which will be offered for sale under its trade name "Ethyl".

We cannot find on the evidence before us that the charge for the Ethyl Gasoline Corporation's fluid is an excessive one; it is Mr. Kaley's evidence, which we see no reason for rejecting, that this corporation does not engage in the manufacture of gasoline and does not interfere with the prices at which Ethyl gasoline and Standard gasoline are sold in this province, but is solely engaged in the production and sale of the anti-knock compound; and so we hold that this corporation has not unduly enhanced the price of petroleum

products to the public in Alberta, through the medium of prices charged for its fluid, or otherwise.

The only controversial matters in connection with this corporation discussed before us, were as follows: first, as to whether or not the corporation has shown favouritism in one instance, when departing from its general practice not to allow licensed refineries in the United States to ship lead treated gasoline into Canada, on the reasoning that Canadian licensed refineries are entitled to the Canadian business; the case in point which was discussed was that of the Texas Company being allowed to ship from Montana to Texas Company of Canada, Limited, whilst no other United States refinery was allowed to make like shipments into Alberta; the second was as to whether or not Ethyl Gasoline Corporation was justified in allowing a licensed refiner who had ceased to carry on a refinery business, to sell "Ethyl" gasoline bought from another refinery, under his own trade name; the third was as to whether or not Ethyl Gasoline Corporation was entitled to insist upon the refineries licensed by them only selling gasoline to jobbers licensed by the Ethyl Gasoline Corporation and in the case of ethyl only under the "Ethyl" brand of the vendor refiner.

We do not know in what way any recommendations by us in respect of these matters could be effectively acted upon by the Alberta Government, but insomuch as much time was taken in a discussion of them, we may say as to the first, without entering upon a discussion of the soundness of the general policy of protecting Canadian refineries in respect of Canadian business, that it seems to us if Alberta is to be made an exception, it is unjust that the Texas Company of Canada, Limited, should be the only one allowed to enjoy the exception. The suggested distinction on the ground that Texas Company of Canada, Limited, is a subsidiary of Texas Company is without value in our eyes. As to the second and third matters, it seems unnecessary to discuss them, as counsel for the Ethyl Gasoline Corporation informs us in a formal way (see Exhibit 751) that there has been a change of policy on the part of the corporation, and that hereafter in the event of a licensed refiner ceasing to carry on the business of a refiner, his license will be cancelled. With regard to jobbers we quote from the Exhibit as follows:

> "The Corporation has revised its policy somewhat in the United States with regard to the use of the jobber's own brand for ethyl. The Corporation has, as we well know, declined to issue licenses for the jobber's own brand of ethyl, for reasons which were set forth in the evidence given before the Commission by Mr. Kaley.

"Since Mr. Kaley gave his evidence, certain jobbers in the United States have impressed upon the corporation their ability to supervise the outlets from which their ethyl gasoline is sold with respect to health and quality angles and the Corporation has issued a few licenses to jobbers in whom the Corporation has gained such confidence. Although the experience of the Corporation with these jobbers in the United States is as yet limited, the Corporation has decided to extend the same right of using the Corporation's trade name in conjunction with the jobber's brand in Canada to such jobbers of integrity who will, in the opinion of the Corporation, supervise the ethyl gasoline outlets in accordance with the obligations placed upon them by the jobber's license.

"In extending this same right to Canada at this time the Corporation is following out its policy of making its regulations continent wide and desires to give the same privileges in Canada as in the United States of America."

In view of the foregoing it seems to us that any discussion of these matters would now be academic and we do not propose to be drawn into such a discussion.

With regard to the jobber situation, it is worthy of note that according to current report the Supreme Court of the United States has recently held that the Ethyl Gasoline Corporation is not in law entitled to maintain the control over jobbers which it had established by resort to a licensing device. As we have not the official report of the decision before us we make no further comment upon it; we may say we mention the decision only because we would not have it thought that a decision of such importance to the petroleum industry had not been brought to our attention by counsel to the Commission.

In the result we do not find that the activities of the Ethyl Gasoline Corporation in the Province of Alberta have led to any evils or unduly enhanced prices in connection with any branch of the Petroleum Industry.

We summarize that which we have said concerning the Ethyl Gasoline Corporation by saying that we find:

1. That the corporation is incorporated under the laws of the State of Delaware in the United States of America.

2. That its principal offices are in the City of New York.

3. That the corporation is owned by the Standard Oil Company of New Jersey and by General Motors Corporation, in equal shares.

4. That the corporation's business is to produce and sell a fluid which has anti-knock qualities, and which, when mixed with gasoline, improves the performance of gasoline motors.

5. That this fluid is used in this country in the standard gasoline and in the premium gasoline known as "Ethyl".

6. That third grade gasoline as marketed in this country does not contain the fluid of the Ethyl Gasoline Corporation.

7. That there is no difference in the fluid which is used in standard gasoline and ethyl gasoline; that the difference in favour of the ethyl gasoline is that it is a requirement of the Ethyl Gasoline Corporation that before the trade mark "Ethyl" is used, the gasoline to be mixed with the fluid must be strictly in accordance with the Ethyl Gasoline Corporation's specifications, and that the mixture must have a minimum octane number rating of 78.

8. That a gasoline of high quality may be made without the use of the Ethyl Gasoline Corporation's anti-knock fluid but none the less the evidence points to the conclusion that the refiners in this country cannot, or at least cannot without much greater cost, produce standard or premium gasoline of equal quality with the present products without the addition of tetraethyl lead as compounded by the Ethyl Gasoline Corporation.

9. That of all the gasoline sold in Canada and the United States, about 80% thereof is treated with the Ethyl Gasoline Corporation's fluid.

10. That it cannot be said on the evidence before us that the high compression engines now in common use are made so as to require a gasoline containing ethyl fluid.

11. That it appears from the evidence that the Petroleum Industry in the use of this fluid is but trying to keep pace with the automobile industry which, in turn, is attempting to meet public demand for more power.

12. That the general practice of Ethyl Gasoline Corporation is not to allow licensed refiners in the United States to ship lead-treated gasoline into Canada, on the reasoning that Canadian licensed refiners are entitled to the Canadian business.

13. That complaint has been made that it has departed from this practice by allowing the Texas Company to ship from Montana to Texas Company of Canada Limited, in Alberta.

14. That since this privilege is not extended to any other person or company in respect of Alberta business there would appear to be favouritism which is not satisfactorily explained to us by saying that the Canadian company, although a legal entity, is a subsidiary of the United States company.

15. That any other complaints made with respect to the practices of the Ethyl Gasoline Corporation appear to have been satisfactorily met by a change in the policy of the company.

16. That we cannot find on the evidence before us that the charge made to Alberta users of the Ethyl Gasoline Corporation's fluid is an excessive one.

17. That subject to what may be said as to favouring the Texas Company, as to which it would be futile to make any recommendation, we do not see that the activities of the Ethyl Gasoline Corporation in the Province of Alberta have led to any evils or unduly enhanced prices in connection with any branch of the Petroleum Industry.

STANDARDIZATION

The subject of standardization of petroleum products engaged our attention for some considerable time in the course of this inquiry.

It if were practicable to have Dominion standardization it would in our view be better than having different standards set up in the various provinces. We think that no serious difficulty would be presented by reason of differences in climatic conditions, altitude and the like because allowance for this could be made in any scheme of Dominion standardization. We are, however, inclined to think that because of constitutional and other difficulties it is unlikely that standardization will become an accomplished fact as a Dominion matter and so we give consideration to the whole question of standardization as a Provincial undertaking.

We do not know of any better way of putting forward the views advanced before us than by short extracts from the evidence of witnesses who spoke upon this subject. The witness who has perhaps given the most attention to standards is Professor Stansfield. He holds the degree of Master of Science from the Victoria University at Manchester, England, and is professor of Industrial Research at the University of Alberta. He has acted as Chief Chemical Engineer for the Research Council of Alberta. He was a member of the Committee appointed by the Legislature of Alberta in 1929 to consider standards; in 1935 and 1936 he was again concerned with this subject and at the present time under the auspices of the Department of Trade and Industry he is once more engaged in this work. The following extracts from his evidence are of interest:

> " . . . oils are commodities the quality of which cannot readily be judged by the consumer, so that he is somewhat at the mercy of the vendor. The result is that consumers will tend to buy only from large firms with a high reputation to maintain. Smaller or younger firms selling an equally good product must find it difficult to make this fact known to the consumers."
>
> . . . . . .
>
> "The adoption and enforcement of standards would have the advantage that it would compel all producers and vendors to maintain at least the required minimum standard of quality. This would be a protection to the consumer, and producers who regularly maintain a high standard of quality would be protected from unfair competition with producers having lower standards."
>
> . . . . . .

"The quality of such a fuel oil as gasoline is not capable of absolute standardization; it must be relative. A gasoline must be suited to the engine in which it is to be burned, and it must be suited to the season. A good gasoline for one car, or at one time of the year, might be impossible for another car or in another season."

. . . . . .

"THE CHAIRMAN: Professor Stansfield, quite aside from fraud and people being victimized and all the rest, do you see no advantage in the public knowing exactly what they are buying?

"A. Yes, I do.

"Q. Supposing there is no blending and supposing I am buying an inferior grade of gasoline and paying the top price. There is no blending at all. No change from the time it leaves the refinery. Why should not I know what I am buying?

"A. I think there is quite an advantage in that. The only difficulty comes if it is possible that the standards are going to end up by being a drag on the evolution and we are better without them. My personal opinion is in favour of standards."

. . . . . .

" . . . I observe you have spoken of gasoline. What about the protection to the farmer? Take the man with the Diesel engine and he is unknowingly buying something that will ruin it. Should he not be protected as much as the motorist?

"A. Yes, Sir.

"Q. Your views with regard to standardization apply equally to farm tractors as they do to consumption by motor car owners?

"A. Yes. As far as I am aware the National Research Council specifications do not go up to tractor fuel. The Canadian Purchasing Commission included Diesel fuels and tractor distillates and Aviation fuels and other products.

"Q. In any event, in the Province of Alberta you think that such protection as standardization provides should be afforded to the farmer quite as much as to the ordinary motorist?

"A. Yes, I think he is the big consumer.

"Q. There is no practical difficulty in setting up standards for farm products, I take it?

"A. Not to protect him against something that would do damage to his engine. But we have not available the necessary equipment for testing Diesel fuel equivalent to the octane rating. I do not think it would be necessary to insist on that for the time being. It may be advisable in the future some time or other. But we can make all the tests to see he was not going to get anything to damage his engine or anything of that sort.

"Q. You cannot give him the same measure of protection that you give the ordinary motorist?

"A. Not quite. One item would be the octane.

"Q. What would it involve in expense to put yourself in a position do do so?

"A. $500 or $800 or something like that.

"Q. That might not be such a tremendous expense if it helped all the farmers in Alberta?

"A. No, it would not be very big. I might just explain at this point, Sir, we are facing at the present time, if this work is going to go on for gasoline, there is a very big programme of work ahead involved in the gasoline to start with and I did not see any point in facing our wider issue before we could take charge of it.

"Q. In the net result, again leaving aside cost for the moment?

"A. Yes.

"Q. In the net result you are in favour of the adoption of standards of all refined products in Alberta?

"A. Yes, Sir. In my understanding of the Industry, as I suggested it, I would say yes.

"Q. Secondly, you think that those standards should be set up after consultation with the industry?

"A. Certainly.

"Q. And getting the benefit of their views?

"A. Surely.

"Q. And a consideration by the Industry of how practicable your views are in the light of their operations?

"A. Surely.

"Q. You anticipate no difficulty in that being worked out with the Industry?

"A. I do not think so. As you said yourself, Sir, there are conflicting interests so that we would have to make a compromise."

We extract the following from Dr. Frey's evidence touching upon the effort to bring about standardization in the United States:

" . . . Some effort has been made in the United States in the direction of standardization. There are several States that have such laws. They do not solve the problem because the range is considerable. Probably the stiffest law that we have now by any State is South Carolina, which has established State standards. Others have moved in that direction. Part of that is not so much to protect the consumer, incidentally, but some of that agitation has come from the more reliable of these independent marketers or jobbers who are trying to put themselves in a position to capitalize on the standards established by the major companies. It is not wholly a matter of protecting the consumer.

"Q. But it could not fail to advantage the consumer, could it, to have first standardization, with a standardization that of course carried a minimum standard, so that there would be room for initiative and improvement above that minimum?

"A. Yes. Much would depend on how the public understood that standard. Suppose they established standards of say one, two and three or A, B and C.

"Q. Yes.

"A. The tendency would be for the customers to believe that all A's, B's, or C's were the same when, as a matter of fact all A's, B's, and C's would not be the same because of the range in the specifications. It would be practically impossible to draw up specifications that would be so rigid as to preclude improvement.

"Q. Oh, quite. Would not that give freedom of action to the oil sellers to show that his was a better A than the other man's and at the same time assuring the consumer that it could not be less than a certain standard?

"A. Yes, but that is all that it does."

. . . . . .

"We get on after a fashion with our U. S. specifications of gasoline, but our lubricating oil, our standards there are a perfect mess and all of us that have anything to do with them know it. We do not know how to improve them. The Bureau of Standards is working constantly at that problem trying to find out what constitutes quality in lubricating oil and so far we have not been able to establish specifications that assure us, as a buyer, that we are going to get that which is most satisfactory to us. We feel that is more or less a problem that any consumer is faced with. He must ultimately fall back on the integrity, the local reputation of the seller."

. . . . . .

"I think there is a degree of protection to the consumer if the oil inspection activities of the Government that adopts them is rigorous and the standards are no better than the oil inspection service of the political division which has passed such measures. In certain States such measures are followed up very closely and periodical examinations are made of the quality of products being sold. It costs quite a little bit to do that, and that, of course, is passed on to the consumer. I do not have very many examples of just what those taxes amount to, but they vary from State to State. In some instances, approximately about one-tenth of a cent a gallon which has to be absorbed by the consumer. But this is an assurance, this is what he is paying to assure him that the State is doing a job at determining that the minimum standards established are being adhered to, and the company that violates those standards is brought to justice. I should say that standards are no better than the administration of the law."

Mr. A. E. Halverson, speaking as a director of Imperial Oil Limited, states:

"We are not opposed to standards, nor do we press for them."

. . . . . .

" . . . one advantage is that it protects the public against injurious products—but a disadvantage is that it classes in one class a rather wide range of quality. A number two gasoline may be 70 octane or it may be 65 and the public is apt to think that because it is number two grade, that one grade is as good as another and it has a tendency to discourage the refiner from attempting to improve his quality."

. . . . . .

" . . . If the Provincial Government desires to grade gasoline, we in no way will oppose such a move. We are not pressing for it and we are not opposed to it but if they feel it is in the public interest we will be glad to put at the service of the Provincial Government any of our technical advisors to assist them if they so desire them."

. . . . . .

"What we would like to work to if we possibly could, would be one quality grade, that is Ethyl and Three Star combined in the one grade. That would be one quality grade . . . and then a utility grade of gasoline, a lower priced grade that could be used for motor cars and also used for tractors and, of course, they would need kerosene for their lamps."

Mr. A. H. Miller, of the British American Oil Company Limited, gave evidence as follows:

"Q. What would you think of standardization as such, assuming that the various ranges are carried which would accommodate the ordinary car. That is to say, if a man wants to pay the price designated in some fashion by grade A gasoline. Would everyone who wishes to sell be able to say that he has grade A gasoline, that is gasoline that measures up to the standard fixed for grade A?

"A. I think standardization is all right, as long as your standardization is based on the minimum and not the maximum. In other words, you would have to set say for your 'Q' brand gasoline a minimum that might be 73 octane, and then for your ethyl gasoline a minimum of 80 and your aviation gasoline you would have to set your minimum from 83 to 87 as the case may be. But as I see this picture, the rapid advancement that has been made in increased octane and premium fuels, looking at the future, I think they are going to still increase very rapidly."

Mr. E. L. Harvie, as counsel, summed up the position of the British American Oil Company in the following words:

"We submit that there may be no theoretical objection to establishing standards for various grades of products being sold, but that from a practical standpoint such a practice is fraught with difficulties and should not be attempted unless, along with it, an adequate policing system is also provided for."

Mr. Leon Plotkins, of Lion Oils Limited, stated that in 1932 at the request of representative of the Governments of Alberta and Saskatchewan, who were investigating orderly methods of imposing

and collecting a tax on petroleum products, he gave written submission of his views in which he made the following suggestions:

> " . . . To intelligently arrive at a uniform basis of accounting, and incidentally for the protection of the consuming public, a technical definition of all petroleum products to be made or adopt those already in existence by the United States of American Bureau of Standards, or the British Admiralty Specifications, until such time as the Canadian Bureau of Standards give us a Canadian basis. This would prevent the present multitude of distillates which although are being sold tax exempt, are causing the public a loss through rapid deterioration of the motors in their automobiles, probably equal or greater than the saving in tax.
>
> "Another effect of proper definition of all petroleum products would be to properly regulate the shipping by rail and truck, Provincial, Inter-Provincial or from the United States of America. This would have the effect of automatically classifying all shipments of petroleum products according to law."

He then amplified his views as at present held, in the following discussion with the Commission:

> "MR. PLOTKINS: Now I want to remark, that I see no objection to the Government, in fact I think it is one of their duties, to guarantee quality the same as they do with eggs, the same as they do with wheat, the same as they do with many things, why, because the Government body is in a better position to do it, in fact it has to be policed and the only people who can do it is the Government.
>
> "THE CHAIRMAN: You heard some of the objections, I am very much interested in the subject you are addressing yourself to, you heard some of the objections put before us about the great difficulty in policing.
>
> "MR. PLOTKINS: Standards.
>
> "THE CHAIRMAN: Yes, and that in the event of the policy not being adequate the honest fellow suffers greatly because of the non-compliance of the man who is not of as much moral worth.
>
> "MR. PLOTKINS: That is true.
>
> "THE CHAIRMAN: What do you say about that, Mr. Plotkins?
>
> "MR. PLOTKINS: I have a very simple answer to that. We have the evidence of the Ethyl Corporation, which probably are considerably fussier than any government ever will be and they found no difficulty in enforcing their standards but they have a well thought out plan based on experience and they control it at the source. Now the Government can control the policy at the source and the minor infractions which might happen to a few dealers would certainly not amount to much and could be effectively policed by the companies themselves, the same as the companies are now called upon by the Ethyl Corporation to police their dealers in the quality of the ethyl products."

In January, 1936, Mr. Plotkins made some further suggestions to the Government of the Province in reply to a Government request. One suggestion was:

"(a) Establish a Provincial standard for all petroleum products, starting with fuels: This should divide the products along broad lines into two grades of gasoline, standard and second grade; two grades of tractor fuel:—tractor kerosene and Diesel fuel. Specifications for each of these fuels should be such that would meet average requirements for efficient operation for Alberta conditions under present sources of raw products, as well as low cost of manufacture.

"(b) The present lack of legal standards causes widespread fraudulent adulterations resulting in considerable loss to the public in increased consumption and cost as well as deterioration to the motorist."

. . . . . .

"Standards for motor fuels would tend to reduce the price per gallon to the public as a less number of grades would reduce the amount of handling equipment in pumps, tanks, etc., and evaporation both at refineries, bulk stations and service stations resulting in a greater turnover per product, which means reduced price, which I estimate at least 1½ cents per gallon. It would also tend to eliminate this unjustified wide spread in retail price of fuels such as Turner Valley gasoline at 25 cents and Three Star gasoline at 32½ cents, including tax, at Calgary."

Mr. George A. MacKenzie, of the Great West Distributors Limited, gave the following evidence:

"Q. . . . You believe there should be Government intervention setting up standards?

"A. I do.

"Q. This is a minimum to comply with the minimum specifications and let competition as between individual companies have its sway over and above that minimum?

"A. Yes, that is right, so that it will be protected. Absolutely I favour that."

Mr. J. E. Brownlee, in speaking as counsel for the United Farmers of Alberta Central Co-operative Association Limited, had this to say upon the subject of standards:

"We realize there is much truth in the evidence given by some witnesses to the effect that standards can best be established by the competition of the major concerns engaged in the manufacture and distribution of gasoline and other petroleum products and we are quite ready to admit that any of the larger companies engaged in the petroleum industry in this province have established a degree of reliability with respect to the quality of their products as to command the complete confidence of purchasers in the province. We feel, however, that further protection can be given the consuming public against the operation of smaller concerns of the here to-day and gone to-morrow type, who are not so concerned

about the quality of the product temporarily sold by them, and so we think that there is room therefore, we would be prepared to endorse any policy on the introduction of standards."

We think that the foregoing evidence leaves no room for doubt as to the desirability of setting up standards in respect of petroleum products and that the work now being done to that end through the Department of Trade and Industry of the Provincial Government is to be specifically approved.

In our view, standardization not only provides protection for the public but in a measure does away with any suggestion that only the large companies provide products which it is safe to use.

We suggest that any standards set up should be minimum standards so that there may be room for the play of competition, that is to say, those who wish to provide a product better than the minimum requirement, should be quite free to do so.

We are of the opinion that the standards should ultimately cover all grades of fuel including Diesel and Tractor distillates, and also Aviation fuels, if and when these are manufactured in this province.

We suggest that the small additional outlay of which Professor Stansfield has spoken, necessary to equip the University Laboratories to test for octane as to both Diesel fuels and Tractor distillates should be made.

We think that standards should be fixed only after consultation with the various branches of the Industry concerned, and after fully considering their views, as to suggested specifications and their practicability in the light of the operations carried on by the various refiners and distributors in the province.

We think that any standards finally fixed upon should be given wide publicity so that the public may be in a position to make their purchases with some understanding of the standardization plan.

It is our view that the framers of any standardization scheme should take into account the rapid changes which take place in the technology of refining and with that in view provide for continuity in the study of standards and for indicated changes in the standards set up.

While we approve of the idea of having standards and of all that the Department of Trade and Industry is doing in the way of research work, we think that we should point out that in our view standardization to be of value must be associated with police activity and that until the province is prepared to go to the expense

of adequate inspection and strict enforcement of minimum requirements it should not set up a standardization scheme. The result of standardization without inspection and rigid enforcement would be that those in the industry who obeyed the law would be at a distinct disadvantage as against those in the industry who disobeyed the law while purporting to comply with it, because the law-breaker could sell an inferior product with the implied assurance to the public by the Government that the product comes up to a definite minimum standard.

A summary of our findings with regard to standardization is as follows:

1. That a study of standardization is now being carried on by Professor Stansfield of the University of Alberta.
2. That the subject is of interest to the public from the standpoint of protection; to the small marketer as giving an assurance to the public that his product comes up to a minimum standard even though his operation be a small one; to both the public and the industry because if a standardization scheme be put into effect the cost of inspection and the enforcement of a standardization law will add to the burden of taxation.
3. That it is our opinion that the enactment of a standardization law would be a progressive move.
4. That legislation as to standardization should not be passed without a full hearing of the industry as to the practicability of the standardization scheme proposed.
5. That unless there is to be strict law enforcement it is better not to have a standardization law because the public would not be protected and those in the industry who obey the law would be at a distinct disadvantage as against those in the industry who disobey the law while purporting to comply with it.
6. That if standardization is put into effect by legislative enactment, the standards set up should be minimum standards.
7. That any standardization scheme which is put into operation should be given the widest publicity so that the public may be in a position to make their gasoline purchases with a full understanding of the significance of the standards set up.
8. That any legislative scheme of standardization should take into account the rapid changes which take place in the tech-

nology of refining and with that in view should provide for flexibility in the fixing of standards and for continuity in the study of standards.

9. That insomuch as standardization is primarily for the benefit of the public, the expense incident to creating and carrying out a standardization plan should not be borne by the industry.

TAXATION

One of the means by which a reduction in the price of gasoline may be brought about in the provinces of the Dominion is by reduction in the gasoline tax. The question which confronts us is as to whether or not such a course is to be recommended for the Province of Alberta?

Mr. A. H. Miller of the British American Oil Company makes the point with some force that as refiners effect savings and lower the price, taxing bodies take up this slack by additional taxation and so prevent the consumer from obtaining the benefit of price reduction by the industry. The graph, Exhibit 454, dealing with the decline in gasoline price and the increase in gasoline taxation in twelve representative Canadian cities over the period from 1925 to 1939, is an interesting one and would appear to bear out Mr. Miller's submission that there is a relationship between reduction in price by the industry and increase in taxation by the provinces.

We think that the following table which is Exhibit 453, and which was not called into question before us, shows in a brief and understanding way, what the tax situation has been and now is under Provincial Gasoline Tax Acts in the Dominion.

PROVINCIAL GASOLINE TAX ACTS

Dates Effective and Rates of Tax

Province	Dates Gasoline Tax Rates became effective	Rates per gallon (x)
Prince Edward Island.....	May 1, 1924	2
	Mar. 31, 1926	3
	May 1, 1928	5
	May 2, 1932	6
	April 15, 1933	8
	April 23, 1937	10
Nova Scotia.....	Mar. 15, 1926	3
	Mar. 11, 1927	5
	April 1, 1932	6
	May 1, 1934	8
	Mar. 15, 1938	10
New Brunswick.....	April 30, 1926	3
	Dec. 1, 1928	5
	April 1, 1932	7
	April 1, 1934	8
	Mar. 20, 1938	10

PROVINCIAL TAX ACT—Continued

Province	Dates Gasoline Tax Rates became effective	Rates per gallon
		(x)
Quebec	April 1, 1924	2
	April 1, 1925	3
	April 1, 1928	5
	Dec. 17, 1931	6
	April 17, 1939	8
Ontario	May 11, 1925	3
	Mar. 27, 1929	5
	Mar. 25, 1932	6
	April 1, 1939	8
Manitoba	April 27, 1923	1
	Mar. 5, 1925	3
	April 14, 1930	5
	May 7, 1932	7 (refund 5c.)
Saskatchewan	May 1, 1928	3
	April 1, 1930	5
	May 1, 1932	6 (refund 5c.)†
	April 1, 1935	7 (refund 7c.)
Alberta	April 30, 1922	2
	June 1, 1929	5 (refund 4c.)
	April 1, 1933	6 (refund 5c.)
	April 1, 1935	7 (refund 6c.)
British Columbia	Dec. 21, 1923	3
	Mar. 25, 1930	5 (refund 5c.)
	April 18, 1932	7 (refund 6c.)

xWhen gasoline is used by farm tractors, fishing boats and for other stipulated uses, the total tax paid is refunded except in the Western Provinces where only a portion is refunded as noted.

†Effective January 1, 1933.

The growth in taxation in respect of motor fuel is not peculiar to Canada. In the United States we find that a tax on gasoline of 1c. per gallon was first imposed in the State of Oregon in 1919 to provide for the maintenance of highways. In the years that followed practically every state imposed gasoline taxes and increased the same. Mr. F. G. Crawford, Professor of Political Science at Syracuse University, in his book, "Motor Fuel Taxation in the United States," points out that whereas gasoline taxes amounted in the aggregate in 1919, to just over $1,000,000, by the end of the year 1937 the revenue derived from this source amounted to $761,998,000.

It will be observed from the table hereinbefore introduced that the gasoline tax imposed in Alberta is lower than in most of the

provinces of the Dominion and is on a par with the tax imposed in the other Western Provinces, but it seems to us that it is not enough to say that the tax here is no higher than in other places, because this in no wise answers the question as to whether or not the tax here is too high, and so we examine into the principle upon which special taxes are imposed upon a special product.

In a memorandum prepared for us by Mr. G. A. Elliott, Professor of Political Economy at the University of Alberta, he discusses two principles in taxation, namely, taxation based on the principle of ability to pay, and taxation based on the principle of benefit; that is to say, where the recipient of incidental special benefits from expenditures made for a public purpose is compelled to pay special taxes commensurate with those special benefits. There can be no doubt that in the beginning gasoline taxes were imposed on the theory that the motorist obtained special benefits from the building and maintenance of government highways and so should be required to pay special taxes for the construction and maintenance of those highways. We quote the following from Mr. Elliott's memorandum:

> "The construction and maintenance of motor highways is part of the cost of supplying motor transportation. Consequently, it would appear that the resources of a country will be used most effectively as between the furnishing of motor transportation and other services if the users of motor services are required to pay at least that part of the cost of constructing and maintaining motor highways in excess of the cost of constructing and maintaining highways suitable for other methods of transportation."

While the theory of taxation above referred to was the theory accepted for a time after gasoline taxes were first imposed, it was not long before governments conceived the idea that this ready means of obtaining revenue might well be used for raising revenue for government purposes other than those of constructing and maintaining roads; to-day the taxation imposed in most places in the United States and Canada may be supported if at all only by invoking both of the principles of taxation before alluded to, namely, the principle of ability to pay, as well as the principle of special benefit. We again quote from Mr. Elliott's memorandum:

> "Expenditures on highways are undertaken with a broad public purpose in mind but incidentally confer special benefits: in the case of local roads on property adjacent to them; and in the case of provincial and federal roads on the users of motor cars. Motor cars, moreover, require for convenient operation a more expensive type of road than suffices for pedestrians or horse-drawn vehicles. Consequently, with the introduction and increased use of motor cars gasoline taxes and motor vehicle license fees were closely associated, in the minds of the tax payers at least, with expenditures on highways and were accepted generally as

taxes levied on the benefit basis rather than as a part of a system of taxes based on ability to pay. In many cases in the United States and in England the revenues were ear-marked for highway expenditure. However, from an administrative point of view the process of ear-marking has obvious disadvantages. In Alberta it has not been employed and in Britain the original procedure has been greatly modified. In the United States, too, many of the states have begun to divert a portion of their motor tax revenue to other purposes and a federal tax has been imposed. This tendency may be expected to develop further as systems of motor highways near completion.

"In part, therefore, the tax on gasoline may be regarded as a tax levied on a benefit basis and in part as part of a system of taxes levied at least nominally on the basis of ability as measured in part by expenditure."

In the Province of Alberta some question has arisen as to whether or not the gasoline tax is in excess of what is expended on the Provincial Government highways and so we have had prepared a table which shows in summary form the relation between the total expenditure on roads, bridges and ferries, and revenue derived from motor licenses and gasoline taxes, over the period from January 1st, 1922, to March 31st, 1939, inclusive. We have taken a cut-off at the year 1922 on the assumption, since it cannot in reason be expected that the motorist should pay for all the roads constructed from the time roads were first built in this province or in the territory of which it formerly formed a part, that the time when the government first imposed the gasoline tax, may be taken as the time when the motorist received such special benefits as to justify this special tax. In making the calculation it will be observed that interest is allowed at the rate of 5% on the excess of expenditure over revenue. This is done on the theory that if a Road Commission had been set up as a separate entity, which had to borrow the money not obtained by taxation, it might have to pay this rate of interest. It will also be observed that we have arbitrarily fixed upon the sum of $100,000.00 as the estimated cost of administration in respect of both revenue and expenditure. This estimate may not be an accurate one but it is the best at which we could arrive on the information which we were able to obtain; however, we think we can say with safety that if there is error in the estimate it will be found to be on the side of being too great rather than too small, particularly in the earlier years. It is to be noted that the three-month period associated with the year 1938 is because of a change in the fiscal year. The table referred to is as follows:

STATEMENT OF INCOME AND CAPITAL EXPENDITURES ON ROADS, BRIDGES AND FERRIES AND REVENUE FROM MOTOR LICENSES AND GASOLINE TAX FOR THE PERIOD FROM JANUARY 1, 1922, TO MARCH 31, 1939, INCLUSIVE

INTEREST ON THE EXCESS OF EXPENDITURES OVER REVENUES HAS BEEN COMPUTED ON AN ASSUMED RATE OF 5% PER ANNUM AND ADMINISTRATION OF REVENUE AND EXPENDITURES IS ASSUMED TO BE ROUGHLY $100,000.00 PER YEAR

	Capital Expenditure	Income Expenditure	Estimated Administration of Revenue and Expenditure	Total Expenditure	Deduct Total Revenue	Excess of Expenditures over Revenue (or contra) Current year	Accumulation of Excess of Expenditures in previous years	Interest on Excess Expenditure at 5%	Total Excess Expenditure over Revenue
1922.....	$884,759	$510,475	$100,000	$1,495,234	$901,991	$593,243	.....	$29,662	$622,905
1923.....	444,425	412,352	100,000	956,777	983,821	*27,044*	$622,905	29,793	625,654
1924.....	1,397,658	733,632	100,000	2,231,290	1,142,840	1,088,450	625,654	85,705	1,799,809
1925.....	1,779,460	509,216	100,000	2,388,676	1,265,816	1,122,860	1,799,809	146,133	3,068,802
1926.....	2,026,145	545,031	100,000	2,671,176	1,577,014	1,094,162	3,068,802	208,148	4,371,112
1927.....	1,576,172	580,165	100,000	2,256,337	2,010,805	245,532	4,371,112	230,832	4,847,476
1928 (3 mos.).	320,861	34,368	25,000	380,229	880,836	*500,607*	4,847,476	54,336	4,401,205
1928/9.....	2,597,990	796,004	100,000	3,493,994	3,431,599	62,395	4,401,205	223,180	4,686,780
1929/30.....	2,849,595	1,187,109	100,000	4,136,704	3,816,665	320,039	4,686,780	250,341	5,257,160
1930/31.....	4,284,282	1,556,867	100,000	5,941,149	3,625,360	2,315,789	5,257,160	378,647	7,951,596
1931/32.....	3,076,319	1,620,199	100,000	4,796,518	2,975,550	1,820,968	7,951,596	488,628	10,261,192
1932/33.....	1,738,642	945,249	100,000	2,783,891	3,069,707	*285,816*	10,261,192	498,769	10,474,145
1933/34.....	245,712	780,534	100,000	1,126,246	3,392,169	*2,265,923*	10,474,145	410,411	8,618,633
1934/35.....	1,296,139	798,587	100,000	2,194,726	3,563,576	*1,368,850*	8,618,633	362,489	7,612,272
1935/36.....	1,735,315	726,054	100,000	2,561,369	3,645,886	*1,084,517*	7,612,272	326,388	6,854,143
1936/37.....	1,164,064	1,023,499	100,000	2,287,563	3,567,575	*1,280,012*	6,854,143	278,706	5,852,837
1937/38.....	1,207,055	1,336,618	100,000	2,643,673	4,555,167	*1,911,494*	5,852,837	197,067	4,138,410
1938/39.....	1,468,590	1,288,918	100,000	2,857,508	5,185,298	*2,327,790*	4,138,410	90,531	1,901,151
	$30,093,183	$15,384,877	$1,725,000	$47,203,060	$49,591,675	*$2,388,615*		$4,289,766	$1,901,151

Figures in italics denote excess of revenue over expenditure.

From the foregoing it would appear that if the expenditure and revenue in the year 1939 and 1940 remain reasonably comparable with that of 1938 and 1939, the accumulated excess of expenditure over revenue will be wiped out and that for the future if revenue and expenditure remain the same, the revenue from motor licenses and gasoline tax will exceed expenditure on construction and maintenance of government roads by a sum of between 2 and 2½ million dollars. This estimate is a rough one but as we see it, taking 1922 as the proper year at which to start imposing special taxes on the motorist, it serves to present a picture of the Alberta situation.

If then the situation is as we think, in the future the consumer of gasoline in this province is not only going to pay for construction and maintenance of government roads but he is going to be forced to make a large special contribution to the general revenue fund of the province.

Dealing firstly with the obligation of users of gasoline to pay for construction and maintenance of government roads on the principle that they derive special benefits therefrom, we desire to point out that while the user of gasoline does derive special benefit, he does not enjoy all the benefit. In our view those who have never owned a gasoline driven vehicle derive benefit in many ways, including cheaper transportation for all commodities, from the existence of good government highways. If this be so then the general public should contribute some portion of the revenue required for the construction and maintenance of government roads.

Dealing secondly with the imposition of the tax, on the basis that the users of gasoline should pay not only all construction and maintenance cost of government roads, but pay into the general revenue fund as well, we say that since in this day the use of gasoline cannot be thought of as a luxury, it must be assumed, if the tax is to be justified at all, that it is imposed partly at least on the principle of ability to pay. As to this, the evidence before us is all one way and is summed up in the evidence of Mr. R. L. Saunders of the Texas Company as follows:

> "It is apparent, therefore, that in the United States the gasoline market is composed to the extent of about 78 per cent of low income buyers; that the Canadian market is composed of approximately 78 per cent low income buyers; and that in Alberta a similar situation exists, although it is impossible, because of the unavailability of data, to prepare an estimate such as was prepared for the United States and Canada."

We may say that Mr. Saunders' conclusion is arrived at after a most careful analysis of the composition of the market in respect

of the buying power of the consumer, which is to be found both with regard to Canada and the United States, in Volume 88 of the record.

To sum up, we may say we think that there is no justification for requiring the users of gasoline to pay not only for the construction and maintenance of government highways but into the general revenue fund as well. Logically this could only be required on the principle that those who have the ability to pay should be required to pay, and as it appears to be the fact that the great percentage of the users of gasoline are in the low income class, this principle has no application. With regard to requiring gasoline users to pay for construction and maintenance, without special contribution to general revenue, we may say we readily assent to the proposition that the motorist and other gasoline users get special benefit from the construction and maintenance of government highways and so should pay for this special benefit, yet insomuch as there would be such roads (although less expensive) even if there were no motor cars, and insomuch as there are indirect benefits from good roads which are enjoyed by those who are not users of gasoline, it is our opinion that the users of gasoline should not be called upon to pay the whole of the cost of construction and maintenance of government highways. In other words we think the tax obligation of the users of gasoline should be limited to revenue requirements for government roads and to only a part of those requirements.

It would seem to follow from what we have said that our recommendation would be for a reduction in the gasoline tax. We do not make this recommendation for two reasons; the first is, that we think it would be futile to do so because neither this government nor any other is likely to reduce its revenue from this source when it is already as low as any in the Dominion; the second reason is, we have an alternative suggestion to make which we think would be quite satisfactory to the users of gasoline in the province; this is that the tax remain as it is but that the revenue derived from it be specifically earmarked for the construction and maintenance of government highways and used for no other purpose. We are not unmindful that this is not the general practice of governments, none the less we have not the slightest hesitancy in so recommending. We do not assume that the Government of Alberta will feel bound to follow precedent and to insist upon class taxation to provide a part of the general revenue for general purposes, which should be raised by general taxation.

Tax Evasion

We think that we should not leave the subject of taxation without referring to the subject of tax evasion, as to which much evidence was heard. Tax evasion is in our view a serious matter. The province is affected by loss in revenue, and those who pay their taxes are affected in that sooner or later they are called upon to bear the burden of taxation which unscrupulous people manage to evade; furthermore tax evasion on a large scale not only becomes a public scandal but has a serious effect upon the morals of the people. We may add that tax evasion is of importance from a further standpoint, namely, that a disregard for any one law leads to disrespect and disregard for all laws.

There are a number of ways in which there may be evasion of a gasoline tax but the evidence which we have heard has been almost entirely with regard to tax evasion by farmers. Under the existing law the farmer is entitled to a rebate of 6c. per gallon on petroleum products required for use in his tractors and engines on the farm. Since no distinction is made between the farmer who is rich and the farmer who is poor, it cannot be thought that this rebate is predicated upon financial distress. In our view this concession to farmers is founded upon the original idea that the gasoline tax is a means of raising money for roads and that this tax should be placed so far as reasonably may be on persons who use the public highways for operating motor vehicles. The fact that governments have enlarged upon the idea and have in the application of gasoline tax monies gone far beyond this, does not seem to have affected the farmer adversely in most jurisdictions, so far as his rebate is concerned.

It has been suggested to us in the course of this inquiry that a 4c. tax without any rebates or refunds or exemptions would provide more government revenue than is now obtained under the present plan. It has also been suggested to us that there is no logical reason for exempting the farmer from taxation any more than there is for exempting any other class. After giving this question our most careful consideration, we come to the conclusion that in so far as it may be said that the gasoline tax is a road tax, it is right that the farmer should be exempt from taxation in respect of the gasoline used in his farm machinery on his farm; but in so far as this tax has lost its character as a road tax, and is now a general purpose tax, there can be no logical reason why the farmer should be favoured any more than any other user of gasoline. We have said that this is logical; it seems to us, however, that in this predominantly agricultural country in which the farmers as a class may be said to be in financial diffi-

culties, we can well afford to be illogical in the matter of a tax which affects farm operations, for the sake of the indirect benefits which accrue to all tax-payers from anything which tends towards making the business of farming a prosperous one. This being our view we do not recommend increasing the gasoline tax burden to the farmer above the 1c. which he now pays, which we think will about meet his share of the cost of administration. We are equally clear in our view that tax evasion by farmers who are so favoured should be put a stop to forthwith, by whatever methods it may be necessary to adopt to accomplish this, no matter how drastic they may be.

That tax evasion by using tax exempt gasoline for purposes other than to drive machinery on the farm, and by making an improper use of coupons issued to cover the allowed rebate, is going on in the Province of Alberta is, we think, not open to doubt. In this connection we shall first refer to the evidence of Mr. Henry J. Appleton of the Department of the Provincial Secretary. We quote as follows:

"Q. So what is your reason or can you give us any reason why the farmer should get a refund when he is able to buy gasoline and use it in his cars and trucks as well as in his tractors and other stationary engines and you have no means of knowing where he actually uses it, whether he actually uses it in his car or in his tractor?

"A. No, not outside of the man's own statement which he makes on the application for the refund claim.

"Q. Well, what is your finding in inspecting this difficulty, you have at times had complaints about farmers not paying the tax on gasoline used in their trucks or cars and going on the road with them?

"A. Oh, yes.

"Q. You have?

"A. Yes.

"Q. Is that very prevalent, the farmers using gasoline in their trucks?

"A. We have quite a number of complaints.

"Q. Now why under those circumstances has there been nothing done to remedy that situation?

"A. I would not know. I have nothing to do with the policy.

"Q. Now coming back to coupons, you have had a considerable number of complaints I understand where coupons are used as money?

"A. Yes.

"Q. Not only for the purpose of buying gasoline and using them as exemption certificates but also to purchase other merchandise?

"A. Yes."

. . . . . .

"Q. So that the province must lose a considerable amount of revenue through the fact that there is a traffic in those coupons as cash?

"A. Yes, they can lose some.

"Q. Well, they do actually?

"A. Yes, they do."

. . . . . .

"MR. PLOTKINS: Q. How could that arise?

"A. How the coupon could be used?

"Q. Yes.

"A. Well, the farmer would just go into the oil company dealer and say, 'I have so many coupons, I want to get rid of them. How much will you give me for them?' "

. . . . . .

"Q. What actually happens, how can the agent convert the coupons into cash?

"A. By turning them in on the account which he sends to the oil company to cover the account which he owes them. It is cash so far as he is concerned for $2.70 each."

. . . . . .

"Q. And there is no means at the present time of seriously controlling that?

"A. No, there is not. There are too many coupons on the market.

"Q. That is one method?

"A. Yes.

"Q. But there are other methods. Now is it feasible, and possible, and not only possible, is it not actually practiced at the present time where in the country town, with one general store that has a pump and purchases gasoline from an agent, the local agent?

"A. Yes.

"Q. The Imperial, B.A., or any other?

"A. Yes.

"Q. And he wants 200 gallons of gasoline and he pays the dealer the regular local tank wagon price for the 200 gallons of gasoline?

"A. Yes.

"Q. But he has in his power with the connivance of the agent, when it comes to the tax, to say 'Here is 1 cent and so many coupons'?

"A. Yes.

"Q. And in many cases it has been proven he has received cash or groceries or flour?

"A. Yes.

"Q. So in those cases these coupons have been used for cash?

"A. Yes.

"Q. Just the same as currency?

"A. Yes.

"Q. Because the storekeeper is able to convert them to the equivalent of cash?

"A. Yes.

"Q. Now that is another method?

"A. Yes.

"Q. Then there is another method possible and actually practiced, the farmer owes the agent a bill for gasoline, including gasoline?

"A. Yes.

"Q. And he finds himself short of money?

"A. Yes.

"Q. But he has a reserve of coupons and he can go into the agent of the company and say, 'Here are so many coupons that that wipes out my bill'?

"A. Oh, yes.

"Q. That is possible and that is another method?

"A. Yes.

"Q. So there are a number of methods of defrauding the government?

"A. Yes.

"Q. Of the taxes that are rightfully due?

"A. Yes, through the coupons you mean?

"Q. Yes, through the coupons?

"A. Yes.

"Q. And that has been brought to the attention of the Deparment on various occasions?

"A. Yes.

"Q. I have brought that quite strictly to their attention at various times?

"A. As a matter of fact I might say that a number of investigations are going on before the police at the present time into the same thing."

We extract the following from a statement made by Mr. Leon Plotkins to the Minister of the Department of Trade and Industry in January, 1936, which he read to us:

> " . . . Evasion is too widespread due to: (a) blending with untaxable products by truckers, service stations and dealers, (b) rebates on taxable products that find their way to the service stations and garages, (c) rebates to farmers and others on products consumed in automobiles and trucks. . . .
>
> "The highly profitable nature of the business made possible by tax evasion has led to widespread organized illegal distribution of products on which the tax has been rebated or illegally blended.
>
> "It tends to dislocate the normal manufacture of the refinery products by creating an abnormal demand for the high gravity gasoline that will absorb the greatest quantity of non-taxable products, which, as a result, produce a product on which part of the tax has not been paid and is then able to successfully undersell the product that has paid the tax in full.
>
> "With a 7 cent tax and depressed economic conditions, tax evasion is highly profitable and widespread. I estimate 20% of the actual consumption escapes taxation."

We also quote from a statement made by Mr. J. E. Brownlee as counsel for United Farmers of Alberta, Central Co-operative Association Limited:

> "MR. BROWNLEE: . . . That brings up the question of evasion. We may as well face it. I do not place the figures, personally, as high as they were placed yesterday at 20%. I think that is altogether too high. But we have to admit that there is evasion.
>
> "THE CHAIRMAN: It has been suggested either in or outside of this room, I am not sure which at the moment, that there was a loss to the province of a quarter of a million dollars by tax evasion. Would you think that reasonable or absurd?
>
> "MR. BROWNLEE: I would not want to put it that high. I doubt if the Departmental officials would place it that high.
>
> "THE CHAIRMAN: It appears to be serious anyway.
>
> "MR. BROWNLEE: I may say that you will find that Mr. Trowbridge and his officials are probably as experienced as any we have in the Civil Service of the province, and I would be inclined to accept any views he expressed. I would doubt very much if he would put it as high as $200,000.00. It is an indefinite thing. We admit there is evasion, and of course, if may be that the amount of the evasion depends upon the way in which the refund is made. As I say when we first started out we did not, we only gave a refund after purchase and upon proof that it was used."

We think we need not refer to other parts of the record in support of our opinion that tax evasion by farmers is taking place; that the

amount lost to the government by this type of fraud is large; and that the coupon system now in force lends itself more readily to tax evasion than a refund system would do.

Now, as we have said, we feel that we can go the length of saying that the rebate presently allowed to farmers in respect of the use of gasoline on the farm should stand, but since we cannot in good conscience say that a farmer who uses the roads for gasoline driven vehicles should not help pay for the maintenance and construction of the roads by payment of the gasoline tax which other gasoline users are required to pay, we have turned our attention to ways and means of preventing tax evasion.

The prevention of tax evasion is a subject which must be of interest not only to the government and to tax-payers generally but also to every honest farmer who sees the farming class being brought into disrepute by its dishonest members.

We had much discussion of ways and means for the prevention of tax evasion. The method perhaps most strongly urged was by the colouring of gasoline as is done in Saskatchewan and in the State of New Mexico at the present time. It seems unnecessary for us to quote from the somewhat lengthy evidence upon this subject. The Assistant Provincial Tax Commissioner of Saskatchewan appears to be well satisfied that the system is a good one. Equally this system appears to have been accepted as satisfactory by officials in the State of New Mexico. It is significant, however, that although this practice must have been under observation in all states in the United States of America, no other state has seen fit to adopt the New Mexico plan. It also seems to us significant that the increase in tax returns in Saskatchewan, presumably as a result of using a dyed gasoline for farm purposes in the year 1939, occurred in that year in which Saskatchewan had the best crop year for a period of ten years, which would, of course, substantially increase the consumption of all gasoline products and so the revenue from a gasoline tax. But however this may be we think there are serious objections to the introduction at the present time of the use of coloured gasoline as a means of doing away with tax evasion.

We are told that the introduction of dyed gasoline in Saskatchewan made it impossible to arrange for reduced railway rates in that province, because the extra brands to be distributed made it necessary to use trucks. Furthermore we are told that the use of dyed gasoline will create an acute problem with regard to drums, as it would be necessary to require specially earmarked barrels for

purple gasoline or whatever other colour may be designated for the purpose of identifying gasoline for use on the farm. As the drum question is vexatious enough as it is, we think that on this ground alone the introduction of a specially dyed gasoline for use on farms should not be hastily accepted. Aside from these considerations we may point out that Imperial Oil Limited informs us that their inter-station transfer costs would be increased by nearly $50,000 a year and that in addition they would have capital expense of putting in a minimum of 22 additional storage tanks, estimated to cost $26,400. We are also informed that there would be increased marketing cost in connection with the storage tanks due to maintenance, depreciation, taxes and evaporation. The British American Oil Company Limited estimates that if the Saskatchewan system be continued they will be required to make an additional capital expenditure of $600,000 in that province to properly equip their various distribution outlets to properly handle the specially coloured products.

After looking at the matter from every standpoint, it is our opinion that the use of a special dye in the marketing of gasoline which is to be used for special farm purposes, as a means of preventing tax evasion, cannot be said to have passed the experimental stage. For this reason and for the further reason that the cost to the Industry would be a tremendous burden on the Industry which must in time be reflected in the cost of petroleum products, we recommend that the Saskatchewan system be not adopted at present (if ever).

It is our view that the coupon system now in vogue in this province invites tax evasion and we recommend that in lieu thereof the farmer be required to pay the tax and make application for a refund in respect thereof, such refund only to be made on proof by statutory declaration that the person applying is entitled to the refund.

It is quite true that the farmer will be put to trouble in applying for a refund but we venture to say that a person who gets a refund of 6c. on a gallon of gasoline can well afford to take the time and to go to the trouble of making application. We further recommend for the sake of the honest farmers in this province as well as for other classes of tax-payers, that there be rigid enforcement of the law and that tax evaders be prosecuted as a deterrent to a practice which is not only depriving the government of revenue but is giving a highly honourable business a bad name.

By way of summary we draw attention to the following points in connection with taxation:

1. That reduction in the retail price of gasoline may easily be brought about by reduction in the gasoline tax.

2. That speaking generally it would appear to be established that reductions in price voluntarily made by the industry do not always reach the consumer because of corresponding if not greater increases in taxation.

3. That the gasoline tax in the Province of Alberta of 7c. per gallon is as low as any in Canada; is lower than in most of the provinces in Canada; and has not been increased since April, 1935.

4. That a gasoline tax may only be justified by adopting one or both of two principles, namely, the principle of taxation because of ability to pay and the principle of special taxation to construct and maintain roads because of the special benefit which motorists enjoy in the use of roads.

5. That it is obvious that the principle of ability to pay cannot be successfully invoked if, as Mr. Saunders says, without being challenged, it is established that 78% of the users of gasoline belong to the low income class.

6. That the principle of special benefit cannot be logically invoked to put all of the burden of the construction and maintenance of government highways upon the motorist because:

   (a) At most he should only have to pay for the difference between the class of road which motoring has made necessary and the class of road which would be there if motor vehicles were not used on the roads.

   (b) Because good roads are of benefit to everyone includiug those who do not own gasoline driven vehicles.

7. That on the assumptions made by us (which we consider reasonable ones) it appears that the users of gasoline in the Province of Alberta, if present conditions continue, will in future (whatever may be said of the past) be paying for the construction and maintenance of all government highways; and in addition will be paying annually into the general revenue fund of the province an excess sum of between 2 and 2½ million dollars.

8. That logically we should recommend that the consumers of gasoline get the benefit of a reduction in the government tax.

9. That such a recommendation is not made for two reasons: first, because the tax being as low as any in Canada we do not think there is any hope of the government giving effect to it; and, second, because we think that the alternative recommendation that the present tax be allowed to stand and that the government earmark all revenue received therefrom and use it for the sole purpose of constructing and maintaining government highways, would be entirely satisfactory to the users of gasoline in this province.

10. That according to the evidence before us, tax evasion by farmers is assuming the proportions of a public scandal.

11. That the only theory upon which the farmer may be said to be entitled to exemption from the full gasoline tax is that it is a road tax and the gasoline which he uses upon his farm should not be taxed for the construction and maintenance of roads.

12. That to the extent that the gasoline tax has lost its character as a road tax and is now a tax for general revenue purposes, and to the extent that a road tax should be borne by the general public, there is no logical reason for exempting the farmer from taxation even in respect of gasoline used on the farm, but in our view in this predominantly agricultural country, we can afford to be illogical for the sake of the indirect benefits which accrue to all tax-payers from anything which tends towards making the business of farming a prosperous one.

13. That in the result, it is our opinion that the farmer should be exempt to the extent that he now is from taxation on gasoline required for use in his farm machinery on his farm.

14. That the tax evasion by farmers which is now going on, is of interest to the government that is defrauded out of a very large sum of money each year; it is of interest to other tax payers who sooner or later will be called upon to bear the tax burden of the unscrupulous; it is of interest to every honest farmer who sees the farming class being brought into disrepute by its dishonest members; it is of interest to the state in that it fosters disrespect for all law.

15. That the coupon system now in use facilitates and encourages tax evasion.

16. That the use of a special dye for the colouring of gasoline for exclusive use on the farm, as a means of preventing tax evasion, should not be adopted at present (if ever) because:

    (a) It has not passed the experimental stage; although tried in New Mexico, it has not been adopted by any other state in the United States and although tried in Saskatchewan, it has not been adopted by any other province in Canada.

    (b) It would be unreasonable to put the industry to enormous expense to try out a doubtful experiment.

17. That in our view prevention measures for tax evasion should be:

    (a) The discarding of the coupon system and a return to a system of refunds on application, supported by statutory declaration.

    (b) The prosecution of all law-breakers without fear or favour as a deterrent to this growing practice which is giving an honourable business a bad name.

CONSERVATION AND PRORATION IN ALBERTA

We do not propose to repeat all that we have said in a general way as to conservation and proration in our discussion of crude oil production but as a premise to what we now have to say it may be well to re-state that we have found that the Rule of Capture which legally ascribes ownership to oil only when reduced to possession has been one of the principal causes of over-production and of inefficient and wasteful withdrawals from oil pools, and that in our view unit operation is the only way in which the effects of the Rule of Capture may be avoided and the ideal in operation both from a conservation and an economic standpoint attained. We may also repeat that we come to the conclusion, with reluctance and with the feeling that the subject has not been fully explored, that it is too late to hope for unit operation in Turner Valley by voluntary agreement or to bring it about by compulsion. There would appear to be so many manifest advantages to unit operation that we would like to have heard much more evidence upon the feasibility of its being put into effect in Turner Valley. It may be that the more evidence we heard the more we would have been convinced that unit operation in Turner Valley is now impracticable but however this may be there can be no doubt that the weight of the evidence now before us forces the conclusion that we cannot recommend unit operation in Turner Valley at this time.

This conclusion brings us to a consideration of Conservation and Proration Laws which we find are in force in most fields where there is not unit operation. Conservation and Proration Laws as we have before said do mitigate but do not do away with the evils of the Rule of Capture; they are, to use Dr. Frey's words, "a compromise where you have a field of divided ownership."

It seems to us that in a highly technical sense Conservation may be thought of as something apart from Proration, but that in a practical sense Proration is necessarily complementary to Conservation. If the government were concerned solely with Conservation they would be at pains to see to it that oil production operations were carried on only in accordance with the direction of petroleum engineers, so as to permit of the most efficient and complete withdrawal from a pool; such a course would not take into account either financial advantage or harm to the individuals who had invested money in oil production, but insomuch as governments, like individuals, must face realities, governments have had to give recognition to economic considerations and to equities,

and so we have associated with the idea of Conservation the idea of economic equilibrium and the idea of fair play and justice toward those who have proprietary interests in a divided pool. Thus we have what is called "Proration," which literally means the allocation of demand amongst competing producers on a pro-rata basis. It has, however, acquired an extended meaning and "Proration" may now be said to mean a system of control in any oil field which is designed to prevent waste with due regard for equity and the balancing of supply and demand. We emphasize this because much of the evidence before us deals with the words Conservation and Proration as if they were identical in meaning and each embracing all of the considerations peculiar to either one.

When as in the case of Turner Valley there has been production development and the erection of plants involving the expenditure of enormous sums of money prior to the imposition of Conservation and Proration by law, the problem of avoiding waste while at the same time doing equity becomes in our view most difficult and is quite as much a problem of equity as of engineering.

The work of the engineer has to do with the unchangeable laws of nature; he is concerned with trying to understand those laws and to give effect to them in any engineering undertaking, but it is not as we understand it any part of the engineer's training to orient his work with the changeable but none-the-less ever-present social laws which hold men together in society. The conservation engineer is concerned with engineering efficiency in petroleum production which is a technical concept; it takes into account the objectively measurable causal factors and calculable effects in any process but there are limiting factors to the introduction and utilization of all that is efficient; these are social and economic. For example, from the economic standpoint it would be wasteful to eliminate petroleum loss which cost more to eliminate than to endure, even though in the opinion of the engineer it is quite possible to avoid that petroleum loss. Equally from the social standpoint it might be preferable to suffer a petroleum loss which the engineer says is avoidable, than to disregard the principles of equity and fair play on which our social system is founded.

Before entering upon a discussion of Conservation and Proration as practised here we think it well that we should make it clear not only that modern Conservation and Proration systems give recognition to principles of equity just as surely as they do to principles of engineering but also that Conservation bodies are not given carte blanche to do their will with an industry in which they have made no

investment even though it is to be expected that they will have the advice of competent petroleum engineers.

To that end we quote from that part of a summary made by Dr. Frey which is in point:

"(3) Unit operation is an ideal towards which drilling and production should be directed but this is difficult to accomplish under divided ownership.

"(4) Uncontrolled production that is working under the rule of capture only, is destructive to the welfare of the State and the Industry.

"(5) Conservation by Government intervention is consequently necessary to ameliorate the effects of the rule of capture or to secure the nearest equitable approximation to unit operation, and when I say 'equitable' I think it follows that this goes back into the economics, as has been stressed by a number of witnesses who have considered this problem. If we are to have conservation by Government intervention there must be an agency of Government to carry that load.

"Now looking at that agency from the standpoint of the United States and in an endeavour not to criticize anything which may exist in law here, I should say that the conservation agency should be given broad powers but it should also be furnished with a number of important directions. There should be a clear-cut understandable declaration of policy. There should be definitions as to what constitutes waste or what constitutes other factors included in the broad declaration of policy; the conservation agency should be directed what to look for; it should also be directed what to act on, that is, the things it must do in order to be sure that everyone has an opportunity, everyone who has an interest has an opportunity at equitable adjustments; there must be provision made for the taking of evidence, in other words, hearings and on the basis of those hearings there should be findings and on the findings there should be a ruling.

"Now because there is a possibility of a ruling being wrong there should be recourse to the Courts and there should be definite inclusion within the structure of this Conservation Act which I am hypothetically stating, a clear-cut procedure as to the circumstances and how the injured party may go into Court against the Conservation Board and likewise the Conservation agency should have a protection of not being driven into any Court. There should be definite conditions in such a law as to where and what Court the litigant must appear against the agency.

"To me those are a number of the factors which are vital to a conservation agency of the Government which is going into existence by reason of the necessary interventions to secure the results that I have enumerated in (5).

"The general characteristics of this plan are to be found in a number of the State Conservation Acts in the United States and the Act which is now being considered by Congress or rather will be in the next session, probably not in this special session, that Act includes these items.

"THE CHAIRMAN: Q. Now, Dr. Frey, you spoke of the Arkansas Statute, did you not, the other day?

"A. Yes, that is I happened to have a copy of the Arkansas law with me.

"Q. You gave me something this morning, what is that?

"A. This is the Arkansas Act. It is one of the recent ones. It is Act 105 of 1939 of the State of Arkansas.

. . . . . .

"This Act contains most of the elements that I have mentioned in my hypothetically ideal Act toward which we are working in the United States; that is, the Conservation Board of which I am a member was brought into existence with one, with a number of purposes but with one quite specifically stated and that is to assist the states toward uniform conservation laws and our connection is entirely advisory and we work toward the ideal of a uniform conservation law in all states.

"THE CHAIRMAN: I think we will put that in. It will be Exhibit '672.'

"THE CHAIRMAN: Q. Yes?

"A. No. (7). Since regulation of the rate of flow is essential for the application of best engineering practices there is a necessity for the development of larger practical potentialities than would be necessary for open flow production. This principle has been expounded a number of times at this Commission.

"(8) A drilling pattern conformable with economics and engineering considerations and rateable takings based upon the functions of the well and pool is another idea which has been expressed here and with which I agree."

We also quote from the evidence of Mr. LeSueur as follows:

"In general, it may be said that the Conservation Acts of the various States in the main take the following forms:

"(1) A definition of waste sufficiently broad to cover conservation of reservoir energy and in most instances sufficiently broad to cover the production of oil in excess of market demand.

"(2) A prohibition of all waste.

"(3) Provisions for notice to parties affected to enable a full hearing of their contentions and with the right to appeal to a higher court."

Dr. Frey makes it clear that in his view Conservation and Proration authorities have a duty to recognize something more than the maximum of efficiency in production from an engineering point of view. Dr. Frey's evidence on the point is as follows:

"Q. I think you made it quite clear from your evidence on Saturday that you are thoroughly in favor of Government interference to the extent which it may be necessary to promote conservation in the field?

"A. Yes.

"Q. That is, to conserve the natural resources available to us?

"A. Yes.

"Q. And to the end that those resources may be recovered with the least possible waste?

"A. Yes.

"Q. Now I also understand you to say that in your experience, these are not your words, that a good deal of horse sense has to be mixed with theory in working out these conservation schemes?

"A. Yes, I do believe that it is not possible to work out a conservation scheme purely on a formula; that is, that any scheme has to be tinctured with a practical consideration that results from divided ownership.

"Q. Yes, and I also gather from you that usually it is impossible to work out a theoretically perfect scheme?

"A. It is very difficult to work out a theoretically perfect scheme.

"Q. And I suppose that would be particularly so in the case of a field in which a very considerable amount of development had been done before any conservation scheme was contemplated?

"A. Yes, that complicates the problem.

"Q. And as a result of those considerations in your experience would it be true that those considerations often result in a plan which falls considerably short of what might be called a petroleum engineer's ideal?

"A. Yes, that is true.

"Q. And I also understood you on Saturday to say that when working out a scheme you endeavoured to keep in mind the various equities which are involved amongst the producers in the field?

"A. I think the problem of equity is always present in the event that you have divided ownership and a difference in the period in which various parts of the field have been developed.

"Q. You endeavour to have some plan that is reasonably fair to all those various interests?

"A. In a good plan it should be reasonable.

"Q. And I suppose it is also fair to say that in working out such a scheme you keep in mind at all times the national welfare?

"A. Well, I think that is a fundamental tenet, that is the basis of it, the welfare of not only the people who are operating in the field but the rest of us.

Q. I am thinking probably in a little broader way, or rather a little narrower way, should I say, than you are perhaps; for instance, the point that my lord was just mentioning, the elimination of competition, should

that be the result of any particular plan it would be something which you would seek to avoid in working out a scheme, would it not?

"A. We would try to avoid it, yes. We do not think, we think that one must assess the damages that are likely to be done as well as the benefits to be derived and the scheme should be a balanced plan in which there is a reasonable relationship between the benefits accruing from the plan and the damages consequent.

"Q. Yes, and that is what I have in mind when I said that the result of national economy for instance, you would probably consider that the elimination of competition would not be a good thing in the interests of national economy, would you not?

"A. I am very definitely in favour of the competitive system in that respect.

"Q. Yes, and would you think that any plan or scheme which might have the practical result of throwing the petroleum industry of this country into the hands of one or two major companies, would be an acceptable plan?

"A. Well, I do not think I would want it just like that. I think it would be highly undesirable to disregard the fact that you might throw all of the business into the hands of one or two companies. I think that should be given very careful consideration in the development of a plan.

"Q. That would be a very important factor which you would keep in front of you in considering the matter?

"A. Oh yes, we cannot lose sight of it.

"Q. And all these various factors which I have mentioned, you would or your committee would in their wisdom consider all these things before actually recommending a plan for any particular field?

"A. Surely. I think that in developing a plan we would have to consider the engineering as well as the equities, the equities as well as those of engineering."

We also quote from Dr. Pogue's article entitled "A Design for More Effective Proration," written in February, 1939, which has been made Exhibit 639.

"Proration has now evolved to the point where it clearly rests upon two thoroughly established principles—conservation and equity; and involves three procedures—curtailment of flow, rateable takings, and an adjustment of restricted flow to balance the measured requirements of the market. The plan is administered by means of a quota system by which it is sought to bring into accord the requirements of waste prevention and market demand, without violation of the dictates of equity."

From what has been quoted it would appear:

1. That a Conservation and Proration body should not be given unlimited power; on the contrary there should be a "clear cut understandable declaration of policy" by the Legislature.

2. That there should be a definition by the Legislature of what constitutes waste.

3. That there should be definitions by the Legislature covering all of those other factors which are included in the broad declaration of policy.

4. That the specific powers which it is intended that the Board should enjoy should be specifically declared by the Legislature.

5. That provision should be made by the Legislature that everyone who may be prejudicially affected by an order of the Board shall have an opportunity of being heard before that order be made.

6. That provision should be made by the Legislature for such hearings, for the taking of evidence thereat; for finding by the Board upon the evidence; and for rulings to be made thereon by the Board.

7. That the Legislature should provide that the rulings of the Board should be the subject of appeal to the courts.

8. That the court to which an appeal lies should be designated by the Legislature.

9. That the procedure leading up to such an appeal should be stated by the Legislature.

10. That Conservation and Proration legislation should be so framed as to take into account not only engineering efficiency in production but also the relationship between the benefits accruing from a Conservation and Proration plan and the damages consequent upon its being put into operation.

11. That all modern legislative schemes for Conservation and Proration must take into account considerations of equity as well as those of engineering.

12. That a Conservation scheme should not be erected which will permit of monopoly resulting from its being carried into effect.

In the Province of Alberta there are two statutes dealing with the subject of Conservation and Proration. There is first, The Oil and Gas Wells Act, 1931, being Chapter 46 of the Statutes of Alberta,

1931, as amended, and The Oil and Gas Resources Conservation Act, being Chapter 1 of the Statutes of Alberta, 1938, second session.

It seems to us quite unnecessary to review these Acts section by section. For our purposes it is enough to say that these Acts have two things in common; first neither one includes within the four corners of the legislative enactment any of the twelve provisions above listed, secondly both of these Acts give dictatorial powers; in the case of the Oil & Gas Wells Act, 1931, to the Lieutenant-Governor in Council, in the case of the Oil and Gas Resources Conservation Act of 1938, to a Board constituted under the Act and named "The Petroleum and Natural Gas Conservation Board." In the first mentioned Act the Lieutenant-Governor in Council is given power to make regulations concerning some twenty-six matters which have to do with Conservation and Proration. Included in these is the generic paragraph W of Subsection 1 of Section 3, which reads as follows:

> "(w) generally to conserve gas and oil, or to prevent waste or improvident disposition thereof, to prevent the production and disposal of natural gas or oil in any manner likely to threaten the common reservoirs thereof with premature exhaustion, or to compel the drilling for and the marketing of gas and oil in accordance with the most approved practices; to require the cleaning out or deepening, or both, of any wells; and to control the production, transmission, distribution, sale, disposal and consumption of all natural gas or oil produced in Alberta;

It is to be noted that neither in this subsection nor elsewhere in the Act is there a legislative definition of waste or of improvident disposition, likewise there is no direction as to how approved practices with respect to drilling and marketing of oil and gas are to be determined.

It is also to be noted that because of the generality of the subsection quoted the powers of the Lieutenant-Governor in Council are quite unlimited. The only restriction on these powers is to be found in Section 5 of this Act, which reads as follows:

> "5. (1) All regulation made pursuant to this Act shall be laid upon the table of the Legislative Assembly within fifteen days after the commencement of the Session next held after the making of such regulations.
>
> "(2) All such regulations when made, shall, unless and until disallowed by the Legislative Assembly at its Session next held after the making of the same, have the same force and effect as if they were set out at length in this Act."

Turning to the Oil and Gas Resources Conservation Act, the object of the Act is stated in paragraph 3, which reads as follows:

"3. The intent, purpose and object of this Act is to effect the conservation of oil resources and gas resources or both in the Province by the control or regulation of the production of oil or gas or both, whether by restriction or prohibition and whether generally or with respect to any specified area or any specified well or wells or by repressuring of any oil field, gas field or oil gas field and, incidentally thereto, providing for the compulsory purchase of any well or wells."

Sections 15 and 16 of this Act deal with the powers of the Board. These sections read as follows:

"15. The Board is hereby authorized and empowered,—

(a) to appoint such officers, servants and employees as the Board deems necessary for the transaction of its business and to prescribe their duties, conditions of employment and remuneration;

(b) to obtain the services of such engineers, accountants and other professional persons as the Board deems necessary for the proper and convenient transaction of its business;

(c) to make from time to time such enquiries and investigations into all or any of the following matters, namely; the production, transportation and distribution of petroleum or any classification thereof in the Province at such places and at such times and in such manner as may seem advisable to the Board.

"16.—(1) In order to effect the intent, purpose and object of this Act, the Board is hereby authorized and empowered with the approval of the Lieutenant-Governor in Council to control and regulate the production of petroleum either by restriction or prohibition or both, or to repressure any oil field, gas field or oil gas field and, incidentally thereto, to provide for the compulsory purchase of any well or wells, and for such purposes to make such orders and regulations as the Board deems requisite.

"(2) The Lieutenant-Governor in Council may revoke any order or regulation made pursuant to this section."

Section 22 provides for the enforcement by the Board of regulations under the Oil and Gas Wells Act of 1931. This section reads as follows:

"22.—(1) It shall be the duty of the Board and it shall have the power to undertake the enforcement of any regulations made pursuant to The Oil and Gas Wells Act, 1931, whenever the Lieutenant-Governor in Council directs the Board so to do or designates the Board in any such regulations as the person by whom the regulations shall be enforced or by whom any act or thing, the doing of which is authorized or required by any such regulation shall be done.

"(2) The expenditures incurred by the Board in respect of the enforcement of any such regulations shall be payable to the Board by the Provincial Treasurer out of such sums as may be appropriated by the Legislature for the purpose."

From the foregoing it is quite clear that the Board set up under this Act is given a free hand, subject to the approval of the Lieutenant-Governor in Council, to control and regulate the production of petroleum in such fashion as it may see fit.

We do not conceive it to be our function to play the part of Legislative counsel; we do think it our duty to point out that in our view there should be but one piece of legislation giving power to some body to deal with Conservation and Proration matters, and that that one piece of legislation should contain each and all of the provisions hereinbefore listed subject to the limitation hereinafter mentioned upon the right of appeal.

It seems to us, as Dr. Frey suggests, that a Legislature should declare its policy of Conservation and Proration and that it should not delegate its legislative function in so important a matter to a body which is not responsible to the oil industry nor to the public.

That there should be a legislative definition of what constitutes waste seems self-evident. If a body is set up to prevent waste it is surely important to that body and to everyone affected by its activities, to have a clear-cut understanding of precisely what it is that the Legislature intends in the use of the word "waste." Particularly is this so since there has been endless discussion in petroleum literature as to what is and what is not waste.

In our view all other terms to which more than one meaning may be given, that are included in a declaration of the policy of the Legislature should be defined.

We repeat for the sake of emphasis that in our view if a statutory body is to be given power to interfere with the common law rights of individuals, it is only right that those powers should be specifically declared, first so that the statutory body may know what its power is, and second so that those who may be adversely affected may see to it that it does not exceed the authority which has been conferred upon it by the Legislature. It appears to us wrong for a Legislature to set up a body which may change its definitions and its policies from day to day and which may, through what it at the moment considers proper Conservation and Proration measures, interfere with the conduct of a large industry to its detriment, without it ever being possible to say that that body has exceeded its powers, for the simple reason that its powers are unlimited.

We have emphasized that there should be a definition of "waste" and now we would like to equally emphasize that it is not open to question that all enlightened opinion in respect of Conservation

and Proration is in consonance with the view that, with regard to a field of divided ownership upon which there has been imposed Conservation and Proration laws after it has been in operation for some time, any ruling as to prevention of waste as defined should be arrived at only after due regard is had to the principles of equity, and that this should be so provided in the Act of the Legislature.

To our minds for a Conservation and Proration Board to act without an open hearing, without making specific findings, without making formal rulings founded upon such findings, and without any appeal from such rulings, is not only contrary to modern Conservation and Proration laws, but is contrary to the principles of natural justice. We do not think that the Board should be harassed with appeals concerning petty routine matters; we do think that an appeal should always lie when a question of the proper application of the rules of equity or a question of the Board's jurisdiction, is involved.

It seems to us to go without saying, that no government will deliberately frame a policy which, when carried into effect, will bring about monopoly by the elimination of all who are small in the competing field and so we make no further comment as to this. We do not discuss whether a monopoly is good or bad as such, we merely say that experience shows that in the long run monopoly tends towards higher prices and that of this a government will no doubt take cognizance.

We have given much thought as to why the legislation as to Conservation and Proration has taken the form which it has in this Province, and as to why it should not be in accord with modern Conservation and Proration enactments. It may be that it has been thought that in its present form some constitutional obstacles to its validity are surmounted but however this may be we see no constitutional difficulties in the legislation which we propose. We would point out that while the words Conservation and Proration have different literal meanings, none the less true conservation of petroleum necessarily involves Proration. Conservation could be effected by not allowing the field to produce at all, but as a practical matter Conservation cannot be worked out with disregard for the principles of economy and equity and this necessarily involves ratable takings and an adjustment of restricted flow to balance the requirements of the market. Furthermore since, as we have pointed out, production in excess of market demand leads to excess refining and excess storage of refined products, which leads to physical waste, as shown by the Statement of Mr. Harry W. Kaley of the Ethyl Corporation,

next quoted, it follows that regard for the balancing of supply and demand is an essential to true Conservation. Mr. Kaley says:

> "When gasoline is retained in storage for lengthy periods of time, there is a tendency for it to deteriorate in many of its qualities. This applies when storage takes place in refinery or distribution tanks, or even in the fuel tank of the vehicle itself. Such deterioration may be by evaporation or by chemical action in the fuel. Either form is intensified by extreme variations in temperature."

As we have no doubt that Proration to market is an incident of any practical Conservation scheme, and as we have no doubt that the Alberta Legislature may legislate as to Conservation, it follows that in our opinion it is within the legislative competence of the Alberta Legislature to pass an Act which conforms to the best in Conservation and Proration laws including the features listed by us.

We may add that if the present activities of the Conservation Board are such as to be ultra vires of the Legislature, they certainly are ultra vires of the Board, because no blanket form of legislation will serve to confer power on a Board which the Legislature itself cannot exercise.

We have had before us the Honourable N. E. Tanner, Minister of Lands and Mines. We quote from his evidence as follows:

> "The policy of the Government is to obtain the best expert advice possible and to continue with conservation so that the field will be producing on the best methods known, and to carry on conservation in keeping with the best advice that we are able to obtain. We have commenced, as we think, along that line. It is our intention to continue and if more expert advice is required and necessary we shall certainly get it and continue to see that the field is produced in such a way as would serve in getting the ultimate recovery from the natural resources, and in the interest of the development of the field."

We think it proper to say not only that we accept what Mr. Tanner has said as quoted, but also that we were greatly impressed by his evidence as a whole. We entertain no doubt of his sincerity in leaving with us the impression that he and his government were determined to do all things which would make for the advancement of the Turner Valley field and which would put into force in that field the best in known practices in Conservation and Proration.

This being our appreciation of the effect of Mr. Tanner's evidence, it is with some confidence that we make the recommendation that the legislation which we have discussed, namely, The Oil and Gas Wells Act, 1931, and The Oil and Gas Resources Conservation Act, be repealed and that new legislation be substituted therefor.

Since it is possible that this suggestion may be of interest we may say that the Arkansas Act to which Dr. Frey refers is Exhibit 672, and that the so-called Cole Draft Bill to which Dr. Frey also refers, is Exhibit 700.

Even as it is our recommendation that present legislation be repealed, so it is our recommendation that all regulations made thereunder be discarded and that new regulations be substituted therefor. It is our opinion that such new Act and regulations should be drafted if at all possible, by special counsel familiar with the Petroleum Industry.

It is our further opinion that it will make for co-operation and harmony, and that it will make for better regulations, if before any such regulations are brought into force, a meeting with members of the industry be held at which the proposed regulations are put forward and discussed. This meeting in our view would be of great advantage in that the Board would then be fully informed as to the opinions of the members of the industry, who are sufficiently interested to attend, in respect of regulations which as a matter of course will seriously affect their activities from an economic standpoint.

It is to be remembered that Turner Valley is a new oil field and that Conservation and Proration is in one manner of speaking in its infancy in this Province, and so it is not to be expected that in legislation, regulations, or in Board policy there should have been perfection. We have been at pains to examine the evidence which points to improvement, not to criticize that which we have, but to make suggestions which we hope will be of value to a government that has the outlook in Conservation and Proration matters, which Mr. Tanner has put before us.

Gas and Oil Products Limited have brought to our notice in no uncertain fashion, that in the opinion of the officers of that company, the conduct of the Conservation Board has not been that of a quasi-judicial body but rather that its conduct has been arbitrary, unreasonable and in complete disregard of the principles of equity, and contrary to good engineering opinion.

We heard the evidence given in support of the position taken by Gas and Oil Products Limited, as we were in duty bound to do because the activities of a Conservation and Proration Board necessarily have a bearing upon the cost and profit performance of everybody concerned in the oil industry in this Province, and in particular upon the producers and those refiners whose plants are situate in the Turner Valley field.

We think that while we might state the position of Gas & Oil Products Limited by summarizing what has been said to us in evidence and in argument, the fairest and most accurate way to do this is to quote from the brief which Mr. Mahaffy has filed with us, as counsel for this company.

Added force was given to Mr. Mahaffy's presentation by reason of the adoption of his arguments by Mr. Harvie as counsel for British American Oil Company Limited.

Mr. Mahaffy's brief reads in part as follows:

"Gas & Oil Products Limited desires to submit argument on one phase of this matter only, namely, the effect which the operations of the Oil and Gas Conservation Board have had on the production of natural gasoline; the effect which suggested orders of the same Board would have on that production; and the importance of natural gasoline to the industry as a whole and Gas & Oil Products Limited in particular.

"Mr. Mayland, President of Gas & Oil Products Limited gave evidence before the Commission on this point, to be found on pages 15,548 to 15,586 of the transcript of evidence. He very briefly outlined the history of the operations of this Company in the Turner Valley Field. He recited that independent companies in which he was interested commenced drilling wells in 1929 and 1930 in the then extreme south end of the Turner Valley Field (p. 15,549), which wells proved to be gas and naphtha producers. He endeavoured to have the tail gas, discharged from the separators at these wells, processed by the Royalite Oil Company Limited through its absorption plant but without success. Royalite operated the only absorption plant in the field at that time (p. 15,552). Mr. Mayland then organized Gas & Oil Products Limited, purchased an absorption plant in the United States (p. 15,552) and erected it in Turner Valley at a cost of approximately $460,000.00 (p. 15,554). The wells above referred to were drilled on leases from the Crown, leases which gave the lessees full right to develop these properties and to take the production therefrom. Mr. Mayland and the Companies with which he was associated having acquired these leases, naturally assumed that they would be allowed to develop the property and operate the wells without restriction (save as provided in the leases) and proceeded to invest very substantial sums of money in that development. Moreover, prior to the erection of the absorption plant by Gas & Oil Products, Mr. Mayland had received assurance from the Provincial Government that wells would be allowed to produce up to 40% of their open flow capacity (p. 15,553). When the plant commenced operations in 1934 the through-put of gas was approximately 54 million cu. ft. per day. (See evidence of witness Boyd, p. 15,516). The plant has a capacity of approximately 60 million cu. ft. per day (p. 15,539). Mr. Mayland could not make any satisfactory arrangement with Imperial Oil Limited to dispose of the natural gasoline produced at the new plant (p. 15,554) and found it necessary to commence the production of a third structure gasoline and to market this product. The natural gasoline production of the absorption plant made it possible to produce a very fine gasoline (p. 15,555) and a sales

organization was built up for the purpose of marketing same. Substantial reductions in the price paid by consumers for third structure gasoline resulted from the entry of this product into the market (p. 15,558). Mr. Mayland expressed the definite opinion that this entry into the market could not have been effected without the use of natural gasoline (p. 15,562). He stated further that the ability of his Company to remain in the market for the past five years in competition with the major companies could be attributed to the use of this product (p. 15,562). The evidence of both Mr. Mayland (p. 15,570-1) and of Mr. Boyd (p. 15,477) is very definite that if the Company is not allowed to produce its requirements of natural gasoline it would find it extremely difficult to maintain its position as a competitor in the manufacture and distribution of gasoline.

"Mr. Boyd, who has had a great deal of practical experience both in Canada and in the United States, has evidence which establishes the importance of natural gasoline as a blending agent in the manufacture of gasoline. He has emphasized the importance of adequate volatility in gasoline (p. 15,459 and 15,473) and to corroborate his contentions in this respect he has filed with the Commission (Exhibit 679) a book written by Dr. Brown and published by the Department of Engineering and Research of the University of Michigan. Mr. Boyd pointed out that good volatility is particularly essential in a cold climate such as we experience for many months of the year in Western Canada (p. 15,461, 15,471 and 15,472). In his opinion the required volatility can only be satisfactorily attained by the use of natural gasoline (p. 15,468-9). Much less natural gasoline is required for blending with a cracked product than is needed for blending with the production from a skimming process, but nevertheless it is still necessary. It appears from correspondence which has passed between Commission Counsel and Dr. Brown, since the taking of evidence was completed, that in Dr. Brown's opinion the necessary volatility can be secured in the Calgary refinery of Imperial by a cracking process, but only at greater expense. In any event the fact remains that Imperial has in fact a supply of natural gasoline available to it and Mr. Boyd's contention is that Gas & Oil Products Limited must also have natural gasoline to enable it to maintain a competitive position with Imperial. Moreover, Mr. Boyd made it clear that Gas & Oil Products Limited intends to continue the production of third structure gasoline and tractor fuel from its skimming plant and natural gasoline is required to achieve suitable volatility of these products (p. 15,468 and 15,507).

"In support of his contentions that natural gasoline is a necessary blending agent, Boyd gave details of his experience in the United States. He pointed out that considerable quantities were shipped to various countries in Europe (p. 15,462). He said that as far as he knew all refiners in the United States use this product and he cited many cases where refiners actually purchase their requirements (p. 15,462-3), p. 15,471-2). He stated that while employed in the United States his Company had made very substantial shipments of natural gasoline to a Winnipeg refinery (p. 15,472) and that when Gas & Oil Products Limited had natural gasoline for sale prior to 1939, that it made sales at various times to no less than nineteen independent refiners in Western Canada (listed p. 15,465) including Consumers Co-Operative in Regina. Mr. Boyd was

not able to say what these independents had done since shipments from Gas & Oil Products Limited had stopped but he did know that Consumers Co-Operative at Regina were importing natural gasoline from the Oklahoma fields (p. 15,525).

"Evidence was given to establish that Gas & Oil Products Limited, in the event of its own supply being inadequate, could not purchase natural gasoline anywhere in Canada (p. 15,507-9, 15,586-7, 15,586), and the only other reasonable source of supply would be Group 3 (Oklahoma and Kansas). The cost of importing from Group 3 would be prohibitive (p. 15,509).

"It should also be noted that the blending of natural gasoline with the refinery run greatly increases the tetra ethyl lead susceptibility of the finished product with the result that much less lead is required (p. 15,459-60, 15,473).

"It is submitted that the evidence as above summarized proves that natural gasoline is a very valuable, indeed an essential, constituent of the products marketed by Gas & Oil Products Limited in competition with other marketers in Alberta who use the same product. It is also clear that the general public, and particularly the farmers who use the bulk of the third structure gasoline and tractor fuel, are receiving a superior product at a less price because of the fact that natural gasoline is used.

"Notwithstanding the great value of natural gasoline, as above indicated, a value far above its actual market price, the Conservation Board have attached no value to it whatsoever in arriving at the allowances the Board has made in pro-rating the field.

"Mr. Boyd estimated that the natural gasoline requirements of the company would average about 6,250 gallons per day, including about 750 gallons per day for blending with the gasoline produced by the new cracking unit recently installed (p. 15,506 and 15,512). He said that it would be necessary to put through the absorption plant between 15 million and 16 million cu. ft. of gas per day in order to recover that amount of product (p. 15,512). This would be gas from the gas cap which, on the average, produces twice as much natural gasoline as gas produced from the crude well area. If crude well gas only were put through the plant it would require about 31 million cu. ft. per day (p. 15,512). When the plant was originally constructed in 1934 the through-put of gas (entirely from the gas cap) was 54 million cu. ft. per day (p. 15,516). For various reasons this was cut down to 31 million per day which was the through-put of the plant until early in the year 1939 (p. 15,478), (p. 15,481-2). In January, 1939, as a result of activities of the Oil & Gas Conservation Board, this through-put was reduced to about 12 million cu. ft. per day (p. 15,482), practically all of which is gas from the gas cap.

"The Company is now making every effort to secure gas from crude oil wells and last summer laid a new gas line gathering system and has been able to contract several wells to a total of 6 million cu. ft. of gas per day (p. 15,517). The natural gasoline recovered from this gas plus the recovery from the 12 million cu. ft. from the gas cap just about makes up the amount of natural gasoline requirements above mentioned.

"Mr. Boyd also explained that after the gas had been run through the absorption plant—it is not wasted—but is put to various uses including operation of power machinery at the plant, a domestic market of about 90 homes and for use in boilers at the plant (p. 15,528-9). Ninety per cent of the gas going through the plant is put to some such use (p. 15,530).

"On September 5th, 1939, the Oil and Gas Conservation Board sent a circular letter to all operators of gas wells in Turner Valley indicating that it intended to issue an order making drastic changes in the allowable production of gas from these wells. The letter is Exhibit 595 and is reprinted on p. 15,497). Meetings between the Board and producers were held and on October 11th, 1939, the Board issued a circular setting forth its tentative proposals. This circular is Exhibit 676, reprinted on p. 15,500. If this proposal were made effective by the Board the twelve gas cap wells (p. 15,534) which supply gas to the absorption plant of Gas & Oil Products Limited would be reduced to an aggregate daily production of 3,208,000 cu. ft. of gas (p. 15,535). Mr. Mayland, who is an experienced operator of wells in Turner Valley, says that the individual gas wells could not operate on such a small allowable production because they would not even pay operating expenses and would have to be closed (p. 15,569-70). In that event Gas & Oil Products Limited would get no gas on that basis, Gas & Oil Products Limited could not carry on operations with the small amount of gas which would thus become available to it (p. 15,539-40, 15,570-71).

"At the same time, the principal competitor of the Company, namely, Imperial Oil, could continue in the production of natural gasoline due to the fact that it enjoys an exclusive contract for the sale of gas to the Canadian Western Natural Gas, Light, Heat and Power Company Limited (p. 15,571-2).

"Under all these circumstances Gas & Oil Products Limited has made its submissions to this Royal Commission and respectfully suggests that the Commission should recommend to the Provincial Government that the allowable production of gas from the gas cap area of the Turner Valley Field should not be reduced as suggested in Exhibit 676, nor should it be reduced below the allowables now in effect. It is felt that this suggestion is perfectly sound and reasonable and consistent with the principles of conservation.

"As Dr. Frey has said to the Commission, any scheme of conservation must involve practical and economic considerations as well as theoretical application. It must also give thorough consideration to all of the 'equities.' The gas cap area of the Turner Valley Field was developed at tremendous expense to the companies involved, with the encouragement, in fact at the insistence, of both the Dominion and Provincial Governments. These Governments were adequately advised by competent geologists. Gas & Oil Products Limited and associated companies were pioneers in the development and have made a most substantial investment. These are 'equities' and practical and economic considerations which must be considered.

"It is most unfortunate that Mr. Knode, techical advisor to the Board and former Chairman of the Board, did not see fit to indicate his

desire to discuss this problem with the Commission and outline his views with respect to the 'equities' and the practical considerations which are involved in the problem. However, this was not done, nor did any representative of the Conservation Board appear at the hearing and question in any way the general principles enunciated by Dr. Frey.

"The whole objective of the conservation scheme is two-fold. First, to preserve reservoir energy, thus to allow of the maximum recovery of crude oil. Second, to conserve natural gas as a fuel. The principal concern of the Board has been the first, namely, preservation of reservoir energy. The best proof of that statement is that natural gas from crude oil wells is being burned in the flares of Turner Valley today and the Board has not made any order requiring otherwise. It is submitted that the evidence given before this Commission conclusively establishes that withdrawal of gas from the gas cap area of the field does not and will not adversely affect in any way the total ultimate recovery of oil from the crude oil area. There are two theories, one is that the field is a common reservoir or pool in which there is free movement of gas and oil in formation. The other is that, although the field is a reservoir, because of the nature of the limestone formation, the extremely low permeability of the limestone and the presence of many dense or 'tight' areas, there is little, if any, movement of gas and oil in the formation. The latter theory gains by far the bulk of support from the experts who have testified. Dr. Link and Mr. S. J. Davies, who gave evidence for the Imperial group (chief marketing competitor of Gas & Oil Products Limited), hold this opinion (p. 308, 579, 580, 582, 584). Dr. Shaw and Mr. Gill, two outstanding experts called to give evidence at the request of the Anglo-Canadian Oil group (the second largest producer of crude oil in the field) also subscribe to this view (p. 1063-4, 1096-7, 1110). In view of this evidence should the important industry which is operated by Gas & Oil Products Limited be junked without compensation and should the production of a valuable produce, natural gasoline, be eliminated because the technical adviser to the Board holds an entirely different view? In so far as the conservation of the gas as a fuel is concerned, practically all gas used for this purpose is withdrawn by the Royalite Company from the northern and central portions of the field and here again withdrawals from the south end do not affect that source of supply because of low permeability.

"For these reasons it is contended that if the gas cap wells in the south end of the field are closed in as now suggested by the Board, such action will not benefit crude oil wells nor will it benefit the conservation of gas as a fuel.

"But assuming that the other view is accepted, namely, that there is free movement of gas in the formation, it is submitted that the Board has made a suggestion in Exhibit 676 which would be most inequitable. It is clear that if this suggestion was acted upon by the Board (as it may be as soon as this Royal Commission has completed its sittings), that the practical result would be the closing in of all wells located on the south portion of the gas cap area. If there is free movement in the formation, then it is obvious that the gas underlying these wells will do one of two things: (a) It will be withdrawn from the formation, through the wells located on the north portion of the gas cap, by Royalite and

> sold by Royalite to the Calgary Gas Company, or (b) it will be used by producers of crude oil for the purpose of lifting their oil to the surface through crude area wells—and then his gas will be burned because, in the view of the Board, it has performed its function. In either of these cases the Board has taken no steps to provide for compensation to operators of absorption plants which are dependent on the gas from those wells. No step has been taken by the Board, nor suggested by the Board, to permit of these wells sharing in the sale of gas for domestic and commercial consumption in Calgary and if the suggestion of the Board is acted upon, Royalite will get this gas for nothing. No step has been taken by the Board to indicate that in its view the operators of crude oil wells should compensate operators on the gas cap for gas cap gas used to lift crude oil."

It is to be noticed that Dr. Brown does not go as far as Mr. Boyd, a Chemical Engineer who appeared for Gas & Oil Products Ltd. in attaching importance to the product which Mr. Mahaffy has described as "natural gasoline." Dr. Brown concedes that if it were not available that there would need to be more intensive refining and that this would affect the profit performance of a refiner adversely, and he estimates that in such case the Imperial new plant for example would suffer a reduction of profits to the extent of 1%. Moreover Dr. Brown does not take into account the fact that Gas & Oil Products Limited and British American Oil Company Limited already have absorption plants in Turner Valley for the express purpose of extracting this natural gasoline. Furthermore we doubt if this may be considered wholly as a matter of dollars and cents from the standpoint of what it costs to make the finished product but rather are we inclined to think that there is much to be said for the view put forward by Mr. Boyd that the volatility which the use of natural gasoline provides when used for blending in adequate quantities is of great importance in a country with winter temperatures such as we have, and so, important to the refiner who wishes to make it a feature of his selling programme that his gasoline makes the starting of motors a simple matter regardless of low temperatures. But however this may be, we think it not open to doubt that if the suggested order is made it will have an adverse effect upon the business of Gas & Oil Products Limited and of British American Oil Company Limited. This alone may not be a reason for not making the order but it is a reason for not making it without due regard to the equities as well as the engineering questions involved. We may add that this is none-the-less so because it is not possible to estimate with mathematical precision the exact loss which will be suffered by anyone.

It is to be borne in mind, however, that the evidence given on behalf of Gas & Oil Products Limited and the arguments advanced

on behalf of that company and adopted by the British American Oil Company Limited remain unanswered by the Conservation Board and that the contemplated order of that Board which Gas & Oil Products Limited so greatly fears has not been made or put into effect. This being so we do not propose to form a judgment or make recommendations based upon a hearing of only one side in respect of a matter that is quite evidently controversial.

We are not unmindful of the suggestion made to us that just so soon as this Commission has completed its report and is no longer in a position to discuss any order of the Conservation Board, that that Board will issue an order without provision for compensation, which will be harmful to Gas & Oil Products Limited, and British American Oil Company Limited, and which will be in disregard of principles of equity and of sound engineering practice. We do not think that this suggestion is entitled to weight, but in any event we have no thought of dealing with a contested matter in respect of which only one party gave evidence. This statement, of course, gives rise to the pertinent questions, why did not the Conservation Board appear and make answer, and failing this, why did we not compel the members of that body to do so? As to the first question, the Board perhaps took the position that it was not on trial, but as to this we cannot speak. As to the second question, we may say we would have required the attendance before us of each and every member of the Conservation Board and of the consulting engineer to that body. if it had not been that we thought it contrary to public policy and against public interest to require a public body to discuss what its judgment will probably be in respect of a matter presumably under consideration.

As we see the Gas Cap problem, it resolves itself into two major questions, the one engineering, the other equity. We think that the problem is a very real one. Dr. Frey makes this clear in the evidence now quoted:

> "Q. There is also the question of consideration of the propulsive power associated with the oil?
>
> "A. For instance, you get into that very fascinating question of a field in which there is a gas-cap and down-dip there is oil. What is the value of a gas-cap to the oil and what is the value of the oil to the gas-cap? It is extremely complicated.
>
> "Q. Is that a pure engineering problem or not?
>
> "A. Well, I suppose in the ultimate analysis it is but it involves so many interesting sidelights of equities that it fails to get down to engineering. You cannot divorce engineering entirely from other economic considerations, the use of the gas-cap as contracted with the use of the down-dip oil."

We venture the suggestion in the light of the evidence of the engineers, Messrs. Shaw and Gill and others referred to in the brief quoted from, and in the light of Dr. Frey's evidence as to equities, that the Conservation Board might well consider deferring decision upon the questions raised by the anticipated order, until it has made an inquiry of a kind and character that in its very nature will meet any charge that the Board has acted in disregard of equities and without being at pains to weigh and value the opinions of any engineer other than those of its own consulting engineer.

We would like to emphasize ere concluding a discussion of the Gas Cap problem that we make no findings as to what the Conservation Board has or has not done or proposes to do; we merely point out as we consider it our duty to do, that if the proposed order of the Board, as suggested by its notice, would have the effect contended for, namely of rendering useless two absorption plants of great value without compensation, that this would be considered a serious matter in any part of the Empire and that it may be well so considered by a Conservation Board in Alberta.

We now pass to a consideration of the constitution and duties of the Alberta Conservation Board, as to which we have the following observations and recommendations to make:

1. That on the evidence before us we have formed the opinion that the Petroleum and Natural Gas Conservation Board as presently constituted does not enjoy the confidence of all the producers in Turner Valley.

2. That this Board should be reconstituted, first in order that there may be a greater likelihood of harmony between the Board and the industry, and second because it is all-important that only the ablest men who will accept the position be upon a Board, the activities of which touch the pocket books of every producer in the Turner Valley field and in the long swing have their effect upon prices down the line to the consumer.

3. That the view last put forward is given added force by our suggestion hereafter to be made, that the Board be given duties over and above those which they now undertake in connection with Conservation and Proration.

4. That it should be recognized that the services of such men cannot be obtained unless they are paid salaries which are in keeping with their abilities and their responsibilities.

5. That such a Board should be free from political interference of any kind.

6. That for the sake of majority decision, the Board should consist of an uneven number of members, one of whom should be the Chairman, but without any special power other than that ordinarily exercised by a presiding officer.

7. That having regard not only to the duties incident to Conservation and Proration but to the added duties which we hereinafter suggest should be undertaken by this Board, we think that the ideal Board would be one of 5 members constituted as follows: one member who may be said to be truly representative of Alberta consumers; one member drawn from the ranks of the Industry, who may be said to have an understanding of its economic and other problems; one member who is a Petroleum Engineer, so that on the Board there will be one who will have a proper appreciation of the engineering problems which will confront the Board; One member who is a chartered accountant and so capable of understanding the complex accounting problems which will confront the Board if our recommendations are accepted; and one member who has legal training, so that there may be on the Board a person who has a true appreciation of the equities which are involved in any worth while Conservation and Proration scheme, and the constitutional and other legal problems which will inevitably confront the Board if its orders are to stand in the face of attack.

8. That while we have said that such a Board of five members would be the ideal Board, we do not fail to recognize that the ideal in the constitution of a Board, like the ideal in waste prevention, may be obtained only at too great a cost to be worth while.

   With this in mind, we recommend a Board of three members. It is, however, to be hoped if the recommendation be accepted, that the qualifications mentioned in discussing a five-member Board will be kept in mind when appointing those who will be on the three-member Board.

9. That the Board should meet with the producers at least once in every month, at an appointed time and place, for discussion of their problems having to do with Conservation and Proration, so that the Board may be at all times alive to the viewpoint of the branch of the Industry which its Conservation and Proration orders most greatly affect.

10. That while the refineries who (either directly or indirectly through subsidiaries) are producers, and the Alberta Petroleum Association (a body made up of refiners as well as producers) should be at liberty to be present at any such meeting, the Board should be careful to see that they get the true viewpoint of the producers and not the viewpoint of the refiners, who under our competitive system, are undoubtedly going to buy the crude petroleum at the lowest price that they can and under conditions which best serve their interests.

11. That even as it is important that the Board meet with the Producers so is it important that the Board meet at an appointed time and place at least once in every month with the Refiners and Marketers of petroleum products so as to have an understanding of their point of view.

12. That in our view these meetings will lead to an understanding on the part of the Board of the problems of the industry which they would not otherwise have and also will lead to an understanding on the part of the different branches of the industry of the difficulties which confront the Board, which they would not otherwise have, with the result, that once it is appreciated that aside from Conservation and Proration the Board has no mandatory power and is not set up to dominate the Industry, it may be confidently expected that there will be co-operation and harmony between the Board and the Industry.

13. That the Board be required to perform all of the duties that may be assigned to it by the Legislature with respect to Conservation and Proration matters and all the added duties herein mentioned.

14. That it is all-important that this Board preserve for the benefit of the government, the industry and the public the wealth of information gathered by this Commission with respect to the Petroleum Industry.

15. That since this information is now preserved in the form of transcripts of evidence and exhibits, the Board should be the custodian thereof and make this available to anyone seeking information.

16. That from this starting point the Board should proceed to accumulate and to preserve and arrange to produce on request, any data as to the Turner Valley Oil Field and as to any other part of the Province, which can reasonably be

expected to be of interest to those directly or indirectly concerned with the Petroleum Industry.

17. That the Board should be required to be at all times fully informed as to every branch of the Petroleum Industry including exploration, production, refining, and wholesale and retail marketing.

18. That the Board be required to at all times be informed as to the world picture in respect of both crude and refined products and as to prices which obtain elsewhere in respect of these.

19. That it is important not only from the standpoint of the producers but from the standpoint of there being an incentive for drilling, that the Board be required to be informed as to whether or not the producers are obtaining the proper field prices.

20. That the Board be required to be familiar with the cost and profit performance and the price spreads in respect of all branches of the Industry.

21. That the Board be required to be informed about and concern itself with the possible enlargement of the economic market and to that end become thoroughly familiar with all relevant matters, such as the freight rate and pipeline situation.

22. That the Board should be required to be informed and able to report upon gasoline tax evasion, the enforcement of standardization if put into effect and the enforcement of the Dominion anti-dumping laws in the Province of Alberta.

23. That the Board should have, as one of its primary objects, the determination of whether competition does or does not remain a reality in the Province of Alberta. This suggestion, of course, covers all kinds of competition, because as has been pointed out in the evidence, competition is not limited to competition as to price.

24. That the Board should have authority to move before the Public Utilities Board, for any change in pipeline rates which in its opinion changed circumstances make desirable.

25. That the Board be required to perform what we conceive to be a very useful function, namely to meet with members of any or all branches of the Industry, for the express

purpose of considering with them the effect of any agreement or agreements into which it is proposed to enter, with a view to deciding as to whether or not such agreement or agreements will have an adverse effect upon the public or upon other members of the Industry. This suggestion is made because we feel that the Industry is cabined and confined by the provisions of the Criminal Code and the Combines Investigation Act, of the Dominion. Granting the soundness of these enactments, the fact is that the members of the Petroleum Industry are fearful of even meeting together, much less making agreements, because of the ever-present threat of prosecution. It is in our view important to remove this fear, because it is conceivable that agreements might be arrived at which would be of advantage to the public as well as to the Industry. This can be accomplished we think, if an independent Government Board such as this be authorized to place the stamp of its approval on any agreement which is thought to be of advantage to the public as well as to the Industry, because with such approval, it cannot be thought that the Attorney-General would allow a prosecution in respect of any such agreement, to proceed.

26. That the Board be required to make its Conservation and Proration procedure leading to formal orders conform strictly to the Statutory provisions for open and impartial hearings which we have hereinbefore recommended.

27. That the Board should be required to make a full report to the Lieutenant-Governor in Council, on the last day of each three months period in the year, not only upon its own activities but upon the activities of all branches of the Petroleum Industry in Alberta, whether hereinbefore mentioned or not, and upon all other matters of importance, which in any wise relate to the Petroleum Industry.

28. That in connection with such reports, the Board be authorized to add such recommendations as it may see fit to make.

29. That copies of these quarterly reports be made available to all members of the Petroleum Industry upon their making payment of the actual cost of the printing or typing of the report.

We now turn to a statement of the present Conservation and Proration practice in this Province, as described by Mr. Cottle, a member of the Conservation Board. This statement was made at

our request because it seemed to us that a report of the kind which we now make should contain such a statement for the information of all who may be interested in the activities of the Conservation Board.

Mr. Cottle's evidence is as follows:

"Before preparing a proration schedule, the Board determines, in respect of each well in the field, its assigned acreage, its gas/oil ratio, its capacity to flow and its bottom hole pressure. Each of these factors has, in the opinion of the Board, a very real bearing on the relative position of each well in the reservoir. The Board will not assign more than forty (40) acres to any one well and in case a well is drilled on less than forty (40) acres will not assign more than the acreage controlled by the operator. The gas/oil ratio is determined and revised from time to time from records of actual production which the Board obtains in the field or keeps in its office. The capacity to flow and bottom hole pressure are determined by actual tests conducted by the Field Staff maintained by the Board.

"Having determined the above factors in respect of each well the Board then proceeds to compute the allowable of each well in the following manner:

"1. Having determined the total daily production of the field to be prorated to the wells it is divided into four equal parts. The first part is apportioned to each well in the proportion that the assigned acreage of each well bears to the total assigned acreage in the field. The second part is apportioned to each well in the proportion that the bottom-hole pressure of each well bears to the sum of the bottom-hole pressures of all wells. The third part is apportioned to each well in the proportion that the tested rate of flow of each well bears to the sum of the tested rates of flow of all wells. The fourth part is apportioned to each well in the proportion that the reciprocal of each well's gas/oil ratio bears to the sum of the reciprocals of the gas/oil ratios of all wells.

"I may interject there that the term 'reciprocal' is used to indicate that the Board gives weight in the inverse proportion of the gas/oil ratio, so that a well with a large gas/oil ratio receives a relatively smaller allowable than a well with a low gas/oil ratio.

"Adding the four apportionments described above, we arrive at what is termed the initial sharing position of each well. The sum of the sharing positions equals the total allowable production of the field.

"2. All wells are then divided into two groups, the first group comprising those wells having gas/oil ratios less than 3,000 cubic feet per barrel; the other group comprising those wells having gas/oil ratios in excess of 3,000 cubic feet per barrel. (Wells with gas/oil ratios in excess of 31,000 cubic feet are classed as gas wells and are not involved in these calculations.) If the Board allowed those wells with excessive gas-oil ratios to produce at the rates indicated by their initial sharing positions, there would be excessive volumetric withdrawal from those wells. Accordingly, the Board sets a maximum withdrawal of gas for each well in

the second group equivalent to the amount of gas which the well in the first group with the largest sharing position would produce if its gas/oil ratio were 3,000 cubic feet per barrel and it were produced at its initial sharing position. For example, if the largest sharing position of any well in the first group were 500 barrels, the maximum gas displacement would be computed as 1,500,000 cubic feet. The Board then divides the gas/oil ratio of each well in the second group into the maximum gas displacement (1,500,000 cubic feet in the above illustration) in order to determine the maximum oil displacement allowable of such wells. The sharing position of any well, the displacement allowable of which is less than its sharing position, is then reduced to the displacement allowable.

"3. A number of wells, due to their individual characteristics, are unable to produce efficiently their sharing positions ascertained under paragraphs one or two described above. The sharing positions of such wells are reduced to the amount which the Board considers proper in each case.

"4. The sum of the total reductions in initial sharing positions made as described under paragraphs two and three above are then added to the initial sharing positions of those wells with gas/oil ratios less than 3,000 cubic feet per barrel in proportion to the sharing position of each of such wells.

"The sharing positions revised as described above then become the allowables of each well.

"Subsequent to the issuance of a proration schedule in the manner described above, a new well may be brought into production. As soon as may be after completion of the well, tests are made to determine bottom-hole pressure, gas/oil ratio and rate of flow. The Board then makes a computation to determine as nearly as possible what the allowable of the new well would be if it were included in the last proration schedule. The well is then given a temporary allowable based on such a calculation. When subsequent schedules are prepared, however, all such wells are included.

"It should be borne in mind that the procedure described above, although followed by the Board at the present time, is subject to change at any time and in any manner deemed proper by the Board.

"THE CHAIRMAN: May I interrupt to ask you, how often do you make out these new schedules; according to the number of wells that come in or what is your test?

"A. There is no fixed time limit, Mr. Chairman, but in the past the requirement for oil has changed with sufficient frequency that in our judgment we very seldom had to revise the schedule to take care of changing characteristics. If there were a static requirement and there were no new wells coming into production, I presume we would desire to change the schedules about every thirty days or thereabouts. But we have not had to consider that in the past because other conditions beyond our control have caused us to change our schedule with sufficient frequency to take care of changing characteristics.

"Q. The coming in of new wells alone would affect your schedule you consider?

"A. Yes, because the coming in of new wells and granting additional allowables would, of course, upset the relationship between the requirement and the total production.

"Q. How frequently have you been making schedules?

"A. Some as frequently as a week apart on some occasions. We would like to see a schedule stay in effect a month, however.

"MR. COMMISSIONER LIPSETT: Q. When you give a temporary allowable, Mr. Cottle, does that mean that the daily allowable production is increased that much or do you take that percentage off every other well?

"A. No, temporarily the total field production is increased that much and then we take care of it on the next schedule. As historical data is accumulated concerning the characteristics of the wells and the condition of the reservoir it is inevitable that the Board will revise its proration formula or at least change the relative weight given to the various factors used. It should also be borne in mind that the application of the formula does not result in static allowables as there is a constant change in the various characteristics of the various wells. Accordingly it is essential that new schedules be computed with reasonable frequency, even though there need be no change in the total allowable production of the field. In this way it is possible to keep the production of each well in proper relationship to the whole field in the light of changing characteristics.

"Evidence has been given before this Commission having to do with the Board's policy concerning storage and the levelling of production rates to avoid excessive production in the summer and too little production in the winter.

"If it were possible to maintain an even rate of production throughout the year there is no doubt but that greater production efficiency could be attained. Hence the Board is not opposed to, but rather encourages the accumulation of storage stocks during slack seasons so as to avoid excessive production during peak seasons. The Board, however, is not in the business of purchasing and storing oil and the maintenance of a uniform rate of production can only be achieved by those persons who are willing to store oil. Refiners and purchasers of oil store considerable quantities at all times. The fluctuations in seasonable demand in this country are so great, however, that the persons storing oil are unable to carry sufficient stocks to maintain a uniform rate of production through all seasons. Indeed this procedure would require such a heavy investment in storage tanks that it is doubtful, in my mind, if the additional cost involved would be justified by the increased efficiency obtained in the field. Nevertheless the Board encourages reasonable stocks of oil being accumulated prior to peak demand periods and some success has been achieved in this direction.

"The concrete proposal suggested to this Commission in evidence, however, was that an individual producer whose well, during the low

production period, was producing at less than a rate of maximum efficiency—at that point I should say by rate of maximum efficiency I mean the maximum rate at which efficient production can be obtained—should be permitted to produce his well up to the maximum efficient rate and store the excess production above ground. Quite apart from the virtue there may be in storing oil above ground or the inadvisability of a well being restricted below its maximum efficient rate of production the Board could not permit this procedure or any other which would involve the production of any well at a rate greater than its allowable. Obviously, in an administration of this kind, the Board must treat all persons alike and, having determined a well's proportion of total production, it could not allow that well to produce more than that proportion. For this reason the Board makes no distinction either between the owner of an oil well who is also a refiner and the owner of a well who is not, or between the owner of a well who sells his production under contract and one who sells to all comers. In short, the owner of a well, the allowable of which is one hundred barrels per day, is permitted to produce only one hundred barrels per day and as far as the Board is concerned he may do with his product as he pleases whether he intends to store it, refine it or sell it.

"The result of this policy is that, subject always to the possibility of the total requirement at any time exceeding the efficient production rate of the entire field, the Board permits the field to produce as much oil as there is any requirement for and each well in the field is permitted to produce its full share of the total production.

"Some point was made in evidence before the Commission of the fact that, on the Board's Schedules of May 13th and 19th last, several wells were given allowables in excess of the capacity of those wells to produce. This procedure was criticized and presumably was cited as an indication of some fault in the Board's method of proration.

"At the time this criticism was made the production of the field was rapidly being increased to take care of increasing requirements for oil. A schedule had been issued on April 1st, 1939, providing for the production of 17,500 barrels per day. This was superseded by a further schedule on April 28th, 1939, providing for 19,500 barrels per day. Then on May 13th, 1939, the total field allowable was increased to 22,500 barrels per day followed by a further schedule on May 19th, totalling 25,000 barrels per day. The latter schedule remained in effect until June 13th, 1939, when a schedule was issued providing for 27,000 barrels per day.

"You will see that the total field production was increased from 17,500 barrels per day to 25,000 barrels per day in a period of three weeks. Needless to say this rapid increase in rates of flow resulted in changes in the relative characteristics of individual wells and accordingly a series of schedules would be necessary to give full effect, in the relative allowables of each well, to such changes.

"In my explanation of the application of the proration formula I stated that a number of wells, due to their individual characteristics, are unable to produce efficiently their sharing positions ascertained by the application of the formula. Obviously a substantial increase in the allowables of all wells could be expected to result in a number of the

smaller wells reaching the point where they could not efficiently or even inefficiently produce the increased allowable. The point of maximum production of such wells, however, can be ascertained only by trial and error and accordingly the Board expected a number of wells to be unable to produce the amount of the allowable given to them in its schedule of May 13th.

"In this connection it should be said, however, that the Board does not attempt to curtail unduly a number of what may be classed as minimum wells, and in a few instances is willing that the operator produce a minimum well, subject only to the good judgment of the operator. This is true, however, only in respect of the smaller wells which, as far as the reservoir as a whole is concerned, are unable to create sufficient waste to justify the curtailment of their production. If such wells are produced in excess of a reasonably efficient rate, the characteristics of the well will be affected, with the result that the maximum displacement feature of the formula will come into operation and result in a restricted allowable.

"THE CHAIRMAN: I do not understand that. You say in the case of small wells you do not greatly concern yourself about them. Are not they using up propulsive energy just the same as a bigger well?

"A. Yes, they are, to a lesser extent, of course.

"Q. Aren't they taking that out of the field?

"A. Yes, that comes out of the reservoir but the amount of both gas and oil which comes out of that particular well is much smaller in relation to his acreage in the reservoir that it could hardly be said he is drawing from a neighbouring well. Unless, of course, he is withdrawing a very substantial amount of gas.

"Q. But that is just the point?

"A. If he is doing that the displacement feature of the formula would restrict that. There are some wells incapable of producing much oil or much gas.

"Q. You could not restrict that unless you are feeding them with something apart. A small well might gravel along just as he likes?

"A. If he is sufficiently small to travel along as he likes, we would let him. If his well is inefficient, however, the displacement feature of the formula operates against that. For instance, in the examples I gave, where the largest sharing position is 500 barrels, the maximum displacement gas allowable would be 1½ million cubic feet of gas. But supposing the oil/gas ratio were just under being a gas well, namely, say 31,000 feet per barrel, such well would only be permitted to produce 50 barrels of oil regardless of any other consideration because you divide the gas/oil ratio of 30,000 into 1½ million feet of gas and the result is a production of 50 barrels. That well is curtailed according to displacement.

"Q. It is if your formula is applied to it at all?

"A. It is. The formula is applied to all wells under production under clause 3.

"Q. I do not want to delay you, but I am just concerned with one statement here. 'In this connection it should be said, however, that the Board does not attempt to curtail unduly a number of what may be classed as minimum wells, and in a few instances is willing that the operator produce a minimum well, subject only to the good judgment of the operator.'

"A. As an example, take what I have just said.

"Q. If that is so, you are not applying any formula to them, oil displacement, gas/oil ratio or anything else. What I want to know is while I can quite understand the amount of oil he produces may have no serious effect is he wasting propulsive energy that other people require to get this small amount of oil without your having or taking supervision over him?

"A. If he produces more than the displacement allowable of gas, I would say he is wasting energy. But take the example I gave where the restrictive feature of the formula on displacement reduces the well's sharing position to 50 barrels per day, that well might be unable to produce more than 20 barrels a day, in which case we allow him to produce the 20 barrels per day. That is why I say that we are willing for certain small wells to produce as much as they desire, subject to the good judgment of the operator. But if the good judgment of the operator results in that well taking more gas than he should from the reservoir he is restricted. Now, supposing the gas/oil ratio were 60,000 instead of 30,000, the maximum allowable would be 100 barrels per day and it might be that that well could not produce more than 80 barrels per day, in which case we do not restrict him. But if he desires to produce 105 barrels per day, that is a different matter. Then he is violating the result we arrive at through the application of the formula. The formula is applied in every case. In no instance do we allow a well, whether it be small or large, to produce more than the sharing position.

"Hence, it is possible, on a schedule providing for substantially increased production, that the Board would be willing that a particularly small well be allowed to produce more oil than the operator finds it able to produce. The Board makes reasonable allowances for such contingencies, however, in arriving at the total amount of allowable production so as to insure that sufficient oil is produced to meet requirements.

"It was also said in evidence that the field was found unable to produce the amount of oil provided for on its schedules of May 13th and May 19th and that the giving of excessive allowables to wells unable to produce them was responsible for this predicament. I analyzed the daily field production during this period, however, and found that there was no truth in this suggestion.

"My analysis showed conclusively that on very few days was the total production any less than the total allowable provided by the Board's schedules. Accordingly the effect of wells being unable to produce their allowables was practically negligible and, if people at that time were unable to obtain supplies of oil, the fault was neither in the Board's schedules nor in the capacities of the individual wells.

"MR. FRAWLEY: That is all you have to say about this, Mr. Cottle?

"A. That is all.

"MR. NOLAN: I think, Mr. Chairman, Mr. Cottle can assist us by explaining the machinery in respect of the nominations. My memory is that there was certain evidence given here that nominations were made to the Board and that even although they nominated for a certain amount of oil and even although these people's nominations comprised total market requirements, some companies did not get the amount of their nomination and there is a machinery, I take it, back of what Mr. Cottle has explained to us this morning, which might be of interest to the Commission.

"MR. FRAWLEY: Q. Yes, will you do that?

"A. Well, I believe there is some misunderstanding about the word 'nomination.' What we attempt to do is find out in advance, as we must of course, how much oil is going to be required from the field. For this purpose we contact every person that we have any reason to anticipate will require oil and where it is difficult to approach refineries, say in Saskatchewan, we find out in the best manner possible from the people supplying the refineries in Saskatchewan how much oil is going to be required for the purpose. Now we are interested only in the total amount of oil that is going to be required and having determined that we set our allowables accordingly. We do not attempt to see that each refinery actually obtains the amount of oil that he says he is going to require. That is up to him. We are not buying oil for anyone nor are we selling oil to anyone. Now that is all that can be said about nominations because that is all we do.

"MR. NOLAN: Q. Then, as I understand you, Mr. Cottle, your interest lies only in the total amount of oil to be required by the industry?

"A. That is right.

"Q. Then you see that the allowable is set accordingly?

"A. That is right.

"Q. So that the sum of the nominations, if I may call them that, would be the allowable?

"A. That is right.

"Q. Well then, how would it arise that somebody would not get the amount of oil for which they had nominated if the field is always able to produce its market requirements and I understand it is?

"A. Well, a person who requires oil and has not his own wells, can only obtain oil, of course, by buying it from someone who has it, and I can quite readily imagine that there may be difficulty in the negotiations between the refiner and the person who has production; that being a possibility, of course there is also the possibility that the refiner would not be in a position to get his oil because we cannot interfere with arrangements between purchasers and sellers of oil and indeed we do not attempt to interfere with them; for instance, if Mr. Plotkins requires more oil than he has contracted for with the well that he has a contract with, he must necessarily buy his oil from someone who has it.

"MR. FRAWLEY: Q. And that is no concern of yours?

"A. That is no concern of the Board at all.

"MR. MACLEOD: Q. It is of consequence, Mr. Cottle, that if one nominator or intending purchaser takes one and a half times the quantities nominated for and everybody else wants the quantity they nominated, somebody goes short, is that it?

"A. That is always a possibility but we do not even attempt to see that the people who tell us they are going to require so many barrels a day actually take it; we know from our records after it happens, we know they did take it and often for that reason we have gauged the total field production based on what we think may happen. We do not feel bound by the so-called 'nominations' entirely. We exercise our own good judgment in dealing with it.

"MR. MAHAFFY: May I ask a question just on this particular point, Mr. Chairman?

"THE CHAIRMAN: Certainly.

"MR. MAHAFFY: Q. I take it from what you said, Mr. Cottle, that your whole concern in fixing the allowables of the field is what the market will absorb?

"A. At the present time that is the controlling factor for the reason that I stated, that is that the field is presently capable of producing with efficiency more oil than the market will absorb.

"Q. Yes, I appreciate that, but the whole object, subject to that qualification, is that the market shall be supplied from this field?

"A. Yes, and the further purpose in pro-rating to that figure is to see to it that each well produces only its proper proportion of the total production which is going to be produced.

"Q. That is right.

"THE CHAIRMAN: As I understand the Witness, if the market demand was so great that it precluded efficient production to meet the demand, the demand would not be met pursuant to the permission of the Board?

"MR. MAHAFFY: Yes, that is as I appreciate it.

"MR. SMITH: Q. That is right?

"A. That is right.

"Q. MAHAFFY: Yes, and putting it another way, he says they have never reached that far.

"THE CHAIRMAN: Quite so.

"WITNESS: Yes.

"MR. MAHAFFY: Q. Then, Mr. Cottle, I take it that during these periods when the total market requirement is low, that wells are

producing at a figure much less than would be still an efficient production figure?

"A. Will you repeat that, Mr. Mahaffy?

"Q. Perhaps if I take an example, supposing the 'A' well in your opinion could efficiently produce 200 barrels a day; there are periods during the year when that well is probably only allowed to produce 100 barrels a day?

"A. Yes, or even 50, yes, that follows naturally because the fact that the field can produce efficiently more oil than is now being produced it follows that a number of the wells or all of the wells may be producing much less than the maximum rate at which they could produce efficiently.

"Q. Yes, then it also follows that as closely as you can figure it, the field is only allowed to produce the total market requirements.

"A. Well not as closely as we can figure it. I mean there is not a very definite relationship; for instance, it would not matter very much if we allowed the field to produce temporarily 500 or 1,000 or even 2,000 barrels more than the requirements, or if with a lot of storage, if we allowed it to produce 5,000 or 2,000 barrels less than the requirements, so the words 'As closely as possible' is not applicable.

"Q. Shall I say 'approximately'?

"A. Yes, that would be proper.

"Q. And now then is it not also true, as you mentioned a moment ago, that you are not concerned with the individual requirements of the market?

"A. Only as an indication of what the total requirements will be.

"Q. Only as they make up the totals?

"A. Yes.

"Q. And if one particular refiner secures the bulk of the production from the Valley during those periods of low production, is it not true that other refineries have very serious difficulty in getting any oil at all?

"A. It is quite possible that that would happen.

"Q. And yet is it not also true that during those same periods the wells from which they had got the oil could produce much more and still be efficient producers?

"A. That again follows. As I stated even during the maximum production period that these wells and perhaps many other wells in the field could, whether it be a low production period or a high production period, produce more oil than they are allowed to produce, efficiently.

"Q. And yet the refineries supplied by those wells cannot get the oil, is that not true?

"A. Well, when you say 'cannot get the oil', you mean they cannot get oil from those wells.

"Q. Yes.

"A. Of course the wells can only produce their allowables. The Conservation Board will see they do not produce any more but those refineries can get oil.

"Q. Where would they get it?

"A. They would have to buy it from some one who has it as they do in any field."

Beyond what we may have already said that is in point we do not comment on the Conservation Board's present formula, as it was put forward for the information of this Commission and the general public, without in any sense being put in issue before us.

We think the following points may be emphasized in connection with what we have said on the subject of Conservation and Proration in Alberta.

1. That the ideal in Conservation is attained only under unit operation.

2. That the weight of the evidence forces the conclusion that it is now too late to put unit operation into effect in the Turner Valley field, either by voluntary agreement or compulsion.

3. That in the absence of unit operation, the compromise measure of Conservation and Proration law must be accepted.

4. That in a field of divided ownership Conservation cannot as a practical matter be disassociated from the idea of economic equilibrium and the idea of equity.

5. That any Conservation Board action or order which would result in the closing down without compensation of the absorption plants of the British American Oil Company, Limited, and Gas and Oil Products Limited, in the Turner Valley field, is a serious matter, which should not be undertaken without a full consideration not only of the engineering problems connected with the gas cap but also of the equities involved in pursuing any such course.

6. That a legislative enactment in respect of Conservation and Proration should give recognition to the following:

   (a) That a Conservation and Proration body should not be given unlimited power but on the contrary there should be a "clear cut understandable declaration of policy" by the Legislature.

(b) That there should be a definition by the Legislature of what constitutes waste.

(c) That there should be definitions by the Legislature covering all of those other factors which are included in the broad declaration of policy.

(d) That the specific powers which it is intended that the Board should enjoy should be specifically declared by the Legislature.

(e) That provision should be made by the Legislature that everyone who may be prejudicially affected by an order of the Board shall have an opportunity of being heard before that order be made.

(f) That provision should be made by the Legislature for such hearings, for the taking of evidence thereat, for findings by the Board upon the evidence and for rulings to be made thereon by the Board.

(g) That the Legislature should provide that the rulings of the Board should be the subject of appeal to the courts, subject to the limitation that an appeal will only lie when a question of the proper application of the rules of equity, or a question of the Board's jurisdiction, is involved.

(h) That the court to which an appeal lies should be designated by the Legislature.

(i) That rules of procedure leading to such an appeal should be provided for.

(j) That Conservation and Proration legislation should be so framed as to take into account, not only engineering efficiency in production but also the relationship between the benefits accruing from a Conservation and Proration plan, and the damages consequent upon its being put into operation.

(k) That all modern legislative schemes for Conservation and Proration take into account considerations of equity as well as those of engineering, and so it should be provided that any ruling as to prevention of waste, as defined, should be arrived at only after due regard is had to the principles of equity.

(l) That a Conservation scheme should not be enacted which

will permit of monopoly resulting from its being carried into effect.

7. That the present legislation dealing with Conservation and Proration should be repealed and new legislation substituted therefor, which incorporates the provisions last above enumerated.

8. That new regulations should be substituted for those now in existence.

9. That these regulations should not be brought into force until a discussion of them with the industry has taken place, so that the final form of the regulations may be arrived at only after the point of view of the industry has been fully examined.

10. That quite aside from equities that may arise from the existence of absorption plants in Turner Valley, the evidence given at this inquiry leads to the conclusion that the whole Gas Cap question might well be re-examined.

11. That the Board's inquiry as to the Gas Cap, if held, should be such that in its very nature it will meet any charge that the Board has acted in disregard of equities and without weighing the opinions of any engineer other than its own consulting engineer.

12. That the government, as guardians of the public interest, should keep a watchful eye upon the activities of the industry in all its branches.

13. That this may be best done by reconstituting the present Conservation and Proration Board, by providing for its freedom from political interference, by providing for its close contact with the industry, and by providing for the performance by the Board of the following added duties over and above those that have to do with Conservation and Proration:

    (a) That this Board preserve for the benefit of the government, the industry and the public, the information gathered by this Commission with respect to the petroleum industry.

    (b) That since this information is now preserved in the form of transcripts of evidence and exhibits, the Board should be the custodian thereof and make this available to anyone seeking information.

(c) That from this starting point the Board should accumulate, preserve and produce on request, any data as to the Turner Valley oil field and as to any other part of the Province, which can reasonably be expected to be of interest to those directly or indirectly concerned with the petroleum industry.

(d) That the Board should be required to be at all times fully informed as to every branch of the petroleum industry, including exploration, production, refining, and wholesale and retail marketing.

(e) That the Board be required to at all times be informed as to the world picture in respect of both crude and refined products and as to prices which obtain elsewhere in respect of these.

(f) That it is important not only from the standpoint of the producers but from the standpoint of there being an incentive for drilling, that the Board be required to be informed as to whether or not the producers are obtaining proper field prices.

(g) That the Board be required to be familiar with the cost and profit performance and the price spreads in respect of all branches of the industry.

(h) That the Board be required to be informed about and concern itself with the possible enlargement of the economic market and to that end become thoroughly familiar with all relevant matters, such as the freight rate and pipe line situation.

(i) That the Board should be required to be informed and able to report upon tax evasion, the enforcement of standardization if put into effect, and the enforcement of the Dominion anti-dumping laws in the Province of Alberta.

(j) That the Board should have as one of its primary objects the determination of whether competition of all kinds does or does not remain a reality in the Province of Alberta.

(k) That the Board should have authority to move before the Public Utilities Board for any change in pipeline rates which in its opinion changed circumstances make desirable.

(l) That the Board be required to perform what we conceive

to be a very useful function, namely to meet with members of any or all branches of the industry for the express purpose of considering with them the effect of any agreement or agreements into which it is proposed to enter, with a view to putting the stamp of its approval thereon, if such agreements are deemed to be proper and not against the public interest. This suggestion is made to remove the fear of unjustifiable prosecution under the provisions of The Criminal Code and the Combines Investigation Act of the Dominion.

(m) That the Board be required to make its Conservation and Proration procedure leading to formal orders, conform strictly to the proposed statutory provisions for open and impartial hearings.

(n) That the Board should be required to make a full report to the Lieutenant-Governor in Council on the last day of each three-month period in the year, not only upon its own activities but upon the activities of all branches of the petroleum industry in Alberta, whether hereinbefore mentioned or not, and upon all other matters of importance which in any wise relate to the petroleum industry.

(c) That in connection with such reports, the Board be authorized to add such recommendations as it may see fit to make.

(p) That copies of these quarterly reports be made available to all members of the petroleum industry upon their making payment of the actual cost of the printing or typing of the report.

GENERAL DISCUSSION OF SUBJECTS NOT DEALT WITH UNDER PREVIOUSLY MENTIONED HEADS

We think that we have dealt with most matters of importance relating to all branches of the petroleum industry that have been discussed before us. We also think that we have examined into the principal matters which affect the petroleum industry but over which it has no control. It but remains to discuss some general subjects that were examined into by us in the course of this inquiry, which we found could not be conveniently dealt with under any of the heads given to different parts of this report.

1. General Legislation

We find that there are 24 Statutes in the Province of Alberta which affect the petroleum industry in some or all of its branches; and that there are many regulations concerning its activities. Some of these acts and regulations are of general application and some are not. We think that insofar as may be, acts of particular application to the petroleum industry should be, so to speak, brought under one roof and made a separate part of the new Act which we have hereinbefore recommended. We also think that all regulations which have to do with the petroleum industry should be dealt with in the manner hereinbefore recommended in respect of regulations having to do with Conservation and Proration. We also think that the recommendation which we have made as to the draftsmanship both with respect to legislation and regulations, being done by counsel familiar with all branches of the petroleum industry, should apply. We see no difficulty in a competent and informed counsel, if directed so to do, revising the legislation and the regulations referred to, so as to retain that which is good and which is in accordance with our recommendations (insofar as they are accepted), and so as to discard all that now may be irrelevant or may impede the free play of competition.

2. Government Royalties

We have had occasion to speak of government royalties in an early part of this report. We mention the subject again because of a complaint made before us that one integrated company had refused to sell to refiners in Turner Valley or to others who have storage facilities in Turner Valley or elsewhere its surplus crude oil other than at a high premium called a handling charge. As to this, we

assume that the Conservation Board will see to it that no company so manipulates its so-called nominations as to its oil requirements, as to put any other company at an improper disadvantage. If this be so and there are those who require crude oil for their commitments or needs and are unable to have their requirements satisfied, we can think of no reason why the government without interfering with any contractual rights should not exercise its undoubted right to take its royalties in kind and meet the request for crude oil by those who are short thereof, provided always the request is deemed to be a reasonable one.

3. Costs

There has been some discussion before us as to who should bear the costs of this inquiry. As we see it, it is not our function nor our right to make a recommendation as to costs under the Commission issued to us; we mention the subject only because counsel to the Commission was somewhat bitterly assailed for suggesting that the costs should come out of production. We express no opinion for the reason stated as to whether this suggestion is or is not reasonable; we do say, probably quite needlessly in defence of a counsel who needs no defence, that since the other branches of the industry went to tremendous expense in assisting this Commission, and since the cost to the producing branch was negligible, and since the producing branch stands to secure as a result of the findings of this Commission, an additional revenue which will probably amount to about $580,000 per year, that there is nothing fantastic in the suggestion which counsel has put forward. Since that which we have said may perhaps seem to recommend, indirectly, that which we have no power to recommend directly, we repeat that which we said at the beginning of this report, namely, that the information gathered in the course of this inquiry, is, in our view, not only of value to producers, but to all branches of the industry, the government of the day, and the general public as well.

4. Legislative Price Fixing

The suggestion has not been lacking that we might well recommend that price cuts be made by government decree, and the provinces of Nova Scotia and British Columbia have been mentioned as having served their people well by adopting price fixing legislation. We express no opinion as to what the governments of these provinces have done; we do not profess to have knowledge as to why they acted in whatever way they did; and we certainly have

no information as to what, if any, lasting benefits have come from government action in these provinces.

We think it well, however, since we are definitely opposed for the reasons before given to legislative price cutting in this province at this time to point out precisely where this would lead in Alberta even although the price cut were small. This we do because we think it is not generally understood what a great difference in refining and marketing profit, a relatively slight change in price, involves.

If the tank car prices of all "white goods" (the trade term used to describe gasoline of all grades, tractor distillate, and kerosene) were reduced during 1938 by only 1c. per gallon, the gross revenue from the refinery operation of Imperial Oil Limited would have been reduced by $490,301.02 on their total "white goods" production of 49,030,102 gallons. Now the total profit on the refining operation of Imperial Oil Limited, during 1938, was only $483,682.16. Clearly then a reduction of 1c. per gallon in the price of "white goods," assuming such a reduction were absorbed by refiners, would have resulted in the refining operation of Imperial Oil Limited being carried on at a loss.

Applying the same test to marketing operations, Imperial Oil Limited marketed in Alberta, during 1938, 23,699,017 gallons of "white goods." If the tank wagon prices had been reduced by 1c. per gallon (the refinery prices remaining unchanged), the gross revenue of its marketing department would have been reduced by $236,990.17. Now the total marketing profit of Imperial Oil Limited in 1938, before deducting income tax, if we take into account the price reductions made in 1939, would have been $369,985.06. A further reduction of 1c. per gallon on all "white goods" would therefore reduce the earnings by $236,990.17, and so, after payment of income tax the company would be left with a net profit of only $103,736.01, which would represent the unreasonable return of only 2.8% on its marketing investment.

It appears then that a 1c. per gallon reduction in refinery price of "white goods" would more than eliminate the entire refining profit, and a 1c. per gallon reduction in the marketing spread would reduce the lowest cost marketer's profit to only 2.8% return on its depreciated investment. What this would do to the refiner or to the marketer who is not the lowest cost performer, can well be imagined without further words from us. As to this, one question and answer taken from Dr. Frey's evidence is of interest:

"Q. That is to say, you say it would be a wrong view to take the

standard of excellence of the biggest company and say all others should approximate to that or go out of business?

"A. I think that would be very dangerous. It might destroy competition and I do not think it is desirable to destroy the competition because the ultimate result that we want is free competition."

That which we have said should, in our opinion, deter this Province from entering upon a plan of price reduction by legislative decree, in the face of the evidence to the contrary of independent experts, but we think it proper to add that in our view, there should be another deterrent to such a course and that is that it sufficiently appears that the industry has done well in the matter of making price cuts for the benefit of the public, without mandatory direction so to do. In the discussion of an exhibit prepared by him (Exhibit 728), Mr. Halverson makes the statement which is not disputed:

" . . . that since February 3rd, 1936, the price of Three Star gasoline and Ethyl has been reduced in price 7 cents per gallon; whereas the cost of raw material, during the similar period, has only been reduced 3.7c. per gallon."

Furthermore, during the time that this Commission was in session there were two substantial reductions made by Imperial Oil Limited, in tank wagon prices, which were followed by their competitors.

The first reduction was made on July 24th, 1939; this was a reduction in the base tank wagon price of third structure gasoline and tractor distillate of 1c. per gallon. Concurrently with this reduction in price, competitive allowances were removed at those points where the reduction exceeded the amount of the allowances; and where allowances exceeded the amount of the reduction, the allowances were reduced to the extent of the reduction in price. Further reductions at points within a radius of 270 miles from Calgary were made in anticipation of savings in transportation costs from Calgary to such points, by reason of a reduction in railway freight rates to meet truck transportation rates.

The price reduction on July 24th, 1939, resulted in a saving to the consumers of Imperial Oil products of $43,197.71 based on the volume of sales during the year 1938, as follows:

Reduction of tank wagon price:	
Acto (3rd structure) gasoline, 6,780,025 gallons at 1c.	$67,800.25
Tractor distillate, 1,212,645 gallons at 1c.	12,126.45
	$79,926.70
Deduct:	
Reduction in competitive allowances	36,728.99
Net reduction in tank wagon prices exclusive of freight and adjustments	$43,197.71

In addition to the above amount of $43,197.71, the consumers enjoyed further price reductions in varying degrees at different points in the province, due to the reduction in freight rates, previously referred to.

The second price reduction was made by Imperial Oil Limited on October 25th, 1939, resulting in a reduction in the price of Ethyl gasoline of 1c. per gallon, standard gasoline of ½c. per gallon and kerosene of ½c. per gallon. This reduction (subject to what may be said as to some retailers failing to pass it on) resulted in a saving of $85,638.87 to consumers of Imperial Oil "white products," based on the volume of sales during 1938, as follows:

Ethyl gasoline, 2,999,465 gallons at 1 c.....	$29,994.65
Standard gasoline, 10,276,210 gallons at ½c.....	51,381.05
Kerosene, 852,635 gallons at ½c.....	4,263.17
	$85,638.87

The two price reductions, made during the sessions of the Commission, resulted therefore in a saving to the consumers of Imperial Oil products, of $128,836.58, which is an average of .58c. per gallon on all "white products."

It is not possible to compute the actual saving to the consumers supplied by the other marketing companies as we have not sufficient data concerning them. However, on the basis of the proportion of the total volume of "white products" marketed by Imperial Oil Limited, it can reasonably be estimated that the total price reductions during 1939 amounted to a saving to the consumers in Alberta, in excess of $400,000.00 per year.

As to any suggestion that the reductions were induced by the sittings of this Commission, we, of course, cannot speak as to what may have been in the minds of the officers of the price leader company. It is, however, to be borne in mind that the reason given for these reductions was, as to the first one, to meet a situation arising out of the granting of competitive discounts; and as to the second one, to avoid "drainage" from the higher grades to 3rd structure gasoline. In any event it is clear that the industry made the reductions without government compulsion.

Turning from past price reductions by the industry, to what may be hoped for from the industry in the future without government intervention, Dr. Frey has this to say:

> "I think that the people in Alberta are going to buy cheaper gasoline and other petroleum products as time goes on. I do not know what the

bottom is. I would hope that the bottom will never be as bad as it was in 1933. I would also hope that the profits might be a little more substantial than they are with us as a whole now, but there certainly is a definite direction here and the consumer cannot help but benefit, providing we have a continuation of competition.

"As long as the refineries are restrained from entering into agreements with each other, as long as sellers, the distributors, are restrained from agreement, as long as the other operators along the line are restrained from agreements, there must be a continuation of reduced cost and reduced selling prices and where that is going to stop I do not know, but it is working now. There is competition and while there may be people who are impatient with the rate at which reductions are going on, we must bear in mind that we are dealing with a geographical entity when we talk about the Province of Alberta, and we cannot go much further than to hope for a continued improvement in the economic geography of the entity with which we are dealing. This Province is not New York State. There is some consolation in that. Neither are we the middle of Iowa. There are economic factors, distinct factors and various climatic marketing factors that are working against the Province in many ways and those cannot be overcome overnight."

. . . . . .

"Lower costs resulting from economies in operation are passed on to the consumer in the form of lower prices, better products and better service. The lowering of gasoline prices is partly the result of better technology, lower material costs, lower transportation, refinery and marketing costs and from better relations on other petroleum products, both in refining and marketing. Every improvement is not passed on to the consumer immediately, that is to say the price does not automatically lower itself with the exact amount of the savings because quite naturally—especially in the operations where economies are created through additional investments—there would be no investment if all of the saving were passed on to the consumer at once. In studying the American industry over a long period it is difficult to measure each saving in terms of consumer price as the savings often blend with other factors, but it is to my mind irrefutably proven that savings are passed on in lowering prices over the years. That to me is the nature of the competitive situation which under extreme conditions forces all of the profits out and passes not only savings but the capital structure into the pocket of the consumer."

5. Government Board with Mandatory Powers

We shall now consider a suggestion made by Mr. Frawley, counsel to this Commission, that this Commission consider recommending the appointment of a Board with mandatory authority over the industry, in respect of the matters mentioned by him.

The examination of Mr. Frawley's submissions, one by one, is not necessary, unless we are prepared to accept the basic submission that a Board should be set up which will have mandatory powers in

respect of petroleum matters that are in addition to Conservation and Proration, as to which everyone concedes there should be mandatory powers. We are not prepared to accept the view that on the evidence before us it is indicated that a Statutory body with mandatory powers should be created or that the existing Conservation and Proration body should be given mandatory powers over and above those which they now enjoy.

We think, however, we owe it to Commission counsel to say since his submissions have caused unfavorable comment from the Alberta Petroleum Association which was given publicity, that these submissions which anyone may find in Volume 158 and 159 of the record, were not in our view submissions that any counsel should have had the least hesitancy in asking a Commission to take into consideration. It is the duty of a Commission Counsel as we see it to put before a Commission every conceivable argument that is worthy of consideration which has not been put forward by other counsel. It is then for the Commission to decide as to what arguments are and are not entitled to weight. No other counsel suggested mandatory powers and so Mr. Frawley very properly did so. We may add that if we had come to the conclusion that the Petroleum Industry in this Province was so conducting itself as to work a grave injustice upon the public we would have recommended government intervention forthwith.

We think it is right to say in addition that it was from the members of this Commission that there first came the suggestion of a statutory body to stand between the Legislature and the industry as a safeguard to the industry from hasty or ill-conceived legislation and to stand between the industry and the public as a safeguard against exorbitant prices and to stand between the astute and well-informed body of refiners and the Turner Valley producers as a safeguard against unreasonably low field prices. It seemed to us and Mr. Frawley merely advanced our thought in argument, that over and above any advantage to the public it might have been a very distinct advantage to the industry to be under a mandatory body even as the Railways are under the Dominion Transport Board and the Grain Trade under a Grain Board. As we understand it both the Railway Companies and the members of the Grain Trade are well satisfied to be protected from unjust complaints and unwise legislation by an informed mandatory body.

The corporations and trade mentioned may perhaps be classed with those corporations mentioned by us in our Pipe Line Report whose business is said to be "affected with a public interest" and so

without special reason properly the subject of control by a statutory body in the interest of the public but however this may be we have come to the conclusion that it would be quite wrong for us to first find, as we do, that the oil industry has come through a searching inquiry without having been found guilty of improper practices or of having made undue profits or of having demanded prices which are either exorbitant or out of line with prices elsewhere and then to recommend that the industry be placed under the domination of some government agency.

It may well be that this conclusion will not be well received as there are many people who are given to adverse criticism and loose talk about the petroleum industry largely because in its membership there are to be found large corporations. It does not occur to such people that a corporation may be so large that quite aside from moral considerations it may not be the part of wisdom for it to be either extortionate or dishonest. It also does not occur to such people that generally speaking the large corporation has the large volume of business and so the low cost performance which permits of it most readily and effectively lowering prices to the general public. We do not suggest that large corporations or for that matter small corporations or individuals have a free rein to do to the public precisely what they may see fit in the matter of prices in those cases in which competition fails to assure a proper price. On the contrary it is our firm opinion that there always should be a proper relationship between the cost and profit performance and the price. It seems to us that the day for the gouging of enormous fortunes through the medium of exorbitant prices out of a helpless public is gone and that the day has come when it must be recognized that the government as the representative of the public is concerned with protecting the public interest and so is concerned to see to it where competition does not do the work of keeping prices within reasonable bounds, that there is government control in order that the public do not suffer in consequence. This may well happen when the assumed competition is non-existent or nominal or collusive.

If we are right in this view it would seem to follow logically that the government should be equally concerned to see to it, again in the public interest, that prices do not become so low as to discourage the inflow of capital into the industry, or so low as to eliminate most competitors and bring about a state of monopoly.

Our opinion about this whole question of government in business or interfering with business may be shortly stated. In our view a government should not be in business in competition with its

own citizens. In our view a government that eliminates competition by creating a government monopoly with respect to any commodity will in all probability carry on that business with a greater capital investment and at a greater operation cost and so at a greater ultimate cost to the consumer than private industry would do, for the simple reason that those who carry it on have not the spur of self-interest to reduce cost in order that they may extend profit to themselves.

With regard to government control as distinguished from government ownership, we live under a competitive capitalistic system and until that system be changed for a better system if there be a better system, it would seem only reasonable that competition should be allowed free play so long as competition is so carried on that the public does not suffer at the hands of the competitors. In other words we think that government intervention should only take place when it appears to be a necessary step for the protection of the public against the evils of oppression by an industry.

In so stating we do not take the position that it can be said that a policy of state control is a better or a worse policy than a "hands-off" policy but rather that it depends upon the particular circumstances in each case as to which is the better policy to pursue. There can be no doubt that the free play of the competitive system in many instances has failed to provide competition or to make for social advantage, equally there can be no doubt that government intervention in many instances has been a dismal failure and so the proponents of each school of thought have ready references in support of their respective arguments. We do not share the view put before us and well expressed in an encyclical of Pope Pius XI written in May, 1931, in which he said "Free competition is dead; economic dictatorship has taken its place." Neither do we share the view of those who say, as Dr. Brown has said, that in the long swing competition will always serve to adequately safeguard the public. In our opinion competition may be found to be very active and to adequately protect the public and again it may be found to be a mere cloak for collusive price raising behind which the public purse is co-operatively emptied and so government intervention may or may not be indicated according to the circumstances under consideration.

It is not well that competition should be regulated by cohesive groups in any industry and we think that there was good reason behind the public opinion which compelled the passage of anti-trust laws for which there could have been no need whatsoever if the bare

opportunity to compete, which was open to every one in the land, was an adequate protection for the public.

We undoubtedly have said enough to show that it is our view that no man should be allowed to remain or become a business buccaneer while a member of society without the other members of which he could not live at all. We hope that we have said enough to show that it is also our view that the domination of an industry when it has not been shown that its operation is such as to be out of harmony with a fair deal for the public is both unwise and unjust.

If our views are sound the question of government control or no government control may not be disposed of by glittering generalities but will in the end come down to this, is it or is it not in the particular circumstances of the particular case necessary in the public interest for the government to impose government control? We do not say this as a compromise between those who advocate government control under all circumstances and those who oppose government control under all circumstances. We think that both are wrong. We put our view forward because we think it points to the only sensible attitude for a government to take in determining whether or not it should intervene in industrial activity, which it should in our opinion always be slow to do.

The views which we have put forward are quite out of line with the view expressed by Dr. Brown in the evidence next quoted:

> "A. Your question really can be answered in a satisfactory manner only on the basis of one assumption or another. In other words, we can assume that it is a condition of free competition in which case everybody charges what the traffic will bear and the consumer has as his protection only the competitive condition."
>
> . . . . . .
>
> "Q. But no one can—if I am right in following you—under your underlying theories, no one can have a price that is wrong for long because no price is wrong which competition does not correct?
>
> "A. That is right in the theory of economic competition.
>
> "Q. The price is not wrong because it provides a very great profit?
>
> "A. It is just fortunate for the producer.
>
> "Q. It is fortunate for the producer and if the law of competition is to have play then it will correct itself?
>
> "A. Yes.
>
> "Q. Sooner or later. If sooner, the better for the public and, if later, the worse for the public and the better for the man who is making

the profit. The only alternative for that is to create a public utility to which utility you guarantee profit even as you restrict the profits?

"A. That is right."

On the other hand Dr. Frey's evidence lends support to what we have said. We quote as follows:

"Q. Before you enter upon your own discussion, Dr. Frey, do you accept the views that there may be no circumstances under which there should be any interference whatsoever with the free competition determining that price?

"A. No, I do not accept that proposition all the way through.

"Q. Dr. Brown put before us competition must have its free play and competition will do its leveling out and that the public must wait for the long swing in all circumstances. That is really his position and I wondered if you were giving the stamp of your approval to that wide proposition put forward by him and maintained under cross-examination.

"A. I am not prepared to go all the way with Dr. Brown on that proposition."

. . . . . .

" . . . I definitely believe that a government has the right and the responsibility to enter into the problem of industry regulation either on extreme flights of prices upward or in the event that the bottom drops out of the price. I also think that a government should be in a position to protect against punitive prices in which, or monopoly prices, in which there is an indication that some one is trying to drive someone out of the business by establishing prices that are too low."

. . . . . .

"MAJOR LIPSETT: Q. Dr. Frey, if I may interrupt you for a moment. I gather that your general view is that there should be government interference if the price either goes so high that the public are being badly treated or that is has got beyond control or if the price goes so low that the industry is going to be ruined?

"A. Yes.

. . . . . .

"Q. . . . so then as I understand you, Doctor, and I am exploring this for education and not to disagree with you nor yet to agree at this stage, but there are three times when the government may properly intervene in your view; the one, when there is great scarcity, one which may lead to the public being held up; (2) where there is great plenty, which may lead to the demoralization of the industry; and (3) when there is a likelihood of monopoly, are there any others?

"A. Yes, and (4) when there is collusion.

"Q. That is to say when seeming competition is not actual competition?

"A. Yes.

. . . . . .

> "I will say that the general principles that I enunciated before, that if the price is so high and so clearly high that the public should be protected from that high price, whether it is on one, two or three or half a dozen products, that the public has an interest and that public interest to me could logically be expressed by the state."

If, then, it may be said, as we think it can, that intervention in industrial affairs must be recognized in this day and generation as a legitimate function of government, when such intervention is in the circumstances necessary in the public interest, it but remains to determine as we have done as to whether or not in all the circumstances there is reason for government intervention in the affairs of the Petroleum Industry in Alberta.

We repeat for the sake of clarity and emphasis, that which we have before said that no case has been made out for government intervention in Alberta, in any branch of the petroleum industry, including marketing, as to which we are specifically directed to report. We could not fail to find on Dr. Frey's and Dr. Brown's evidence alone that there is very real competition in this province; that prices are not out of line with prices in other places in which competition is keen; that the cost performance is reasonable and that the profits are not excessive. In such circumstances there is not the slightest occasion for the government to exercise government control for the protection of the public. On the contrary it would seem that the public in Alberta is adequately protected by the play of contending forces prompted by desire for gain.

We do not propose to embark upon a discussion of the many arguments for and against the substitution of another social system for the present system which undoubtedly is based upon this desire for gain. We do not think that our Commission calls for a comparison of the competitive capitalistic system under which we live, with other social schemes such as communism, socialism, or any other social plan, nor, as we see it, are we called upon to enter upon a discussion of the ideologies of other people in other countries. We live under the system first mentioned and it has at least provided freedom of thought, freedom of utterance and freedom of action. There can be no doubt that it has its weaknesses, but so long as it remains it must be recognized that the spur for all effort is the desire for gain and that while this incentive should be controlled when its manifestation works injury to the public it cannot be stifled without setting up some entirely new system of national economy; and so it is we say, that in the revision of the statute law and of regulations thereunder, it should be kept in mind that there must be freedom of action within the competitive field, and that

it is only when that freedom of action leads to harm to the general public that the government, as the guardian of the public interest, should be concerned to intervene and to assume control.

We have said that there is no present need for government intervention in Alberta. We do say, however, that this may or may not continue and that as a general proposition it is not sound for a government to concern itself about an industry's performance only when its abuse of privilege has caused such harm to the public as to make it notorious, but rather is it the duty of a government to hold a watching brief for the public, through some government agency that is both competent and just. It is for this reason that we have recommended adding to the duties of a Conservation and Proration Board, the duty of watching all of the activities of the Petroleum Industry and from time to time reporting thereon.

We see a very great difference between dominating an industry which has conducted its operations with due regard for the public interest, and keeping a friendly although vigilant watch upon its activities. We have recommended the latter course. We think that support for our recommendation is to be found in the following passages from Dr. Frey's evidence:

> "MR. COMMISSIONER LIPSETT: Q. But I take it, Dr. Frey, you visualize the government taking an interest in and watching the industry and keeping in touch with the industry for any reforms of any kind that they might think advisable at any time?
>
> "A. Very definitely. I feel that the government should be in close contact with the industry and that the government should know what is happening. I do not think that should be left to chance. That it is a responsibility on the government towards the governed, to those who create the government, for the government to know what is taking place."
>
> . . . . . .
>
> "A. I think that whenever a Government takes a position, a mandatory position, that it wants to be very sure of its ground and to be sure that the thing about which it is going to be mandatory absolutely demands action. And beyond that point I think that the government should exercise an influence, just as good an influence as it can, over the ways of business without necessarily taking a mandatory step. A straight punitive action on the part of the government is dangerous, in my judgment, and only when the end justifies the means is it desirable for the government to go all the way. I think that we have got to consider that big things require big action and little things require little action and I am still Anglo-Saxon enough in my concept of law to believe that the less law we have the better. I am not one of those individuals that says that if you find an evil that there should be a law against every evil that exists. That is a characteristic in the United States of which I am not

particularly proud—'that there ought to be a law against it', is what is commonly heard down there. I believe we can get further in the long run if we will, as a government, work with industry rather than everlastingly throwing obstructions in the way that must be hurdled or else the individual who bumps into them must be damaged by. This business structure is a very complex structure. It is sensitive. You put your finger down on one spot and you start the planetary system going. You only intended to affect one gear in the end but just as soon as you stop one gear the planetary action goes into motion and you cannot predict the ultimate effect upon the system. So that I prefer as far as possible and as long as I am in my own particular government to throw just as little interference in the normal economic processes as possible. I think that a situation must be drastic before it receives drastic action.

"MR. COMMISSIONER LIPSETT: Q. Well now, concretely in this province, would that bring it down to somebody who would keep in contact with the industry, some government representative or something like that? Or have you any thought about how that method of righting errors or wrongs, if there were any, could be adopted?

"A. In Washington there are many of us that are labelled 'experts.' We have no authority at all. I have not a particle of authority at all. I have not a particle of authority in marketing in the United States. I cannot prohibit any one thing. It is absolutely impossible for me to prohibit anything. I cannot demand that anyone show me a record even. But I am, nevertheless, recognized as an expert on marketing by my Government and I am generally so recognized by the industry, and I prefer that the industry try to learn what it is doing and the only thing I regret is that present sanctions under the anti-trust laws prohibit the industry working with the government in overcoming some of the difficulties that we know about."

The views expressed and recommendations made concerning the foregoing five subjects may be summarized as follows:

1. General Legislation

(1) That there are 24 Statutes and many regulations which affect the petroleum industry in Alberta.

(2) That some of these Acts and regulations are of general application and some are not.

(3) That Acts of particular application to the petroleum industry should be made a separate part of the new Act hereinbefore recommended.

(4) That all regulations which have to do particularly with the Petroleum Industry should be dealt with in the manner hereinbefore recommended in respect of regulations having to do with Conservation and Proration.

(5) That our recommendation as to draftsmanship both as to legislation and regulations being done by counsel familiar with all branches of the petroleum industry, should apply to the legislation and regulations now mentioned.

(6) That in the framing and enactment of legislation or regulations, care should be taken to see that all that which now may be irrelevant or may impede the free play of competition be discarded.

2. Government Royalties

(1) That with regard to the complaint that one integrated company with a surplus of oil had refused to sell any part of such surplus to those who required it, except at a high premium (called a handling charge), it is thought it may be assumed that the Conservation Board will see to it that no company so manipulates its so-called nominations as to oil requirements, as to put any other company at an improper disadvantage.

(2) That if this be done and those who require crude oil are still unable to have their requirements satisfied we can think of no reason why the government without interfering with contractual rights should not exercise its undoubted right to take its royalties in kind and meet requests for crude oil by those who are short thereof, provided the request is deemed to be a reasonable one.

3. Costs

(1) That we have no authority under the Commission issued to us to decide upon whom the costs of this inquiry should fall and we therefore make no recommendation with respect thereto.

4. Legislative Price Fixing

(1) That we have no knowledge and express no opinion as to the advantages or disadvantages that have followed upon price fixing legislation in other parts of the Dominion.

(2) That since for reasons before given we are definitely opposed to legislative price cutting in this Province at this time, we have considered it important to point out

(a) that if the tank car prices in Alberta of all "white goods" were reduced during 1938 by only 1c. per

gallon, all profit in the refining operation of Imperial Oil Limited would have been wiped out and the operation would have been carried on at a loss.

(b) that if the tank waggon prices in Alberta of all "white goods" had been reduced by 1c. per gallon (the refinery prices remaining unchanged), the wholesale marketing operation of Imperial Oil Limited would have been carried on with a return on its marketing investment of only 2.8%.

(3) That as Imperial Oil Limited was the low cost marketer it would seem that if this reduction were made no other marketer could long remain in business as a marketer.

(4) That there is a further deterrent to legislative price cutting and that is that the industry has done well in the matter of price cutting without any compulsion.

(5) That the price reductions made during the sessions of this Commission alone resulted in a saving to the consumers of Imperial Oil Products of $128,836.58.

(6) That on the basis of the proportion of the total volume of "white goods" marketed by Imperial Oil Limited it can reasonably be estimated that the total price reductions by all marketers during 1939 meant a saving to the consumers in Alberta at the rate of at least $400,000.00 per year.

(7) That according to Dr. Frey with whom we see no reason to disagree, it is to be anticipated that in the absence of collusive agreements competition will in due course have the effect of bringing about still lower prices for petroleum products in Alberta.

5. Government Board with Mandatory Powers

(1) That we cannot accept the view on the evidence before us that it is in any wise indicated that mandatory powers over the petroleum industry should be given to a new statutory body or to the existing Conservation and Proration body other than with respect to Conservation and Proration.

(2) That although we had much to do with injecting into the inquiry the discussion of a mandatory board like unto the Dominion Transport Board and the Grain Board, it is

our final and, we may add, our firm opinion, that it would be quite wrong for us to find, as we do, that the oil industry has come through a searching inquiry without having been found guilty of improper practices or of having made undue profits or of having demanded prices which are either exorbitant or out of line with prices elsewhere, and then to recommend that this industry be placed under the domination of some government agency.

(3) That in our opinion there should always be a proper relationship between the cost and profit performance and the price.

(4) That the government as the guardian of the public interest should be concerned to see to it where competition is non-existent or nominal or collusive or for any reason does not do the work of keeping prices within reasonable bounds, that there be some measure of government control for the protection of the public.

(5) That the government should be equally concerned to see to it, again in the public interest, that punitive action is not taken by any corporation or corporations so as to make prices so low as to discourage the inflow of capital into the industry or so low as to eliminate most competitors and bring about a state of monopoly.

(6) That our opinion as to the whole question of government in business or interfering with business may be shortly stated by saying

(a) that it is self-evident that a government should not be in business in competition with its own people;

(b) that a government which eliminates competition by creating a government monopoly with respect to any commodity will in all probability carry on that business with a greater capital investment and at a greater operating cost, and so at a greater ultimate cost to the consumer than private industry would do, because government officials have not the spur of self-interest to hold down capital investment and reduce cost in order that they may extend profit to themselves;

(c) that with regard to government control as distinguished from government ownership, as we live under

a competitive capitalistic system, it seems only reasonable that competition should be allowed free play so long as it is so carried on that the public do not suffer at the hands of the competitors.

(7) That we do not share the view of those who advocate government control under all circumstances, equally we do not share the view of those who advocate a "hands-off" policy with respect to industry under all circumstances. It is our view that the question of government control or no government control may not be disposed of by glittering generalities, but must in the end be resolved by determining whether or not in the particular circumstances of a particular case an industry has so conducted itself that it is necessary in the public interest for the government to impose government control.

(8) That while recognizing that it is a legitimate function of government to protect its people against business buccaneering, there should be no government intervention when, as in the case of the Province of Alberta to-day, the public is adequately protected by the play of contending forces prompted by desire for gain.

(9) That in our view our Commission does not call for a comparison of the competitive capitalistic system with any other; we may say, however, that so long as we live under that system the spur for all effort in the business world will be the desire for gain; that this desire should be controlled when its manifestation works injury to the public but it cannot be stifled without setting up some new national economy.

(10) That the competitive system has its weaknesses and so in our opinion should be under the friendly but watchful eye of a government agency, and so we have recommended that the Conservation Board be given the added duties of watching the activities of the Petroleum Industry and from time to time reporting thereon.

(11) That this in no wise implies that in our view there should by any domination or interference with the Petroleum Industry before wrong doing as against the public is demonstrable.

(12) That on the contrary we suggest that in the enactment of the Statute law and the making of the regulations before

> recommended, it should be kept in mind that there must be freedom of action within the competitive field and that it is only when that freedom of action leads to harm to the general public that the government, as the guardian of the public interest, should be concerned to intervene and to assume any measure of control.

All that we have said herein when taken with the pipe-line report before delivered, in our respectful submission covers all of the subjects referred to us for inquiry and report.

We have expressed previously our appreciation of the part played by the industry, by counsel for the industry, and by counsel and accountant to this Commission, in assisting us in the course of this inquiry. We may now add our thanks to the counsel and to the accountant to this Commission for the help given us in the laborious and uninspiring tasks of checking this report for typographical errors and omissions, and of verifying the quotations, calculations and tabulations contained in the report.

We think we should not conclude this report without paying our tribute of respect to the Government of the day, first, for initiating an unbiased inquiry into all phases of the Petroleum Industry instead of legislating with regard to that industry, without the necessary information upon which to found a just and wise enactment; and second, for authorizing Commission counsel to bring before this Commission from great distances, witnesses whose knowledge, independence and truthfulness cannot be doubted.

Whatever may be the value of this report, either as a whole or in part, we think it not open to doubt that this inquiry has served to amass a great wealth of information concerning the Petroleum Industry, which is now available in the transcripts of verbal evidence and in the exhibits filed, and which will be of inestimable value to all who have the vision of Alberta being developed into a great oil-producing area.

We have the honour to be, Sir,

Your obedient servants,

A. A. McGillivray,
Chairman.

L. R. Lipsett,
Commissioner.

Dated at Calgary, Alberta,
this 17th day of April, 1940.

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