1948

WESTERN AUSTRALIA

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SECOND INTERIM REPORT

OF THE

ROYAL COMMISSION

appointed to enquire into (inter alia)

THE SUPPLY OF LOCAL COAL TO THE WESTERN AUSTRALIAN GOVERNMENT RAILWAYS

Presented to both Houses of Parliament by His Excellency's Command.

[SECOND SESSION OF THE NINETEENTH PARLIAMENT.]

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ROYAL COMMISSION.

WESTERN AUSTRALIA, TO WIT. JAMES MITCHELL, Lieutenant-Governor. [L.S.] } By His Excellency The Honourable Sir James Mitchell, Knight Grand Cross of the Most Distinguished Order of Saint Michael and Saint George, Lieutenant-Governor in and over the State of Western Australia and its Dependencies in the Commonwealth of Australia.

To Alexander J. Gibson, Esq.,
of Messrs. Julius, Poole and Gibson,
of Sydney,
Chartered Engineers.

I, the said Lieutenant-Governor, acting with the advice and consent of the Executive Council, do hereby appoint you, Alexander J. Gibson, of Messrs. Julius, Poole and Gibson, of Sydney, in the State of New South Wales, Chartered Engineers, to be a Royal Commission to examine, enquire into and report upon—

(a) The management, workings and control of all branches of the Midland Junction Railway Workshops of the Government Railways in Western Australia;

(b) the supply of local coal to the said Government Railways generally; and

(c) such alterations and improvements in relation to the foregoing matters, including the management of the said Workshops, as may be advisable for economical and efficient working, having due regard to adequate services.

And I declare that you shall by virtue of this Commission be a Royal Commission within the Royal Commissioners' Powers Act, 1902, as reprinted in the Appendix to the Sessional Volume of the Statutes of Western Australia for the year 1928, and that you shall have the powers of a Royal Commission and of the Chairman thereof under that Act.

And I hereby request you as soon as reasonably may be to report to me in writing the result of this your Commission from time to time as your enquiries proceed, reporting firstly in regard to the Midland Junction Railway Workshops, and finally when your enquiries are concluded.

Given under my hand and the public seal of the said State, at Perth this 26th day of June, 1947.

By His Excellency's Command,

ARTHUR F. WATTS,
Acting Premier.

GOD SAVE THE KING ! ! !

Report of the Royal Commission on the Supply of Local Coal to the Western Australian Government Railways.

Parliament House, Perth.

To His Excellency the Honourable Sir James Mitchell G.C.M.G. Lieutenant-Governor of Western Australia.

May it please Your Excellency

INTRODUCTORY.

In accordance with my Commission I have enquired into the matters affecting the supply of local coal to the Government Railways and have given consideration to the utilisation of coals from the Western Australian fields in the service of the Railways.

The coal fields at Collie are, at the present time, almost the only source of supply of fuel for the Railways, for the generation of power and an increasing range of secondary industries throughout the State. Little is known of the other possible source of coal supply within the State beyond the fact of their existence at a few places North of Perth and in the Southern and South-west areas. Such knowledge as is available with regard to these other sources of supply would seem to indicate that they are of low grade and approach the lignites in their general characteristics. The Collie Coal Field, therefore, is of fundamental importance to the welfare and the industrial growth of the State, and its development on sound lines is a matter of urgent consideration in view of the increasing demands that will be made for coal in the very near future.

The importance of these fields has been recognised over many years and there have been Commissions inquiring into the coal mining industry on various occasions since 1904, and these reports have been made by men expert and knowledgeable in the matter. Invariably the reports have recommended that steps should be taken to ensure the full and proper development of this important asset to the State's economy, but in the main, the action taken has been, if not negligible, very nearly so. During more recent years inquiries have been held by Dr. H. Herman (1931) and by Mr. Justice Davidson (1946) as part of his general inquiry into the coal resources of the Commonwealth, and in addition to these Commissions, by coal mining experts, Messrs R. Jack and A. Donne. More recently the situation on the field was closely examined by Mr. W. J. Wallwork whose report was presented to the Government in August 1946. During 1947 Mr. Wallwork extended his report and it was made public on the 29th October, 1947, some little time after I had initiated my inquiries into the matter of the supply of coal to the Railways.

I visited the field on the 12th August when engaged on certain railway inspections. This visit was short and my examination necessarily restricted, my attention being connected more particularly with the surface facilities as affecting the supply and quality of the coal to the railways. I was, however, on this occasion concerned at the nature and condition of the surface equipment and of the general lack of amenities and order at the pit tops. When Mr. Wallwork's report was published, I read it with interest, because during the intervening period considerable evidence had been placed before me with regard to the nature and quality of the coal produced for use by the Railways, and I realised that the purport of his report was an endeavour to bring into strong relief those features, both physical and human, which were acting detrimentally to the development of this national asset.

On the 5th and 6th of November I visited the field and made an inspection of the surface facilities with a view to ascertaining their suitability for maintaining the quality of coal required by the Railways, and the feasibility of certain proposals that had been put forward for ensuring some standard in the quality of the coal used by the Railways. This visit confirmed my earlier impressions and my conviction of the general rightness of the conclusions arrived at by Mr. Wallwork.

On the 11th and 12th of November following evidence placed before me that the supply of coal over the period of the mine workers' holidays would be insufficient to maintain Railway services and would seriously jeopardise the heavy traffic expected in January in connection with the shipment of wheat, I again visited Collie for the purpose of discussing with the executives of the various unions concerned with production what could be done to increase very materially the rate of production during the limited period before the holidays commenced. In these discussions I gained a very clear insight into the many problems affecting production from the point of view of the mine workers, and my already strong convictions as to the necessity for prompt action being required to place the field on a proper productive and developmental basic were further confirmed.

The following witnesses have appeared before me:

		Transcript pages.
Kent, Cyril Roy ...	Senior Chemist, Railway Department	417–457, 530–546
Davies, Alexander Ross	President, Locomotive E. D. F. & C. Union	693–701, 737–749
Coleman, Dennis Joseph	General Manager, Griffin Coal Mining Co., Ltd.	750–758
Gillespie, James ...	Senior Inspector of Mines, Collie	759–776
Morrison, James ...	Coal Inspector, Railway Department, Collie	777–796
Mulligan, Thomas John	Engine Driver, Railway Department	797–821

		Transcript Pages.
Costello, Martin Joseph	Footplate Instructor Railway Department	822–832
Lemmone, Frederick Walter	Locomotive Shed Foreman, Railway Department	833–845
Johnson, Gustav Victor	General Manager Almalgamated Collieries of W.A., Ltd.	846–889
Wilson, Richard Cunliffe	Mining Engineer and Chairman, W.A. Coal Commission	890–903
Shannon, John Johnstone	Secretary, Collie Branch Miners' Federation	904–924
Donnelly, Reginald Paul	Fuel Technologist, W.A. Government	925–949
Dumas, Russell John ...	Chairman, State Electricity Commission	1273–1289
Niland, Hugh Joseph ...	Engine Driver, Railway Department	1290–1295
Raynor, Peter Charles	Personal Assistant to Commissioner of Railways	1296–1320
Tolfer, Albert Harold ...	Under Secretary for Mines	1682–1706
Styants, Herbert Henry	Member of Legislative Assembly for Kalgoorlie	1707–1712
Foxall, John Stuart ...	State Mining Engineer	1713–1734
Dunstan, John ...	Mining Engineer ...	1735–1741
Travis, Leo	Engine Driver, Railway Department	1742–1749
Mills, Frederick ...	Chief Mechanical Engineer Railway Department	1952–1962

From the evidence placed before me I have been able to form a very clear picture of the field and its importance in the development of the State. It has become evident to me that relatively little work has been done in the direction of close and sustained investigation as to the nature of the coals produced on the field, their phyiscal characteristics, their chemical composition and the effect that these properties might have on the use of the coal for various industrial purposes and as a fuel for locomotives. The results of some very valuable work were published by Messrs. Limb and Kent in 1939 and a study of this paper (Western Australian Coal Resources and their Utilisation) serves to accentuate the problems associated with the Collie field and the necessity for more extended investigation both of the field itself, its product and the methods of utilising the product. To these aspects Mr. Wallwork in his report also addressed himself and laid down clearly the lines which he considered should be followed in the development of the field as a productive unit and the steps which must be taken to ensure that the health, safety and welfare of those engaged in the production were secured.

Mr. Wallwork in his report examined the respective matters of supply and demand and his conclusions that demand would overtake the present prospects of supply is borne out by the evidence put before me by the Chairman of the State Electricity Commission Mr. R. J. Dumas, and Mr. P. C. Raynor, Personal Assistant to the Commissioner for Railways. Indeed Mr. Dumas estimated that the present indications were that in 1950 there would be a deficiency in supply of about 300,000 tons it being borne in mind that by this date the open cuts at Wallsend and Stockton, which had been developed as emergency measures, would be no longer in production.

COLLIE COAL.

Many of the witnesses referred to Collie coal as inferior and this appears to me to have become the reason advanced for certain difficulties that are claimed to be met with in its use. It can be agreed that coal from the Collie field is not of such general high all round quality as New South Wales coal but it is superior to South Australian coals and Victorian brown coals and not inferior to many of the Queensland coals. It is a coal with certain physical peculiarities. It contains a high percentage of moisture, volatiles—some of which are stated to be incombustible—and is generally low in ash. Its physical structure is weak, particularly after the moisture in the coal has evaporated, and deterioration as the moisture dries out is fairly rapid, causing the coal to become friable and easily broken. Its calorific value varies considerably according to the location on the field from which it is mined, and ranges from 8,400 to 10,200 B.T.U.'s per lb. The coal from the deep mines of the Amalgamated Collieries range from 9,000 to 10,200 B.T.U.'s per lb. with ash between 6 and 9 per cent. and moisture from 17½ to 22½ per cent. and from the Griffin Coal Mining Company a calorific value between 10,100 and 10,250 ash 3.85 to 4.7 per cent. with moisture taken at 18 per cent. These figures are such as to show that the coal cannot be classed as a bad coal and its inferiority is only relative when compared with the higher value coals of New South Wales.

Certain coals are considered by the users to be indifferent for steam raising particularly in locomotives, and the locomotive engine drivers and firemen complain of the coals which come from the Cardiff and Stockton Mines, particularly when open cut coal is supplied. The justification for this again is only relative and would in my opinion show that we have not yet ascertained the optimum conditions under which coals of the quality referred to could be used in locomotive boilers. For general use in industry these coals carry no great disadvantage if furnace and stoker design are adapted to the peculiarities of the coal. Pulverised, the coals can be readily used both for power production and many other industries requiring the application of heat.

It can also be gasified both for industrial and if necessary, with proper precautions, domestic use.

It is a coal which does not yield a strong coke and so far a satisfactory coke for use in blast furnaces has not been achieved, but with all these possible drawbacks, many of which tend on occasions to become exaggerated, it is a coal on which the future industrial capacity of this State can be based.

It can be seen, however, from the above short description of its properties that investigation as to its method of utilisation in industry is not only highly desirable but necessary. Such investigations are properly the function of those controlling the production of the coal and the Companies concerned have, up to the present, done nothing in this direction and such information as I have been able to obtain has been through the Senior Railway Chemist, Dr. C. R. Kent, and the Fuel Technologist, Mr. R. P. Donnelly, who, being interested in the use of coal did study the nature and value of the product the Government is buying.

Mr. Donnelly, in referring to the fact that Collie coals would not coke owing to their lack of phonolic constituents, stated that a considerable proportion of the volatile gases driven off during distillation of the coal was carbon dioxide. In dealing with the gasification of the coal with certain types of producers of the down-draft or duplex type, the loss from this gas could be to some extent obviated. In running ordinary firing tests for the efficiency of combustion, allowance would have to be made for the carbon dioxide in these distilled gases when analsying the gases of combustion after they have passed through the furnace and combustion chamber.

There is room in the Railway organisation for the education of locomotive drivers and firemen with regard to the methods used in raising steam and to this end it has been suggested that a boiler test house should be used for their instruction, so equipped that the efficiency of combustion can be checked against the methods of firing that might be used. This aspect of the matter, so far as the Railways are concerned, has not yet been sufficiently explored with a view to obtaining economy in the use of coal.

The total quantity of coal in the Collie field has been estimated by various authorities. Dr. Jack's estimate in 1904 gave 310,000,000 tons and Professor Woolnough in 1916 put the figure at 3,500,000,000 tons, that is, at ten times the quantity given by Dr. Jack. Mr. R. C. Wilson, lately Chief Mining Engineer, in a paper read the 15th July, 1943, before the Royal Society of Western Australia, put the quantity at 1,521,000,000 tons of which, up to 31st December, 1942, 16,112,000 tons had been mined. The basis of his estimate is given and I can see no reason for doubting that the quantity of coal in the field is of the order stated by him. Even if such estimates are severely discounted the actual value of the coal as a State asset would be assessed at several hundred million pounds,—an asset which needs to be jealously guarded and effectively used.

The immediate value of the coal to the State in terms of money perhaps can be expressed by the comparison of the heat value of Collie coal and an average New South Wales "Newcastle" coal landed at Fremantle. At the present time the Railways pay 23s. 9½d. per ton at the mine for Collie coal. Freight to Fremantle is approximately 12s. per ton making a total price of approximately 36s. per ton at Fremantle. "Newcastle" coal costs landed at Fremantle 55s. 9d. per ton. Taking the Collie coal at 9,500 B.T.U.'s per lb. and the "Newcastle" coal at 12,500 B.T.U.'s per lb. a fair comparison, the comparative value of Collie coal would be 42s. 5d. which gives a margin in favour of Collie Coal of 6s. 5d. per ton. This does not take into account the recent rise of 5s. per ton on "Newcastle" coal or the recent increase in freights rates to this State. It can be seen therefore, that looking at the value of the coal to the State there is a margin ample enough to provide for the proper development of the field as outlined in Mr. Wallwork's report and the provision of the social and working amenities which are at present so sadly lacking.

DEMAND AND SUPPLY OF COAL.

Mr. R. C. Wilson, Chairman of the Western Australian Coal Committee, stated that the output of Collie coal was as follows:—

General Remarks.

The output of Collie coal for the half year ended June 30th, 1947, amounted to 339,762 tons, this being a record production. The previous best being 333,669 tons during the previous half year.

The following figures give an indication of the present demand for Collie coal—

	Tons.
Coal applied for by present consumers during the last half year	395,757
Coal applied for by Kalgoorlie Electric Light and Power Corporation (500 tons per week)	13,000
	408,757

This is at the rate of 817,514 tons per annum.

To this figure must be added an unknown quantity of coal for which we have received no applications because it is known that no coal has been available for those who can use substitute fuel.

It is anticipated that a certain amount of Collie coal will be used for bunkering purposes, if available. The Government Railways and others would also like to build up some reserves of Collie coal.

On present indications an amount of 850,000 tons of Collie coal is likely to be utilised in the next twelve months, if this amount is available.

Mr. Wilson also stated that the production from the field during the twelve months ended 30th June, 1947 was 673,400 tons, but production was lost during November of that period owing to industrial trouble. Mr. G. V. Johnson of Amalgamated Collieries of W.A. Ltd. in his evidence estimated the rate of production at 756,000 tons per annum from the field, making a difference between the demand and estimated supplies of 94,000 tons. These figures, of course, include production from the open cuts, and in any estimate of supply for the future, production from these sources will have to be ignored.

Mr. Dumas in making a forecast with regard to demand in 1950 when the power houses at East Perth, Fremantle and Collie will be prepared to carry additional loads, estimates the shortage in supply at 300,000 tons and his estimate is based on present working hours.

Mr. Dumas stated he had made recommendations to the Minister regarding opening a mine for the use of the Electricity Commission. In the light of the proposals I am making, this action, extending as it would the uneconomic and ill-regulated development of the field, will be unnecessary.

Mr. Johnson, however, stated that provided the extra labour could be found the production from the field would approximate 1,000,000 tons per annum. At the same time the estimate of demand by Mr. Wilson would need to be increased in making any short term forecasts to allow for the fact that many possible consumers are using firewood who would prefer to use coal, if permitted to do so by the Western Australian Coal Committee.

Demands for coal in the very near future will be made by the Kalgoorlie field and the alunite industry amounting to possibly 200,000 tons per year.

It can be seen, therefore, that in any long range forecast based on the expected industrial development of the State the margin between demand and supply is such as will call for very considerable development of the Collie coal field.

THE INTEREST OF THE STATE IN THE PRODUCTION OF COAL.

The State has an over-riding interest in the coal resources of Western Australia. At the present time State instrumentalities or business undertakings consume approximately 85 per cent. of all coal produced, and the bulk of this coal is taken by the Railways for transportation, and by the State Electricity Commission for power supply. The Railways use "large coal" and the Electricity Commission "small coal", and at the present time the balance between the demands for "large" and "small" coal is reasonably maintained; I see no reason why this balance should be disturbed as the demand for "fines" will probably increase at a greater rate than the demand for "large" coal. In the circumstances there should be no waste of coal from the screening, crushing and blending of the run-of-mine coal to produce the standard quality of coal required by the Railways.

The State is the biggest purchaser, yet at the present time, it has but little control, if any, over the rate of production or the quality, except through such terms as it may be able to negotiate with the respective mining Companies. At the present time there is still discussion with regard to the terms of the contract to be entered into between the Companies and the Railways and the expiry on 31st December, 1945 of the contract entered into in December, 1944 has left matters in a most unsatisfactory state. The Railways desire that the coal from various parts of the field shall be crushed to size and blended as may be desired, and it would appear that the provision of the plant for this purpose may have to be made by the Railways although, in my opinion, facilities for this purpose should be provided by the Companies, as part of their obligation as lessees of the State in connection with coal production.

The basis on which the Companies are paid for their coal at the present time also does not appear to me to be satisfactory as there is a considerable discrepancy in the price paid by Government undertakings and private consumers, that is 23s. 9d. against 19s. 6d. for "large" coal, and 23s. 9d. and 17s. 6d. respectively for "small." The Griffin Coal Mining Company now gets 24s. 7d. for "large" coal from the Government and 24s. 7d. for "small," the respective prices from private consumers being 19s. 6d. and 17s. 6d. This Company is also paying a royalty of 3d. per ton to Amalgamated Collieries for coal taken from a seam on a lease held by Amalgamated Collieries. The contract with Amalgamated Collieries was on a basis of "cost plus" on terms arrived at by arbitration with Mr. Justice Davidson as Arbitrator.

The whole of the arrangements which are briefly outlined above, appear to me to be most unsatisfactory and unnecessarily complex, providing uncertainties, dissatisfactions and complaints as between the producers and the buyers.

Mr. Johnson the General Manager of Amalgamated Collieries stated in evidence that the more coal they produce the less profit they obtain and under the contract there would appear to be no incentive to the Companies to produce more coal efficiently at a lower price. It is my opinion that the State is paying more for the coal that it uses than would be the case if the mines were efficiently worked and sufficiently capitalised to ensure full mechanisation.

As the result of a Royal Commission which reported in 1940 and which consisted of leading officers of the Mines Department (the State Mining Engineer, the Government Geologist and the Assistant State Mining Engineer), certain recommendations were made dealing with matters which they considered should be undertaken by the Mining Companies and suggesting methods of production which would tend to increased efficiency. An agreement was reached with the Companies that the various extensions and improvements recommended by the Commission would be undertaken. At first some progress was made but after two years the position again began to deteriorate and many of the recommendations made have not been carried out. I understand that regulation 115A under the Mining Act was promulgated for the purpose of ensuring that these recommendations were carried out.

It would appear, however, that this report did not deal specifically with the nature or efficiency of the plant and equipment used in production. Various excuses are made as to why the recommendations were not carried out, such as the war and the consequent shortage of labour and some slackening in the demand for coal. Examination, however, seems to show that these excuses should not be entirely accepted as the industry became protected and labour was obtainable from the gold mines which were not classed as protected industries.

The State is now in a position, from various causes, of having to depend entirely on its own coal resources except for the supply from the East of relatively small quantities of Newcastle coal for gas making and for use on those Railway lines where the risk of fire is considerable. At the present time the amount of Newcastle coal used by the Railways is negligible and the risk of fires in certain areas is being lessened by improvement in the design of spark arresters.

Looking to the future it is, in my opinion, of paramount importance to the State that sufficient and suitable supplies of coal for the various Government instrumentalities and private users should be insured, but it is also my opinion that in the circumstances obtaining at the present time the necessary supplies of coal at a reasonable price will not be forthcoming.

In nearly all the reports which have been presented from time to time requirements as to production are discussed and suggestions made in a tentative manner for mechanisation and improvement of working conditions. Generally there appears to be a lack of constructive proposals from the industry itself, and such advances as have been made towards partial mechanisation of the mines does not in any way measure up to needs. The industry has not proposed, so far as I can ascertain, to extend its capital so that costs can be reduced by the full and proper application of mechanisation; proper conditions of work established; investigations as to the provision of the best standard quality of coal to be obtained by blending and into the methods to be employed in the utilisation of the coal to meet the diverse requirements

of industry carried out; facilities for technical education and training of its personnel systematically applied; and the health and welfare of the workers in the mines attended to on the lines now considered necessary in modern industrial undertakings.

The evidence tendered to me and my own observations show that the general standard of technical ability on the field is low and the mental attitude is such as to cause resistance to the introduction of modern methods and improved conditions. Either the Companies must take steps to see that the technical ability of its officers is improved and facilities made available for them, by travel, for contact with modern ideas and methods, or the State must step in to ensure these things being done in order that this asset may be properly developed and used for the benefit of the State.

When considering the state of affairs on the Collie coalfield and the continuing difficulties which occur with regard to production meeting demand, I am forced to apply to the Collie coalfield the remarks made by Mr. Justice Davidson dealing with certain statistics of production in New South Wales. He said, "Nothing more is needed than this brief outline to establish that the coal industry is not only inefficient, but is afflicted with a form of creeping paralysis."

OBLIGATIONS OF THE INDUSTRY TO THE STATE.

I think it can be assumed that any industry which is given the opportunity of earning profits from concessions specially granted to it by the State has a responsibility to the State to see that its operations are such as to meet fully its obligations in order to justify the concessions it may receive, and to develop and use its asset for the economic benefit of the community.

Mr. Wallwork as a Royal Commissioner enquiring into the coalmining industry of the State came to the following general conclusions and I quote him as follows:—

General.

The findings which stand out in sharp relief as the result of inspections and enquiries made since I entered on this Commission in March, 1946, are as follows:

A. We in the State of Western Australia possess an immensely valuable national asset consisting of the vast resources of easily won coal deposited by Nature within convenient reach of our centres of population and likely centres of industry.

With regard to this there is no need to comment.

B. The coal mining companies have failed, in spite of the resources at their disposal, to meet the fuel requirements of industry in quantity, quality or grade and still continue to do so.

With this statement I agree.

C. The coal mining industry should not be allowed to drift along without or out of control as it did in the years 1943-1945.

With this I also agree.

D. Production and marketing of coal should be subject to the direct supervision of a statutory Board or Commission.

I agree in principle and will deal with the matter later.

E. The supervising authority should concentrate on 100 per cent. extraction and 100 per cent. use of coal seams worked whether high or low grade.

I agree in principle and will deal with the matter later.

F. Working methods and conditions associated with coal mining in Western Australia should be made congenial so as to attract and retain workers in the industry.

With this I agree.

G. All unworked coal mines or coal deposits should remain vested or be revested in the State for the benefit of industry as a whole.

With this I agree.

H. When the increasing demand for coal makes it necessary, coal bearing areas now unworked should be worked by State instrumentalities for their own use or for the use of industry or by industries or groups of industries for their own use.

With this I agree in principle and will make suggestions later.

I. So little detail is known about our coal resources, their extent, or their fuel uses, that there is a vital need for extensive research.

I agree.

J. On account of the considerable and apparently permanent increases in the cost of machinery, equipment, supplies and wages in the coal mining industry coal prices may be reduced only by an increase in production parallel with expenditure.

I agree in general but consider that in spite of the increased cost of equipment, machinery, supplies and wages coal production CAN be increased and prices reduced by efficient organisation, modern equipment and methods.

The industry is much under capitalised, and, to place it on a footing which will ensure that the field is systematically examined and developed, together with the provision of the necessary equipment for full mechanised production, and the provision of social and workers' amenities which are recognised as a requirement of modern industry, would involve very considerable expenditure, but without this expenditure prices will increase and the present uncertainty with regard to supplies and quality of coal will remain. It is the obligation of the Company to carry out the matters mentioned above and in my opinion the failure to meet this obligation would justify extreme measures with regard to the cancellation of the leases at present held by the Company, and the effective control of the industry by the State through an independent business organisation.

As I have stated previously I have been able to find no indication of any reasonably long view properly detailed scheme of reorganisation by the existing Companies and it is my opinion that there is not the technical ability at present available in the State to ensure the kind of planning and reconstruction that is required.

The present "set-up" is highly and unnecessarily complex, consisting as it does of various diverse interests which are concerned with production and the use of coal and which comprise the Coal Companies, the Railways, the Electricity Commission, the Mines Department, the Commonwealth Coal Commission and its Western Australian Coal Committee, and private industry; all concerned with their own limited individual and immediate needs and without any effective overall authority to determine, not only what is in the best interests of all the sections directly concerned, but also what is in the best interests of the State.

MINING TENEMENTS.

The matter of the mining tenements was dealt with by Mr. Wallwork on page 5 of his report. There have, however, evidently been some varia-

tions since his report was written, some further leases having been granted to the Co-operative Mine (Amalgamated Collieries of Western Australia Ltd.) and three leases, of which it is believed two, namely 387 and 388 were recommended within the last few weeks. The list of leases as supplied by the Under Secretary for Mines, is attached hereto. (Appendix 1.)

The leases held by the various lessees are shown on a map placed before the Commission by the Under Secretary for Mines which is attached hereto. (Appendix 2.) From this it will be seen that the Mines Department allots the leases to the various mining Companies as under:—

	Acres.
Amalgamated Collieries of W.A. Ltd. ..	28,733
Griffin Coal Mining Co. Ltd.	1,800
Ewington Coal Mining Co. Ltd.	1,181
Prospecting Area No. 53	2,845
State Electricity Commission	640
	35,199

It will be seen that according to the footnote of the statement:

Leases 352 to 355 inclusive, and
Leases 361 to 371 inclusive, and
Lease 380,

are in abeyance, approvals being postponed periodically until 1942 and no further action taken as regards postponement. Subject to the above remarks, which are supplementary, the position is as outlined by Mr. Wallwork, who stated as follows:—

MINING TENEMENTS.

In all 87 leases have been granted at Collie covering 25,959 acres which are held or applied for, as shown hereunder:—

Company.	No. of leases held or applied for.	Area (Acres)
Amalgamated Collieries of W.A. Limited	77	22,978
Ewington Coal Mining Coy. Ltd.	4	1,181
Griffin Coal Mining Coy., Limited	6	1,800
	87	25,959

Of the 77 leases held by Amalgamated Collieries of W.A. Limited, three, covering 960 acres, are sublet to the Griffin Coal Mining Company Limited and royalties varying from 1d. to 4½d. per ton on coal won are paid by the sublessees to the lessees. Of leases previously held by Amalgamated Collieries of W.A. Ltd., sixteen, covering 5,120 acres in the Collie-Burn area, have run out and have been re-applied for. Approval has been postponed. The legal position is not quite clear although it would appear that the Company has now no legal right to these leases whatever. The remaining 77 leases are held by the Company for varying terms, although a number of them are not manned in accordance with the Mining Act and Regulations. Approval of the granting of two additional leases covering 640 acres each of the Cardiff leases has also been postponed.

An anomalous position exists with regard to the leases sublet to the Griffin Company, in that the lessees have never manned or worked the leases in accordance with the Act and Regulations. The sub-lessees, who are actually working the leases have stated that they would be glad to secure them in their own name.

The four leases, covering 1,181 acres, held by the Ewington Coal Mining Company are not manned although some boring has been done recently on the leases at the expense of the Government. The intentions of this company with regard to the leases held are not known. They are at present under long term option to the State Government.

The six leases, covering 1,800 acres, held by the Griffin Coal Mining Company are fully manned as are those areas being worked and held on sub-lease from the Amalgamated Collieries.

A prospecting area for coal is held by Messrs. Walsh and Simpson, covering 2,845 acres, in the neighbourhood of the old Premier Mine at Shotts. As the tenement was approved as late as 7th August, 1947, it is not known whether or not the tenants have started prospecting or what their intentions are in the event of their locating seams of coal capable of being worked as a payable proposition.

A further area covering 640 acres in the neighbourhood of the old Black Diamond leases at Allanson has been reserved for the Electricity Commission. Some boring has been done on this land but neither the results nor the intentions of the Electricity Commission are known. The area comprises two leases previously held but not manned by Amalgamated Collieries of W.A. Limited.

In the Wilga area 18 leases, covering 5,440 acres, are held by the Wilga Coal Mining and Carbonisation Company Limited. It is understood that these leases are under option to gold mining interests.

No other coal-bearing areas in Western Australia are held under mining lease or as a mining tenement.

A study of the map indicates clearly the anomalies pointed out by Mr. Wallwork with regard to the sub-leasing of the areas being worked by the Griffin Mining Company and the large area of coal lands held by Amalgamated Collieries which are not being worked and are not likely to be worked for many years ahead. Little work has been done by the Companies in proving the extent of the coal seams and the number of them which may be within their leases, neither have they carried out any systematic boring which would have given information with regard to the strata above, between, and beneath the coal seams. It is obvious that any systematic examination of the field requires boring to bedrock with cores from the surface down. It is understood that the Mines Department is undertaking this work but in my opinion it is an obligation which should be on the lessees who have been placed in a most favourable position by the granting of the leases held by them.

Mr. Wallwork has recommended that all unworked coal mines or coal deposits should remain vested or be revested in the State for the benefit of industry as a whole as set out in Clause "G" of his general conclusions quoted previously. With this I agree, considering as I do that it is undesirable for a number of relatively small undertakings to be allowed entrance to the field for the purpose of holding the leases against future necessities whilst satisfying the minimum labour conditions. I have already indicated that I do not consider it either desirable or necessary for the State Electricity Commission to open up another relatively small mine. Their requirements can be met by the proposals made hereafter. I do not agree with the action that has been taken to apply the whole of the labour employed at different working mines, as being sufficient to comply with the requirements as to labour on all leases held as provided by the Regulations under the Mining Act. Such a position may become an exploitation of the community, rather than an exploitation and development of the field in the interests of the community.

I agree with Mr. Wallwork's findings set out in Clause "D" in his general conclusions as set out above, that the coal mining companies have failed to meet the fuel requirements, of industry in quantity, quality or grade.

They have also failed, in my opinion, to take the steps necessary to so equip their mines, or even a section of the leases held by them, that the requirements of industry can be fully met; to carry out investigations of the leases held by them; to carry out investigations as to how the particular fuels or combinations of them obtained from the mines in the field can be best utilised by the diverse industries of the State or to blend these fuels as may be required; to provide properly for the health and welfare of the workers in the industry; and by full mechanisation to produce the coal required at a reasonable cost.

FUTURE CONTROL AND DEVELOPMENT OF THE FIELD.

Arising out of the work of the various Commissions and experts who have advised on the development of the field and the methods to be followed in its development, suggestions have been made for some element of State control and the matter has been discussed at some length by Mr. Justice Davidson, so far as mining operations in various States were concerned.

After discussing the situation with regard to development and operations he made the following remarks with regard to the Collie field when dealing with Regulation 115A under the Mining Act, 1904, which regulation was promulgated after certain decisions had been come to in connection with a developmental programme to be carried out at some of the mines.

1352. Following upon these decisions a regulation, No. 115A was promulgated which practically placed the Minister in control of the mines. It is in the following terms—

115A. (1) Subject as hereinafter provided, the lessee of every coal-mining lease situated within the Collie mineral field shall, during the continuance of the lease, and for the purpose of developing the same in a manner satisfactory to the Minister, work the lease in such manner, by such methods, and by means of such mining operations as are recommended in the report dated the 18th November, 1940, of the Royal Commission appointed on the 6th day of March, 1940, to inquire into the available supplies of native coal in the Collie mineral field, and the development thereof for future requirements, or as are specified by the Minister by a requisition in writing signed by the Minister and served on such lessee. Provided that the Minister may, by notice in writing signed by him and served upon a lessee, exempt the lease of such lessee from the operation of this regulation.

(2) Every lessee to whom this regulation applies shall furnish to the Minister half-yearly not later than the 20th day of January and July, respectively, in each and every year, a statement in writing signed by him containing—

(a) particulars of the development work completed during the six months then last past; and

(b) particulars of the development work proposed to be undertaken during the next ensuing six months.

(3) If any lessee fails in any respect to comply fully with the requirements of this regulation, he shall be guilty of a breach of this regulation, and of his covenants under the lease.

1353. The penalty provided by Clause 3 of this regulation is extremely severe involving as it does liability to forfeiture or in the alternative a fine of £500 as provided by the terms of the leases. It has been stated by the Chief Mining Engineer that, apart from this regulation, there is no power to direct how the mines should be worked, and that the Minister would not enforce such provisions harshly; but no more stringent power could well exist and the effect of this legislation has undoubtedly been to restrict the discretion of the management and thereby to encourage the perpetuation of inefficient methods.

1354. Work proceeded under the arrangements endorsed by the Royal Commission but without marked improvement in output over the whole field as is shown by the figures: 1939, 557,535 tons; 1940, 539,427 tons; 1941, 556,579 tons; 1942, 581,176 tons; 1943, 531,546 tons; 1944, 558,320 tons.

1355. Dissatisfaction, particularly with the rate of progress being made by the Amalgamated Company, became pronounced. The inspectorate evidently deemed it its duty to police compliance with the recommendations of the Commission. This attitude was made abundantly clear as regards the Cardiff Mine when on the 11th May, 1945, the Chief Inspector under the direction of the Minister for Mines wrote to the company in these terms: "As a result of a conference held today and telephone conversation between the Honourable the Premier and the Commonwealth Coal Commissioner it has been agreed that the development of the coal mines will in future be under the control of the Mines Department. In view of this decision I would advise that the Honourable the Minister for Mines has instructed that the opening of the Bertha Section of the Cardiff Mine be taken in hand immediately."

THE REORGANISATION OF THE INDUSTRY.

Mr. Wallwork in his report under Clause "D" of his general findings considered that production and marketing of coal should be subject to the direct supervision of a statutory board or Commission.

While agreeing with Mr. Wallwork that the industry cannot be allowed to drift along without control, I am of the opinion that the authority in which control is vested must be such that it possesses the same freedom as that of a Board of Directors of any private company. It must not be limited with regard to the kind of persons it may employ as technical directors and supervisors, so far as salaries and qualifications are concerned. It must, however, like any other industrial undertaking be subject to such laws as may be promulgated for the health and safety of its employees in connection with its methods of operation. It should operate as a business undertaking, in that it must obtain a return from the sale of its products from which the interest on capital expended, the cost of the development and investigation of the field, the health and welfare of its employees and of their conditions of work, can be obtained, and provision made for depreciation of plant and equipment and its amortisation within a reasonable working life. It must also provide that the rights of the companies to a profit on and the return in a reasonable time of, the capital invested by them in the industry shall be safeguarded, so that they may obtain a reward not less favourable than that enjoyed by various public utility companies working under State authorisation.

NATURE OF THE CONTROLLING ORGANISATION.

To meet the above conditions the suggestion is made that the State should be the controlling partner in a company to be known as the Western Australian Coal Mining Company Ltd. established for the development of the coal resources of the State in which the existing companies who are actually producing will be shareholders.

It is suggested this company should be formed with a capital of £1,000,000. Its immediate objective being the production of 1,000,000 tons of coal per

annum, blended and graded as may be required for industrial purposes, and the extension of its operations as may be required in the future.

The interests of the companies at present operating on the fields will be restricted to the existing shares actually issued by the companies and they will have representation on the Board of Directors to the extent of two directors. The Government will appoint the Chairman of the Board of Directors and will also appoint a highly qualified and experienced coal mining engineer as Vice Chairman and Managing Director. The Government would also appoint one Director representing the Railways, one the State Electricity Commission, a representative chosen from a panel of three nominated by the Chamber of Manufactures, a representative chosen from a panel of three nominated by the Miners' Federation, Western Australian Branch, and a representative chosen from a panel of three nominated by all other Unions connected with the coal mining industry in the State and two representatives of the existing operating Companies from a panel of five nominated by them; —nine Directors in all.

In the first instance half the number of the representatives of the various interests to be appointed will serve for two years only and half for four years; those to serve for the shorter term of two years to be selected by drawing by lot. Those persons to retire at the end of the first two years to be eligible for renomination for a period of four years. Thereafter the term will be for four years, half the representative directors retiring at the end of each two year period but eligible for selection by the Government after renomination by the interests concerned. The Chairman and the Managing Director to be appointed by the Government for a term of five years in the case of the Chairman, and seven years in the case of the Vice Chairman and Managing Director. The Managing Director may be removed during his term of office at the instance of the Board subject to the approval of the Governor-in-Council for any just cause, such as—incompetency, insobriety, neglect of duties etc. The Vice Chairman and Managing Director will be eligible for re-appointment on the expiry of his term of office.

The offices of the Company shall be in the town of Collie.

The Company will report to the Premier at regular intervals of six months, and each year will submit a balance sheet detailing the cost of its operations in each section of its undertaking. Its accounts will be subject to audit by the Auditor General.

THE OPERATIONS OF THE COMPANY.

It will be the responsibility of the Company to prospect, develop and control all coal measures within the State, as now existing and as may be proved by prospecting in the future. The immediate work to be undertaken by the Company will be concerned with the economic development of the Collie coal field. An approximate estimate of the cost of development of the coal field is as follows:—

APPROXIMATE ESTIMATE OF CAPITAL EXPENDITURE AND OPERATING COST FOR 1,000,000 TONS.

—	Capital.	Annual Charges.	Per Ton.
	£	£	s. d.
Mechanisation, development and surface equipment, blending plant, offices, stores, workshops, drawing office, rail siding, mess rooms, canteens, dressing rooms, showers, etc. ... £	350,000	...	...
Boring 40,000	...	8,000	0 2
Laboratories 30,000	...	12,000	0 3
Training and Education 50,000	...	12,000	0 3
Health and Welfare ... 15,000	...	4,000	0 1
Amenities and Recreation 15,000	150,000	4,000	0 1
Contingencies and Reserves ...	100,000	10,000	0 2
	£600,000	50,000	1 0
Existing Capitalisation of mines—say	400,000		
	£1,000,000		

ANNUAL CHARGES AND OPERATING COSTS.
Production 1,000 men at 1,000 tons each per annum: 1,000,000 tons.

	Per annum.	Per ton of coal.
	£	s. d.
Wages	500,000	10 0
Operating, fuel oils, stores, power, timber, etc. ..	75,000	1 6
Maintenance (5% on £1,000,000)	50,000	1 0
Royalties (6d. per ton) ..	25,000	6
Insurance, etc.	6,000	1
Sick Pay, Workers' Compensation, Insurance, etc.	50,000	1 0
*Amortisation and depreciation (6% on £1,000,000)	60,000	1 2
Administration (5% on £1,000,000)	50,000	1 0
Dividends (6% on £400,000)	24,000	6
Interest (5% on £600,000)	30,000	7½
Reserves and Taxation ..	30,000	7½
Non-productive charges (boring, laboratories, etc., as above)	50,000	1 0
	£950,000	19 0 per ton on truck at Collie.

*Provision has been made above to cancel the share liability of £400,000.

The above statement indicates a considerable reduction with regard to the cost of coal on existing prices. This reduction, will of course, not be obtained during the first three or four years of operations as it is expected that during that period the drag of the existing mines will tend to control costs. As production increases costs will be progressively reduced.

The administration, direction and oversight of the Company's activities will be in the hands of the Managing Director. As indicated he must be a highly trained coal mining engineer experienced in modern methods of production and administration,

In my opinion it will be necessary to pay this man a salary of not less than £3,000 per year which, with allowances for expenses, car, housing etc., would involve £4,000 per year. Nothing less than this will attract the right type of man at the present time.

SUGGESTED PROGRAMME OF OPERATIONS.

To gain the full benefit of mechanisation and to put the industry on a sound footing for future development, I agree with the suggestions made by Messrs. J. P. Hindmarsh and S. McKenzey and by J. McLeish and R. P. Jack that a new mine with development up to 2,000 tons per day should be opened up. There is some indefiniteness as to where this new mine should be situated but I have heard of the suggestion that it should be in the area of country between the Proprietary and Stockton Mines. This area is virgin country and the indications are strong that the coal seams already being worked at the Proprietary and Stockton Mines will be found within the area. Immediate steps should be taken to prove the presence of the coal seams referred to which would be part of the general boring programme for the field but which, to enable sure development to take place at an early date, need do no more at this stage than prove the coal. As development proceeds boring should be carried down to bedrock. This mine should be developed and worked as a fully mechanised unit, suitable men at present working on the field being selected for special training in the method and organisation required for full mechanised working, and in the operation and maintenance of the equipment. There should be no great difficulty in arranging this, either through those Companies who may supply the equipment, or by direct negotiation with mines in America equipped with the type of machinery and plant that will be installed. The men selected would probably need intensive training for six months and the arrangments made should place them under contract with the Company for a period of years after the training is completed. Of these alternatives I would prefer to make the arrangements for training with a Company which would supply the equipment or the major portion of it in order that the training may be obtained at a mine which has developed the methods of organised working and operations suited to the particular equipment.

These, of course, are matters which would come within the purview of the Managing Director but are offered as suggestions for a definite line of attack on the problem of the development of the coalfield.

It is, of course, necessary during the period of development of this proposed new mine to continue operations on existing mines to the fullest extent, employing such mechanisation as may be usefully found practicable in the existing conditions. When the new mine is in production certain of the existing mines can be closed until such time as the methods of mechanisation suited to the extraction of pillars and the possible use of hydraulic or other stowage has been investigated and economic methods ascertained.

It is to be noted that in the approximate "balance sheet" items are included both against capital and annual charges covering activities which, in the present circumstances, have not been provided by the existing Companies or to the extent that is necessary, by the Departments of State who would normally have been concerned. Notes with regard to these follow.

FIELD INVESTIGATIONS

The Government has recently undertaken the obligation of investigating the conditions obtaining in the Collie coal field so far as its geological structure and coal reserves are concerned, and to this end it is providing drilling plant to be used for the purpose. This, it is proposed, is work which should be undertaken by the Western Australian Coal Mining Company. It should be under its direction and its periodical reports to the Premier would disclose fully the information obtained from time to time. The necessary technical staff of geologists, chemists, drillers and such like would come under the general supervison of the laboratory Director, who, under the direction of the Managing Director, would be responsible for the collation of all field work connected with the investigation.

This investigation work would as found necessary or advisable from time to time also include the examination and investigation of such other coal deposits as may be located, as one of the functions of the Company in extending the knowledge of, and conserving the uses of, the coal resources of the State, avoiding the obvious exploitation and the holding of unworked leases which is such a prominent feature of the existing regime.

LABORATORIES.

As indicated in the above paragraph the Company will establish on the field as part of its organisation a thoroughly well equipped physical and chemical laboratory for the purpose of investigating the properties of the coals obtained from various parts of the field, whether by prospecting boring or mine development and production. It will undertake investigations and experiments with regard to the various qualities of fuels produced and ascertain the qualities of blended coals suited for different industries. It will ascertain the best and most economical methods of utilising coal for the use of the various government instrumentalities and for the requirements of general industry with regard to its use in either the solid of gaseous state.

The objective of the laboratory will be to make the coal of the widest possible use in all those industries requiring fuel which the progress of the State will demand, and to remove from the minds of the public and users the idea that the Collie coal is an inferior coal which can only be used as a poor substitute for other possible fuels. It must "sell" the coal to prospective customers and the public as to its paramount importance and value in the industrial economy of the State. For this purpose it will absorb the activities of the recently appointed Fuel Technologist.

LABOUR.

One of the excuses put forward by the existing Companies for the lack of production as compared with demand is that labour is not available. The reason for this is stated to be in the main to the lack of housing for those who might be brought into the

industry. This may be, to some extent, a legitimate excuse, but to my mind it is not in any way a good story. Labour is insufficient and production is lagging because of the resistance offered by management to the improvement of production methods and operating conditions in the mines, and a "standstill" policy with regard to the changed outlook that will be necessary if the field is brought under control and its development ensured by scientific management and modern methods. The conditions in the mines and their surroundings are such as to cause an underlying dissatisfaction which, although it may not be capable of definite expression owing to the limited experience of the working force as to what conditions might be, it is nevertheless real in its incidence on output from the individual. Good work is only obtained from labour which is contented with regard to its living conditions, and its working conditions, and the full application of modern methods will deal with both these causes of possible unrest.

So far as housing is concerned it appears to me that there was nothing to prevent the mining companies building model townships in the past for their operatives, or of applying for permits to provide houses now, if there was a real desire by management to look after the labour employed. This duty is recognised as a necessary function of industry which may be located away from one of the more dense centres of population and it is a charge which is met by financial arrangements which can be practically self-supporting; but even if such were not the case, the actual charge against production would be small when it is realised that even on the moderate production of 1,000,000 tons per annum a penny per ton on coal provides £4,000 per year.

It is this attitude of resistance of management in consciously or unconsciously opposing these factors in industry, which, in my opinion, is largely responsible for the difficulties in maintaining labour in the industry, and for inculcating a feeling of dissatisfaction and unrest in the labour force.

EDUCATION.

The education of the workers with regard to the technical nature of the occupation has been totally neglected on the Collie field. Beyond a few private efforts made by one or two interested persons I have been able to discover nothing which could be considered an organised attempt to educate the young men who should be entering the industry.

It has to be borne in mind that the outlook of the miner to the industry is largely that of tradition and unfortunately a bad tradition at that. His mental attitude towards his occupation is conditioned by his surroundings and, in the nature of things, when these have been poor for a generation, poor conditions become accepted as part of the daily work and it is reflected in a lack of ambition to improve their knowledge of, and their position in, the industry. There is constant in-breeding with lack of outside technical contacts and progress cannot be supported in such circumstances.

There is need, great need, for the establishment of a thoroughly well equipped school of coal mining, supported by secondary education, which will enable a student to undertake advanced study in the geological, chemical, physical and engineering aspects of the industry. This will ensure that the future leaders and officers of the organisation will have, not only a full knowledge of the technique of their vocation, but also an appreciation of its application in other countries in circumstances which may, or may not, be similar to their own.

This college will need to be well staffed with regard to the science and practical side of the industry and its laboratory should be well equipped for this purpose. It should also supply trade training for those who are in the future going to attend to the maintenance and operation of more or less intricate machines with an understanding of the workshop processes required.

Such an establishment will form the basis on which the future of the industry can be properly founded and will enlarge the opportunities of the young people of the neighbourhood.

Parallel with the establishment of the technical institution at Collie, a lectureship in coal mining engineering should be established at the University as part of the Engineering Faculty in order that selected young men qualified to enter the University may be assisted by grants from the industry to undertake the highest courses of instruction that the State can provide.

Another factor in the education of those showing promise of becoming senior officers in the Company is the matter of arrangements made for them to visit other coal mining centres, not only in Australia, but overseas, where short periods of intense study of the conditions and methods of operations can be made in order that the organisation may not be lacking the constant infusion of new thought.

Again it can be shown that these things can be provided from the coal even on the moderate production assumed as the present basis of this new organisation.

HEALTH AND WELFARE.

Looking at the industry as a whole, and in the light of the evidence supplied by former Commissions inquiring into the industry, I am strongly of the opinion that far too little attention has been paid to this matter, both from the point of view of working conditions in the mines themselves, and in the environment and community conditions on which the contentment of the workers in the mines must be based. I consider that it is the concern of management not only to be interested in these matters but to support them actively financially, if a healthy outlook on the industry is to be maintained. Welfare in modern industry covers a wide field, taking in, not only the man and his job, but his living environment and his family. The inculcation of a community spirit and a community effort amongst those engaged in the industry has to be encouraged and fostered and we have many examples in Australia of industries (not as important in the general economy of the State in which they exist, than is the case of this coal mining industry), where this has been successfully obtained. The field at Collie for this is open and its cultivation is likely to be fruitful. In these days this is not a matter of philanthropy, it is one of hard business and cannot be neglected.

Clinics, adult educational institutions, recreational facilities for youth and adult, pleasant surroundings, cleanliness, tidiness, and equipment which is

obviously good and suited to its purpose, are all matters which affect the health and welfare of the body of employees. Reduction in sickness and the lessening of absenteeism are direct results and benefits to be obtained by attention to health and welfare, and the obvious results of these on production and efficiency need no comment.

I have dealt briefly with some of the above matters, not because a great deal more could not have been said, but my object is to stress their importance in the general scheme of the development of the field. The projects outlined are not idealistic fantasy. They are hard solid business for obtaining the full benefit of the asset for the future of this State.

The proposal put forward is practical and capable of ready implementation without loss of production and without litigation. It obviates control by the method of nationalisation, protects the country's interest in the asset and its development, prevents monopoly exploitation for undue profit, preserves the initiative and efficiency of the best private enterprise, and avoids the stultifying influence of a departmental bureaucracy. It provides that measure of State control which is considered necessary by practically all those who have investigated the problem of the Collie field.

I have endeavoured to bring the rather nebulous recommendations that have been made from time to time into some concrete and practical form.

In conclusion, my inquiries and studies of the matter have convinced me that the need is immediate and urgent if industrial unrest of the field is to be obviated, and supplies of coal for the Government instrumentalities, (such as the Railways) and private industry are to be assured in quantity and in quality suited to their needs.

I have the honour to be, Sir,
Your Excelleney's obedient servant,

A. J. GIBSON,
Royal Commissioner.

Perth, the 1st day of December, 1947.

APPENDIX I.

AMALGAMATED COLLIERIES OF W.A., LIMITED.

Lease No.	Area a.	r.	p.	Granted for 1st Term	Granted for 2nd Term	Remarks
250	320	0	0	1-1-07	1-1-28	
251	320	0	0	1-1-07	1-1-28	
252	320	0	0	1-1-07	1-1-28	
253	192	0	0	1-1-07	1-1-28	
254	320	0	0	1-1-07	1-1-28	
255	320	0	0	1-1-07	1-1-28	
257	320	0	0	1-1-10	1-1-31	
258	320	0	0	1-1-10	1-1-31	
260	320	0	0	1-1-10	1-1-31	
261	200	0	0	1-1-10	1-1-31	
264	320	0	0	1-1-10	1-1-31	
267	290	2	0	1-1-13	1-1-34	
269	320	0	0	1-1-14	1-1-35	
270	319	2	38	1-1-15	1-1-36	
271	320	0	0	1-1-15	1-1-36	
272	300	0	0	1-1-15	1-1-36	
273	300	0	0	1-1-15	1-1-36	
274	300	0	0	1-1-15	1-1-36	
275	300	0	0	1-1-15	1-1-36	
276	156	0	0	1-1-16	1-1-37	
277	300	0	0	1-1-16	1-1-37	
278	244	3	2	1-1-17	1-1-38	
279	245	0	0	1-1-16	1-1-37	
280	320	0	0	1-1-17	1-1-38	Sub-leased to the Griffin Coal Mining Company for a period of 14 years 9 months from 1st March, 1944.
281	320	0	0	1-1-17	1-1-38	
282	320	0	0	1-1-17	1-1-38	
283	320	0	0	1-1-17	1-1-38	
284	320	0	0	1-1-17	1-1-38	
285	320	0	0	1-1-17	1-1-38	
286	320	0	0	1-1-17	1-1-38	
287	320	0	0	1-1-17	1-1-38	
288	320	0	0	1-1-17	1-1-38	
289	320	0	0	1-1-17	1-1-38	
290	320	0	0	1-1-17	1-1-38	
291	277	1	32	1-1-17	1-1-38	
292	17	2	23	1-1-18	1-1-39	
328	320	0	0	1-1-36	...	
329	320	0	0	1-1-36	...	
330	320	0	0	1-1-36	...	
331	320	0	0	1-1-36	...	
334	320	0	0	1-1-37	...	
335	280	1	9	1-1-38	...	
336	259	3	12	1-1-38	...	
337	321	0	0	1-1-38	...	
338	223	3	16	1-1-38	...	
339	198	0	0	1-1-38	...	
340	320	0	0	1-1-38	...	
341	319	1	24	1-1-38	...	
342	320	0	0	1-1-38	...	
343	320	0	0	1-1-38	...	
344	320	0	0	1-1-38	...	
345	319	3	19	1-1-38	...	
346	320	0	0	1-1-38	...	
347	320	0	0	1-1-38	...	
348	320	0	0	1-1-38	...	
349	240	0	0	1-1-38	...	
350	320	0	0	1-1-41	...	Sub-leased to Griffin Coal Mining Company, Ltd., for a term of 21 years from 1st January, 1941.
351	320	0	0	1-1-41	...	Sub-leased to Griffin Coal Mining Company for a period of 21 years from 1st January, 1941.
352*	320	0	0	...	...	Late C.M.L. 153 expired 31st December, 1938.
353*	320	0	0	...	...	Late C.M.L. 154 expired 31st December, 1938.
354*	320	0	0	...	...	Late C.M.L. 155 expired 31st December, 1938.
355*	320	0	0	...	...	Late C.M.L. 156 expired 31st December, 1938.
356	320	0	0	1-1-39	...	
357	320	0	0	1-1-39	...	
358	320	0	0	1-1-39	...	
359	320	0	0	1-1-39	...	
360	320	0	0	1-1-39	...	
361*	320	0	0	...	...	Late C.M.L. 162 expired 31st December, 1938.
362*	320	0	0	...	...	Late C.M.L. 163 expired 31st December, 1938.
363*	320	0	0	...	...	Late C.M.L. 164 expired 31st December, 1938.
364*	320	0	0	...	...	Late C.M.L. 165 expired 31st December, 1938.
365*	320	0	0	...	...	Late C.M.L. 181 expired 31st December, 1940.
366*	320	0	0	...	...	Late C.M.L. 182 expired 31st December, 1940.
367*	320	0	0	...	...	Late C.M.L. 183 expired 31st December, 1940.
368*	320	0	0	...	...	Late C.M.L. 184 expired 31st December, 1940.
369*	320	0	0	...	...	Late C.M.L. 185 expired 31st December, 1940.

AMALGAMATED COLLIERIES OF W. A. LIMITED.—*continued.*

Lease No.	Area			Granted for 1st Term	Granted for 2nd Term	Remarks
	a.	r.	p.			
370*	320	0	0	...	...	Late C.M.L. 186 expired 31st December, 1940.
371*	320	0	0	...	...	Late C.M.L. 187 expired 31st December, 1940.
372	320	0	0	1-1-42	...	
373	320	0	0	1-1-42	...	
374	320	0	0	1-1-42	...	
375	320	0	0	1-1-42	...	
376	320	0	0	1-1-42	...	
377	240	0	0	1-1-42	...	
378	240	0	0	1-1-42	...	
379	240	0	0	1-1-42	...	
380	320	0	0	...	...	Late C.M.L. 233 expired 31st December, 1941.
381	318	2	0	1-1-47	...	
382	320	0	0	1-1-47	...	
383	320	0	0	1-1-47	...	
384	320	0	0	1-1-47	...	
385	320	0	0	1-1-47	...	
386	320	0	0	1-1-47	...	
387	320	0	0	...	...	New application recommended, but not yet approved.
388	320	0	0	...	...	New application recommended, but not yet approved.
390	147	0	0	...	...	Not yet approved. (New application.)
Total Area ...	28,881	0	30			

*Approvals postponed periodically until 1942. No further action taken as regards postponement. Applications in abeyance.

THE GRIFFIN COAL MINING COMPANY, LIMITED.

Lease No.	Area.			Granted for 1st Term.	Granted for 2nd Term.	Remarks.
	a.	r.	p.			
314	200	0	0	1-1-27	1-1-48	
315	320	0	0	1-1-27	1-1-48	
316	320	0	0	1-1-27	1-1-48	
317	320	0	0	1-1-27	1-1-48	
318	320	0	0	1-1-27	1-1-48	
319	320	0	0	1-1-27	1-1-48	
Total Area	1,800	0	0			

THE EWINGTON COAL MINING CO., LTD.

Lease No.	Area			Granted for 1st Term	
	a.	r.	p.		
324	300	0	0	1-1-34	
325	300	0	0	1-1-34	
326	300	0	0	1-1-34	
327	281	1	3	1-1-34	
Total Area ...	1,181	1	3		

By Authority. William H. Wyatt, Government Printer, Perth.