TRANSCRIPT OF EVIDENCE

given before

THE ROYAL COMMISSION APPOINTED TO INQUIRE INTO THE CAUSES AND ORIGINS AND OTHER MATTERS ARISING OUT OF BUSH FIRES IN VICTORIA DURING THE MONTH OF JANUARY, 1939,

held at

MELBOURNE

on

MONDAY, 3rd APRIL, 1939.

PRESENT:

HIS HONOUR JUDGE STRETTON, Royal Commissioner.

MR. GREGORY GOWANS, appeared to assist the Commissioner.

MR. E. H. B. BARBER, appeared on behalf of the Forests Commission.

MR. R. AMREWARTHA, appeared on behalf of the Melbourne and Metropolitan Board of Works.

MR. A. D. HARDY, appeared on behalf of the Victorian Branch of the Australian Forests League.

MR. W. SWINDON, appeared on behalf of the Victorian Bush Fire Brigades Association.

WILLIAM JOHN LAKELAND, Sworn and Examined:

MR. BARBER: What is your full name?—William John Lakeland. At present I am employed by the Forests Commission in the capacity of Forests Engineer.

Your duties would include the construction of tramways, roads, weirs, and so on, and have covered the inspection of certain catchments in regard to land use and soil erosion?—Yes.

In 1937 you were appointed as the representative of the Forests Commission on the Erosion Committee, the report of which Committee has been submitted in evidence?—Yes.

Prior to joining the staff of the Forests Commission, for over 20 years
you were employed as a field and constructional engineer in Southern Asia, between Borneo and Iraq?—Yes.

You have lived in various countries in that part of the world?—Yes.

As locating engineer for the Burma railways, your duties entailed investigations of land use, on which to base railroad projects, and you also had experience in the deserts of Baluchistan and Iraq where the annual rainfall is extremely low?—Yes.

You have prepared an article on the fundamentals of this subject. That article, having regard to the late stage at which your evidence has been called, is really too long to take up the time of the Commission by reading it wholly. I propose that you should summarise the article and then I shall direct your attention specifically to one or two paragraphs of the statement. I shall then submit the whole article as an exhibit for the perusal of His Honour.

THE COMMISSIONER: Is that course assented to?

MR. BARBER: I know Mr. Gowans has assented to it.

MR. ANDREWARTHA: I have no objection to that course being taken.

MR. BARBER: (To witness): You have carefully studied the transcript of Mr. Strom's evidence and the statement he put in?—Yes.

What have you to say about it?—I am in full accord with it. There was one minor item in connection with dug-outs. I think Mr. Strom suggested that the entrance to those dug-outs should be down steps. I would modify that in certain mountainous areas where there is a possibility of ventilating by means of hydraulic air blows. With such installations you would want means of allowing water to run out. That is only a very minor detail, and generally I am in full accord with Mr. Strom's suggestions. The title of the article I have prepared is "The Role of the Forests of South Eastern Australia in relation to National Development".

EXHIBIT "Q.Q." Article prepared by witness.

I have also prepared an summary of that article, which I shall read. The summary is as follows:—
"The Role of the Forests of South Eastern Australia in Relation to National Development."

"1. This article briefly discusses the factors controlling permanent settlement in Australia and shows that climatic conditions are mainly responsible for the barrenness of the vast interior and for the concentration of European settlement, more particularly, in the south-east of the continent.

"2. Extension of settlement towards the arid interior can only be rendered possible by control of stream flow from the areas of heavy rainfall on the highlands in Eastern Victoria, and the south-east sections of New South Wales. With an irregular rainfall, varying in intensity, the construction of artificial storages, to impound the run-off in time of flood and to realise it in time of drought becomes essential.

"3. On the rich coastal strip, covered by the wet catchments of Gippsland where in some cases extensive drainage schemes have been carried out, such as the Koo-Wee-Rup and Moe swamps, the water problem is the mitigation of floods.

"4. It is generally recognised that the most favourable stream flow is found on those catchments where the soil formation has a high capacity to absorb precipitation. This capacity is very largely dependent on the condition of the forest cover in maintaining surface conditions favourable to infiltration.

"5. Again that well-known physiographer Griffith Taylor writing about the extension of settlement stated "Australia must make the most of the garland of verdure which surrounds her arid interior. Water conservation will broaden this garland."

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With the previously mentioned two objectives to be considered, we should bear in mind the words of that world authority Raphael Zen, of the United States Forest Service - 'Of all the direct influences of the forest the influence upon the supply of water in streams and upon the regularity of their flow is the most important in human economy'.

A national policy which, though considering the direct value of forests as a source of timber, fails to take full account also of their influence upon erosion, the flow of streams, and climate, may easily endanger the well-being of the whole people."

Unfortunately in the past, dating possibly from the recommendation of Reginald Murray on 1875, we find forestry concerned solely with commercial timbers. As a result of this policy isolated "Forest Reserves" are scattered all over the State, and a land use pattern where cultivation and grazing have taken form without regard to sustained use of land and water. The land use pattern as shown on the accompanying map of Victoria (Fig.5) classified according to its productiveness, is essentially one of exploitation resulting from the economic and social forces which have impinged upon the natural patterns of geological structure, topography, soil types, climatic conditions and natural vegetation. In short, land use in this State, as elsewhere in Australia, has been a scramble to convert the land and its products into cash, regardless of the future. The recent conflagration that swept the mountainous areas was doubtless the most destructive blow that has ever fallen on the forest resources of the Commonwealth and it is the penalty for our errors in the past.

There are many sections of the public who regard the policy of the Forests Commission as responsible for the disastrous fires. With such a land use pattern as that illustrated on the previously mentioned map (Fig.5) where we find scattered 'Forest Reserves', with boundaries demarcated...
regardless of topographical features, enclosing and penetrated by areas deemed suitable for grazing or agriculture controlled by others, the formulation of a sound and economic plan of fire control is an impossibility. Such maladjustments are considered in more detail in the case of the head of the Latrobe catchment, the Tambo River and the Hume Reservoir catchment.

"9. These misuses of land are due to failure to appreciate that a catchment is a unit of many parts in which abuse of one affects all others.

"10. The remedy lies in the formulation of a plan for sustained productivity and the utility of the resources of soil and water. Other factors being equal, the slope factor plays the most important role in accelerated erosion, and therefore governs the use of the land. To this end we must group our lands into those most suitable for agriculture, grazing and forest. Map No. 10 shows the procedure to be adopted.

"11. When adjusting the boundary line between the grazing land and the forest consideration must be given to the elimination of dangerous salients into the forest land. Once this boundary is fixed all forest land should be handed over to the control of the Forest authority. As the first essential in forest management is prevention and control of fire, a broad firebreak should be cut along the boundary as shown in Fig. 10. This break should not merely be cleared and left in a barren condition, but top-dressed and sown down with subterranean clover. During the spring months these breaks could be grazed under a policy of agistment and left comparatively clean, as the hot dry months approached. Thus not only would these breaks act as forest protection but would be a source of revenue.

"12. Sound administration within the forest area will call for the production of timber and control of grazing, planning for recreation and wild life, and greatest of all, vegetational control, to minimise floods on the southern slopes, and to conserve water on the north for the benefit of those arid regions lying to the north-west."
Dealing with your prepared statement (Exhibit "Q.Q."), there are one or two parts of it dealing more directly with the fire problem. On page 8, under the heading of "The Forest" you commence dealing with that problem and then it proceeds over pages 6, 7, 8 and 9. Would you like to comment on those sections of the article, or read them?—I shall read those sections.

(Witness read paragraphs 18 to 20 of article (Exhibit "Q.Q.").)

THE COMMISSIONER: As this article has been submitted in the form of an exhibit what is the purpose of having portions of it read?

MR. BARBER: I desired to direct particular attention to the passages that the witness is now reading. It would be sufficient if the witness directed attention to those passages.

THE COMMISSIONER: Is it being read for my benefit, or for the benefit of the gentlemen at the table?

MR. GOWANS: As long as I am not asked to cross-examine about it I have no objection, because I have not even seen the exhibit yet.

THE COMMISSIONER: You can rest assured that I shall read every word of it. A lot of it is not quite new to me. Mr. Strom will tell you that we had very early knowledge on this matter together; I have a very elementary knowledge, Mr. Strom has a very profound one. In all these matters do not think that I am trying to cut your case short. It is a question of whether or not it is necessary. If you think it is necessary, go ahead with it, because I should think you are the best judge of that matter.

MR. BARBER: Perhaps I can direct attention to those specific passages.

THE COMMISSIONER: The Melbourne and Metropolitan Board of Works will have access to the exhibit, and no doubt if Mr. Kelso does not agree with it during his final address he will mention it. It is the sort of thing which is above suspicion—a expression of professional opinion.

MR. BARBER: There is no question as to cross-examination about it.
THE COMMISSIONER: Such of it as I have seen in a quick glance through makes me think it would be the sort of thing that would be readily accepted by me, but of course I have not read it all.

MR. BARBER: It does get down to fundamental viewpoints.

THE COMMISSIONER: You deal with it in your own way.

MR. BARBER: I do not think it necessary for the witness to read any further. (To witness): Do you desire to further comment on those particular passages as appear in paragraphs 18 to 28 in your statement?—No, I think that ground has been pretty well covered by other witnesses.

THE COMMISSIONER: Mr. Gowans, if you find when going through the exhibit, that there are certain matters on which you should like to cross-examine the witness he can be recalled at a future date.

MR. GOWANS: Perhaps that would be the best way of dealing with it. So far as the witness has read there does not appear to be very much on which I can cross-examine, but at the same time I do not like to pass over an exhibit without knowing anything about it.

THE COMMISSIONER: Quite so, and you will have an opportunity later, if you think it wise, to have Mr. Lakeland recalled. I may desire to recall him myself when I have read the exhibit thoroughly.

MR. BARBER: Do you desire to direct attention to the various photographs and other things you have had arranged in the Court?—-They illustrate the disastrous effect of faulty land utilization. In the recommendations of Reginald Murray in 1875, whereby a forest policy seems to have been founded, it was done solely with the object of protecting valuable timber. The question of water supply and the control of catchments did not enter into consideration. As a result we have had very bad maladjustment of land utilization, which has ruined many of the headwaters of the various catchments. It is suggested that one of the first things that should be
fixed is the forest boundary. Until you get a selected area it is impossible to frame a policy of protection. You have to be given the boundary of the area to be protected. Until you have selected that area and have eliminated the faulty maladjustment of land utilization it is absolutely impossible to frame a sound policy of protection.

Looking at it strictly from the prevention of bush fire viewpoint, apart from forestry methods that we have already listened to for prevention and suppression, the fundamental thing is a proper survey and proper arrangement of land utilization?---Definitely. Is there anything else you desire to refer to in the statement?---I think that covers my main point, dealing with the fundamentals.

MR. GOWANS: There are two passages in the exhibit which I think should be read, partly because they might not be accepted as uncontroversial and partly because other witnesses will touch on the same subject. On page 8 of the exhibit the following statements appear:---

"A slow burning fire may creep over the ground appearing to do little harm. While many of the larger trees may have escaped injury entirely the younger age-classes the "rising-generation" of seedlings and saplings which were to have been the forest of the future, may have been just as surely ruined as if the fire had been of the whirl-wind type. Would any sane individual attempt to clean up the floor of the young mountain ash forest shown in prints Nos. 5 and 6 by a so-called controlled fire?

"To the young seedling and the finger-sized sapling the slow creeping fire means destruction. Where light fires are repeated at intervals of a few years forest production may be permanently kept out."
Do you draw any distinction between a controlled fire and a light fire?---

In the mountain ash area, it is impossible to control these fires. They are lit with the idea of being slow, creeping fires, but they get out of hand. The slow, creeping fire burns the humus, and damages the growing trees.

Do you draw any distinction between a light burn and a controlled burn, in the sense that a light burn may be over any area, in favourable conditions, but a controlled burn is one which must be kept within certain limits? Do you draw that distinction?---Where you have any growth, fire in any shape or form would be disastrous, especially in areas where there are thin bark trees.

I merely want to know whether you used the terms "controlled burning" and "light burning" in different ways. Do you draw any distinction?---Personally, I would eliminate all fire from those areas.

In drawing up this statement, you used the words "controlled burning" and "light burning"; are you drawing any distinction between the two?---No.

On page 9 of your statement, you deal with the beneficial effects of fire, and you state:

"Only when fire is used for a definite beneficial purpose which outweighs the evil effects is it justified. Such beneficial effects may be:

(1) For regeneration purposes.

(2) As a means of eradicating disease. (In pastures it eradicates disease, especially Botulian and Fluke. It destroys tussocks which harbour bacteria which are harmful to stock, while the tussocks spring up afresh and the young grass is eaten—F.P. Morris, National Herbarium of Victoria.)

(3) For strategic purposes to prevent the occurrence of more destructive outbreaks on large areas. Under no conditions should fire be used unless intelligently and planned to secure some benefit.
and the control should be solely in the hands of the forest authorities when within, or in close proximity, to forested country."

I am merely reading that for the information of witnesses who may follow. Now, in regard to your summary, you state that there are many sections of the public who regard the policy of the Forests Commission as being responsible for the disastrous fires. May I take it that your answer to that would be that, so long as the Forests Commission has to deal with areas which have been planned without due regard to the principles of land utilization, the Forests Commission is not to be blamed for the disastrous fires that occurred this year?---They are placed in the position of having to protect rather hopeless frontiers, or boundaries, so far as their own reserves are concerned.

You regard that as a substantial answer, at all events, to the opinion you have expressed there?---These boundaries have been framed without any regard to the topographical features, in many cases. Areas run half up a slope, in some cases, and it is more or less impossible to protect them.

How far has it been in the hands of the Forests Commission to deal with that problem and remove those obstacles?---I am afraid I cannot answer that question.

You are aware of the power they have, under their own Act, to have certain areas dedicated as forests, at the request of the Forests Commission?---Yes.

You know of the other power, I think it is in the Forests Act, or in the Lands Act, enabling the exchange of areas which have already been dedicated as forest reserves for other areas, which are not under the control of the Forests Commission?---Yes.

Do you not think that with these two powers, - the right to have areas dedicated as forest reserves, and the right to exchange areas at present dedicated as forest reserves for other lands the Forests Commission may desire to acquire - that it

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has been possible for the Forests Commission to do away with the very obstacle you have mentioned?—That was a subject brought up by the Erosion Committee. The idea of fixing these boundaries would have to be adjusted between the various Departments concerned, particularly the Forests Commission and the Lands Department. The whole question of land utilization for water catchment would have to be considered.

The matter lies mainly between the Forests Commission and the Lands Department?—I should say that the State Rivers and Water Supply Commission would have something to say about that.

In general, the State Rivers and Water Supply Commission has no land at all vested in it?—That is so, so far as I know.

Then it becomes a question as to whether the Lands Department will allow the Forests Commission to have certain lands to be dedicated as forests, and receive other areas in exchange?—It is such a tremendous subject that it would have to be considered right throughout the State, particularly in the mountainous catchment areas, and I think that is too big a problem for the Forests Commission to be able to tackle single-handed.

That is what I want to ask you. Has the Forests Commission in the past ever really tackled that problem of land utilization so far as its own areas are concerned?—I am not aware of it, so far as its boundaries are concerned, and so far as these particular objects are concerned.

Take a particular example — the Omeo forest, which we have heard referred to as a protected forest. Is it your view that the Omeo forest in its present state is of value as a protected forest?—No, but I think all these areas are leased for grazing.

I think the Forests Commission has tried to bring these areas under control under a policy of agistment. Where there are huge nearby areas of Crown land under grazing, there is no aim in cutting grazing out of these other areas.

Leave grazing out of it altogether. You know that Omeo is a reserved
forest?—Yes.

You know that the timber value of that area is very small?—That is the area to the South-east of Omeo?

The Omeo State Forest lies to the South-west of Omeo. (Plan examined by Mr. Cowsens and witness)?—That is the area I think, which may be called one of the best areas, so far as the state of preservation is concerned, in any part of the catchment area, particularly around the head waters of the Victoria River or the head of the Livingstone.

What do you say is the value of that forest?—From a protection point of view?

From any point of view?—That is quite a good forest - the best in the catchment, from a water protection point of view.

It is of very little value from a timber point of view?—There is a woolly-butt area on it - it is a question of transport, of course.

We were told by your own District Officers that they regarded this as being of very little value, from a point of view of timber, and that no fire protection work had, in fact, been carried out in that area?—That is the area that is utilized largely for winter grazing, and the risk of fire is not nearly so great there.

It was, in fact, completely burnt out in the recent fires?—I have not been up that side lately, and I cannot say personally.

All I want to get from you is this; it has been put to me by Mr. Clark and by Mr. Strom - and they are prepared, if necessary, to go into the box and reaffirm this - that, in its present condition, that forest is and was of very little value as a protection forest, and that it was of very little value in its condition immediately prior to the fire because of the fact that the timber was not of a good type, and is not in a condition to bind the soil, without something else being done to it. Are you in a position to discuss that area? I should like to know whether you are in agreement with that opinion, or whether you are opposed to it?—It is several
years since I last visited that forest, and I cannot say exactly what condition it was in prior to the fire.

If that were so, would not that be one of the areas which the Forests Commission should have considered from the point of view of land utilization, and an area which possibly it could have exchanged for some area where the timber value was of some importance, or could it not have done something to the forest to make it of value as a protection forest. If you do not feel like discussing that, because you are not familiar with the area, I shall not pursue the matter any further?—I have not seen the area for seven years, and I cannot say what condition it was in prior to the fire. When I was there, in February 1932, it was in an excellent state of preservation, and there was remarkably good young growth coming along.

MR. BARBER: Referring to this Omeo forest, whether it was good or bad, the fact remains that it was acting in a sense as a protection forest until it was burnt?—Yes, I consider it was.

MR. GOHEMA: What do you mean by acting.

MR. BARBER: Well, purporting to act. It is there for the purpose of being a protection forest. (To witness): Assuming for the moment that the trees were not very valuable, would you think it a suitable area to exchange from the Forests Commission to some other Department, to be thrown open for settlement?—No, I am rather opposed to settlement in this part of the country, for the simple reason that there is a fire risk. There are large stretches of fertile areas on the flats, but, unfortunately, the settlers are prone to fire these slopes.

THE COMMISSIONER: Do you think it is too late now for some authority to commence to set new boundaries to forest areas further in places where settlement has encroached?—I think they should be fixed according to the land utilization policy.

That is only words. Do you think it too late now for some authority to commence to set new boundaries to the forest areas behind
the places where the settlement has encroached into the forests. Do you think that these boundaries could be fixed so that they would not be encroached upon in the future, as in the past?—That is in the Hume catchment area.

In all forest areas?—It is not too late. A lot of areas are well below the subsistence level, from a farming point of view, and the younger folk have to go out and earn their livings elsewhere. I have seen numerous instances of that. In the North Fumina area, I have seen land almost slipping down into the creek. One man cleared an area there in 1908, and now he is watching that land slipping almost under his feet. He has had to remove his buildings to another area. I should say that there would be no difficulty in reclassifying that land. In fact one owner approached me the other day to see whether the land could be taken over for reafforestation. There was a break on the top of his farm, and there is a difference of three or four feet in the levels in places. In parts, the roads are practically impassable. These are in the areas in which I consider it would be nothing like too late to reclassify. That would apply to most of the country north of the Latrobe.

Apart from the areas for settlement which have proved unsuitable or have become unsuitable, do you think some authority could now set new boundaries for forest areas, further into the forests than the present boundaries?—Not further in. I should say, in many cases, that is so. Every locality should receive separate consideration. The Latrobe area should be dealt with almost down to the River.

MR. GOWANS: I would direct Your Honour's attention to the fact that two files have been put in, one from the Lands Department, and the other from the Forests Commission. They deal, on the one hand, with the question of areas being acquired for
dedication as State forests, and on the other hand, the question of the exchange of land at present in the hands of the Forests Commission or Lands Department for land under the control of other Departments, and the object of asking this witness these questions was to see how far the Forests Commission had, in fact, addressed itself to the problem of land utilization generally.

MR. HARDY: I should like to ask one or two questions of the witness. He has referred to forestry practice in other parts of the world. In the Forestry Journal of 11/1/1932, there is a passage which you might be able to explain. Do you know anything about the teak forests in Java?—Not in Java. I know the Burma forests very thoroughly.

In the Forestry Journal, there is reference to Kashmir, and the statement is made that, after the completion of the first felling, in regeneration areas, all rubbish, bushes, raw humus and felling debris are collected and burnt, in order to make the soil fir for the reception of the seed. The ash beds thus formed make excellent seed beds, and the general practice is to sow these at once, without waiting for a seed year, which in certain cases occurs only at intervals of from four to five years. It is also stated that after felling, the forests are cleaned up and are then given a complete rest for the remainder of the felling cycle, and this, it is anticipated, will give ample time for regeneration and establishment of growth before the next felling comes around. I take it that the reference to raw humus is the undecomposed leaves which are cleared away?—Generally, teak forests XXXXX carry pretty heavy spreads of leaves and it would only mean clearing this up. The leaf is large, and there would be no difficulty in burning leaves without injury to the soil.

So that, in removing the humus, or raw humus, as it is called, that would only mean clearing away the green material not yet decomposed?—Yes.
There is another passage in the Forestry Journal relating to the teak forests of Java. It is stated that clear felled areas are given out to Javanese contractors immediately on the close of the rainy season in April and May. The felling, slash, and other litter is piled on the stumps and burnt. Among other advantages, this prevents the stumps from coppicing. This is contrasted with the practice in British India, where, it is stated, the burning is limited in extent as much as possible. It is quite possible that this is wrongly printed. It looks as if there is unlimited burning in British India, and I do not think that is so?—No.

There were some other questions I intended to ask the witness, but in view of the lateness of the stage of the proceedings, I will hold them over.

THE WITNESS WITHDREW.

MR. HARDY: At this point I would like to draw Your Honour's attention to the fact that, before the outbreak of fires, the Premier consented to receive a deputation from the Forests League and the Federation of Walking Clubs, and some others, in connection with a proposal what are termed as primitive areas, which are mainly forests along the principle ridges in the water catchment areas. It is desired that the fauna and flora in these areas should not be interfered with in any way. That deputation is still held up pending the presentation of Your Honour's report. It is desired that there shall be a clear demarcation of the areas concerned. I thought it desirable to draw your attention to this matter at this stage.

THE COMMISSIONER: Thank you.

ALFRED ANDREW HOME: Sworn and Examined:

MR. BARBER: You are the Chief Technical Officer to the Forests Commission?—Yes.

You graduated from Creswick in 1919, and then you graduated from Adelaide in 1924, obtaining a B.Sc. in Forestry, and then a
Diploma of Forestry from the Forestry School at Oxford in 1930?—That is correct.

You have had experience in Victoria, and in other States, and you have, at any rate, visited Great Britain, France, Germany and Switzerland?—That is so.

You have some views, more or less fundamental, which you would like to put before the Commission. First of all, what are your views regarding the use of fire for fire prevention purposes?—In considering the use of fire for fire prevention purposes, one naturally segregates the considerations, the use of fire as applied to land devoted to timber production, and as applied to land serving rural purposes. I propose to deal primarily with the application of fire in forest areas. I am speaking particularly of controlled burning, by which I mean the controlled use of fire in the preparation of protection strips. As regards burning trees and timber in certain forests, that practice must be regarded as definitely harmful. Even the mildest and best controlled fires are productive of some harm in the trees. It may be that the fire burns only a small piece of dry wood against a trunk of a tree, but the tree catches alight and burns out, or a patch is burnt on the side of a tree. You may get other growth on that dry section, and inside there is frequently fungoid infection, or you may have insect infestation. In young trees, where the bark is thinner, and where the crown is closer to the ground, the fine damage is more apparent. You will get leaders killed off and forked stems will result. The whole tendency, so far as firing is concerned, is that, although fire may be small, with continual fires, there is a consistent degrading from the standpoint of forest growth. As regards the soil, there is also deterioration. The organic covering which normally exists on the forest floor—the green ground vegetation there—all contributes to the gradual absorption of water, which is
precipitated as rain or snow into the soil. In the absence of ground litter and dead vegetation, you get a quick run-off, and, following that, in dry or hot weather, in the absence of vegetation, you get a much quicker desiccation of the surface layers, and, as a result of capillary action, a lowering of the water tables in the soil strata. Although the patches may be limited, as each controlled burning is carried out, you will get a certain amount of soil movement, miniature sheet erosion, if you like to call it so, impoverishing the surface layer and gradually hardening it.

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THE WITNESS (CONTINUED): The effect, definitely, both as regards the crop and the site is one of deterioration. I saw some years ago an area on which the litter and scrub had not been burned but had been consistently removed year after year from the soil surface. Adjacent to that was an area on which the litter had been retained and conserved to the maximum. The tree crop, although somewhat large, was as different in the two cases as one could imagine. In one case there was well developed, healthy, vigorous growth, and in the other a poor, low, diseased, and badly formed crop. I have not seen the same results brought about by controlled experiments in firing, but in effect the results would be practically the same, and the example may be taken as a definite illustration of what will result, of what the tree crop and site will be. I have endeavoured so far to indicate as clearly as I can that, from a soil conservation and timber production standpoint, controlled firing is definitely harmful.

I go now to my third point, and admit quite freely that under Australian conditions, under the intensity of management generally obtaining in Australian forests, protective burning to varying extents is a definite necessity from the standpoint of protection. It is a very much more costly operation that is generally supposed, for, on limited areas, our own figures for controlled burning range somewhere about 1/- an acre. The cost may come lower than that but that is not an uncommon figure. At the same time, it is definitely the cheapest mode of protection that can be given in an area of high fire hazard, and rather un-intensive management which always follows when virgin forests are being brought under cultivation, as is the case in Australia. So I accept it as a basic necessity in our hardwood areas or a big proportion of them... In carrying the operation out, its locations, the parts that are to be
control burned must be very carefully planned. It is not an operation to be carried out indiscriminately. Certain areas, for preference the poor ridge sites, which are naturally of low production, should be set aside for controlled burning, as could also strips adjacent to roads and trails. In actual operation, as far as organization is concerned, those need to be planned ahead very carefully. I think there have been submitted to this Commission plans of certain areas for the carrying out of that work. That process should, and as a matter of fact will be, extended to all areas. I think that so far as controlled burning on timber lands is concerned, those are practically the only points I want to make.

I now go on to burning as a fire preventive measure on privately owned lands adjoining forest areas. Private land adjacent to forest areas are occupied for conversion in practically all cases to either agricultural or pastoral land. That is the purpose for which they have been taken up, and at the present time they are generally in process of conversion. The timber is partly cleared and part of it remains. In Australian practice fire, although this is disputed by some authorities, is considered to be an essential weapon or factor or implement, if you like to call it so, in the conversion of those areas from timber lands to pastoral or agricultural lands. It is a weapon or tool which, it is generally admitted, to secure economic clearing, the settler must accept and use. The point I am making in regard to this is that, this being the case and it being admitted and recognized that to settler must use fire, it is very highly desirable that every encouragement should be given to the occupiers of such land to use that weapon at times when it is safe to use it. I am suggesting that the concept, which at present appears in some degree to exist that firing on these lands is an illegal weapon, be removed, and that it be accepted that its free use except for a limited period when it is not possible, having in view
safety, should be permitted. If that development is possible, landholders will be materially assisted and one of the worst causes of uncontrolled firing in danger periods will be removed. The actual point is that we - I am not speaking of us as a service but of the authorities of the State generally - should make it clear that we not only refrain from saying that fire is illegal, but that, given the observance of certain conditions, we make a strong point of its legality and actual desirability. If that was possible, and could be achieved, the securing of complete black-outs during short danger periods would be very much more easily realised. Reference has been made to the desirability of surrounding the forest areas with belts or strips. I suggest that the use of fire in this fashion, although it may not achieve a clearing, will, in effect, along the forest margins bring about practically the same results.

Finally, the use of fire for a medium for protection from fire is particularly a concept of new countries, one where the form of land utilization is undergoing change, and it is usually an indication of a relatively moderate intensity of forest management and forest utilization. In our own particular case that state of affairs is accompanied by a very high fire hazard, which renders the use of fire even more necessary. As forest management intensifies and the lands adjoining the forest are utilized for pastoral and agricultural purposes, and become more fully cleared and more fully improved, the necessity for the use of fire for this purpose should slowly decrease. I draw attention to the state of affairs in the northern forests of Victoria at the present time, where the use of fire for protective purposes has almost ceased. Admittedly the hazard there is not so high as elsewhere, and the conditions are not altogether comparable, but there is some resemblance.

MR. BARRER: You now pass to your views in connection with the suppression of forest fires, particularly in regard to
It was made very clear on Saturday morning by Mr. Lane Poole that the detection and location of outbreaks of fire was a prime requisite in forest fire suppression. I do not propose to comment on that; it seems to be perfectly obvious. Passing to the next phase of the business of suppression, one comes to the consideration of the relationships between the success obtained in forest fire suppression on the one hand and the organization of the forest on the other hand; the staff which is available in it, and the intensity of reading in the area. By "organization", I mean mapping and sub-division and particularly staff. The fact that weight of man-power is necessary for suppression is incontrovertible. Similarly with forest reading, to allow rapidity of access of men and equipment, water, food supplies, and relief to all parts of the forest. That they are necessary for forest fire suppression is also unquestioned. The point I want to get on to is, what factors are instrumental in bringing about a good organization - that is to say, a well-staffed and well-roaded forest? In considering that, I think you must go immediately to the fact that in forest organization there is a dependency upon the intensity of markets. In Victoria, when considering the problem of forest fire suppression, I think it can be shown that there is a very close liaison between the intensity of marketing in various parts and the degree of success achieved in forest fire suppression. If you are looking for success in future, you must consider how far market development for forest products is possible in the forests in various parts of the State. Take three sectors of the State as a cross-cut on this question. Take, first of all, the ironbark, box areas north of the main Divide, in Bendigo and Maryborough districts. The market in those regions is particularly good. It has been good for many years, and it is good, moreover, for all types of produce from the areas. Actually I am saying that, quite definitely,
market for forest products in those areas is as complete as in any of the intensely managed European forests. There is absolutely no waste whatever. The result is that in so far as the accumulation of forest waste is concerned, the forest hazard is reduced to an absolute minimum. There are, throughout those areas, thousands of operators working in the forests and securing a living. Areas are worked over regularly. For instance, 10 years perhaps at the most, may elapse before cutting operations carried out in 1920 will be resumed on the same area in 1930. The areas are under continual operation. There is a state of rather intense activity in these belts, and the forests are more carefully, more fully, and more intensively organized and staffed than in any other part of the State. In addition, in association with the utilization carried out in these belts, extraction was at first by bullock dray, waggon and horse-drawn vehicles. The contours were easy; that is to say, the country was easy to get about in, and those means were practicable. With the development in recent years of motor transport for forest work, those old alignments with slight expenditure have been easily convertible into workable motor roads over which fast traffic can pass. The nett result is that with a good market as a basis, it has been possible - in fact, it has been necessary - to control that market and organize the areas for management to provide adequately, for a staff in the forests, and, because of the contour of the land, roading has been a simple matter to provide. In those areas the fire problem is definitely solved. I want to be perfectly honest and say that the solution of the problem is not wholly due to the factors I have been enumerating, but they have contributed very largely to it. If you consult the records of those districts, it will be found that there were bad fires there in 1911 and 1915, and worse ones near the beginning of the new century. It is obvious that there was a fire problem, but it has now been definitely solved. I suggest
that the solution is closely associated with marketing conditions.

THE COMMISSIONER: Do you suggest that persons working in the forests for a living will protect them?—Very definitely they are interested, but that is hardly the point I am trying to make. Can that inference be drawn from what you have said?—Definitely. People who are making part of their living from the forests will be more kindly inclined on the question of preserving the forests.

Do you think it would be worth while to encourage that kind of habitation of the forests in grazing areas as a check on the grazier? Could you encourage people other than graziers to go into the grazing areas to earn their living there?—The people I am speaking of are not living in the forest. They are there a great deal?—Frequently for long periods.

Would they be a check on people who are disposed to set fire to the forest for their own purposes?—To a degree they would act in a policing capacity. If the market permitted the introduction of that class of operator into the grazing country, I should say, "Yes", in answer to that question, but there are definite obstacles. In the ash areas, that is to say the Upper Yarra, Niagaroon, Erica, and Neerim the market is practically limited to one form of forest produce, trees for sawmilling. Other than to a minor extent, the utilization of heads of trees unsuitable for milling, and culled trees unsuitable for milling, does not obtain. So that in those areas there is definitely a very big residue of forest waste, and milling operations in any particular area are carried out and completed in a relatively short period, say 20 years. During that 20-year period, the utilization activity in the area is intense. For the next 60 or 70 years, while the new crop is growing, on the utilization basis which holds today, there is practically no activity, and the only job to be done is protection. The net result is that if you want a big staff in your areas, you have to
maintain them during the period when the new crop is growing, and they must be maintained solely for the purpose of protection. There is practically no utilization to occupy their attention. Comparing these areas with the northern areas, we have a very different position in regard to roading. Until four or five years ago, all extraction, both log and sawn timber, was done by tram. While the trams were running they kept the areas open, but on completion of milling activities, the trams were taken out and the tracks were kept open usually only as foot or bridle tracks. The problem of converting these tracks if they are on the right alignment, which frequently they are not, into roads for protection purposes, is an exceedingly costly business. On the completion of utilization in the ash country, we have an area in which no utilization will take place until the next crop is marketable as milling timber and in which the extraction of the crop did not provide roading access for modern transport. In such a forest at such a time there are no activities to give an incentive additional to the need for fire protection. The solution of the problem in these near-Melbourne areas is definitely to my mind, despite special budgeting that may be undertaken for roading and protection purposes, to be found in the development of markets for other than milling timber. A couple of years a paper company commenced building works to operate in the Neerim-Erica-Latrobe Valley country. The annual intake of that company from the forests in wood volume will be about half the total output of sound timber. Multiplication of manufacturing concerns of that type will go a long way to solve the secondary utilization problem.

THE COMMISSIONER: What do you mean when you say that the intake is half the output of sound timber? Do you mean the output of sound timber from all the mills in the area?—Yes. This
one company will have an intake in wood volume as great as the output of half the mills in the whole area.

How many mills are there?---Between 40 and 50. That is a guess but it is somewhere near right.

Does the paper company take all and sundry in the way of trees?---It takes what we permit it to take.

Not milling timber?---Milling timber is specifically excluded.

It takes the other?---Yes. For milling an almost faultless log is required.

The paper company is one of your forestry agents?---Definitely.

Moreover the operations of a concern of that kind are generally operations by a series of contractors. They in turn may sub-contract to small men and the necessity for roads through the area to permit the small men to operate becomes more and more necessary. It is a very definite incentive to roading and closer organization.

Is there any temptation for any people engaged in the operation to use fire indiscriminately or carelessly?---No temptation whatever, I should say.

Is there any question of them getting into the thick country by means of fire?---

(Continued on page 2486.)
THE WITNESS: There is a possibility of that sort of thing, but the men who are making their living in the bush and are liable to instant explosion if found guilty of that kind of thing, would be careful.

MR. BARBER: I take it that these small contractors would have sawn wood stacked at various places in the bush?—That is so. It would be definitely against their interests to have a fire go through where their stacked wood might be?—Yes. The point I am making is that the greatest measure may be expected to follow the development of this market for the secondary products. In the fire protection problem the development of markets is a partial solution. I hope I have made that clear.

THE COMMISSIONER: Yes; it all rests on something beyond the Forests Commission?—Exactly so far as the market development is concerned.

If markets are not available you will not get people to work in the forests?—There is a difficulty in forests of that type where work proceeds for a short period.

We may go as far as to discussing tariffs as a means of preventing bush fires, but we might not. It sounds a long cry but it is not as remote as some of the other pet theories that have been advanced?—Leaving those areas and passing to the mountain sectors, I wish to say that the eastern ranges are from the fire protection standpoint, probably the most difficult problem of the lot. The areas have not been tapped for timber. It is probable that very large sections will never be because of the low standard of the timber growth. They are exceedingly rugged and the intensity of organisation within them is definitely low. Roading is practically absent, and it is a little difficult to say how it would be developed, and for what purpose. All of this country, from a protection standpoint, is definitely a problem. I think we all admit that. We have certain suggestions to make in regard to it,
and certain points to bring forward.

MR. BARBER: Are they large protected forest areas?—Almost exclusively protected forests. In the first place the dedication of very large areas of this country of protected forest is considered to have some merit. The protection forest is a type which has not been declared as such and dedicated as such in Australia. In other parts of the world this type is recognised as very necessary in the maintenance of natural conditions in a community. In such forests the conservation of the natural conditions is the prime object of the management, and the utilization of the area, whether for timber or grazing purposes, must be a secondary objective, and must be permissible only to the extent that it does not interfere with the primary objective of protection. It has been suggested—and I am agreeing with it—that there is very grave necessity for the creation of protection forests over a considerable proportion of our highland, which should be managed with the objectives in the order as I have named them. As regards the management of these areas, the purpose is protection. The chief harm that can come to them is fire or derivatives of fire. It seems essential, therefore, that their control must be in the hands of a fire authority. I know that there has been argument over that point, but I cannot see that any other body than that responsible for protection should be the fire authority.

MR. GOWANS: You mean the body responsible for fire protection?—I thought I made that clear.

I thought there might be some confusion between responsibility for the soil?—I mean the chief danger from a protection standpoint is fire, and therefore it leads to the fire authority. In this land in Victoria at the present time the main activity is grazing. I support the view put forward by the Chairman of the Commission that control of grazing by the fire authority is necessary. In support of that I suggest that if the
grazier, being responsible directly to the authority responsible for fire control, would have the matter brought more clearly under his notice and it would be a live matter with him. Moreover, the necessity for policing the graziers is an additional warranty for the control being exercised by the fire authority in those grazing areas. Actually the organization for those high lands for grazing in conjunction with fire control should not be a very difficult matter. Grazing in this country is a summer operation, and from the graziers' standpoint dangerous summer fires are fatal. It would appear that little difficulty should be experienced in organizing the graziers to follow certain lines of fire protection. That would be helped particularly by a classification of the high lands, having in view their protection where grazing should be permissible with or without burning, or whether it should be excluded from certain areas altogether. There are in these sectors certain timbers such as woolly-butt, which are mostly of considerable economic worth. In due time, the extension of the utilization of this timber will follow, provided the protection point of view is examined, and then the necessary roading and policing of these areas will also serve as an added measure for the protection of the high lands.

The intensity of the management in these areas will be a long drawn-out process before it is achieved, and while I have made what suggestions I can, I cannot suggest any means by which there will be hope for the solution of the problem; it can only be by tightening up the control that exists at present.

MR. BARBER: I understand that the Commission has appointed a special marketing officer?—That is so.

That was two or three years ago?—I should say it was two years ago since the man was specially appointed, although he had been functioning in that capacity before.

THE COMMISSIONER: What are his duties?—Sales development.
What is sales development?—He was active in an endeavour to obtain overseas sleeper contracts to sell timber direct from lands adjacent to those of which I have been speaking. If those contracts were obtained it would contribute to a further degree of utilization, the lack of which I have been deploiring.

MR. BARBER: The office was created in order to get over the marketing problem?—In the iron-bark areas of the north we have complete markets. In the ash country—the ash proper—we are hopeful that the development of the pulp industry in Victoria—as I have said one concern is operating—will be a contributing factor in intensifying the utilization in the ash country. In the stringybark country where it is remote from Melbourne, we have no secondary markets other than those for sawmilling timber. The development of the sleeper business was particularly directed towards getting markets in these areas.

I understand that in conjunction with the C.S.I.R., special research has been carried out to try to find further uses for that timber?—That is so.

In the depths of my ignorance I gave some evidence from the Bar table to that effect that most of the forest areas were protection forests. I understand that I was not right. Is there any of the protected forests, as distinct from the reserve forests now functioning, that is used purely as protection forests?—Is any protected forest functioning as a protection forest, yes.

The question is as to the proportion?—I have to guess here, but I should say that the percentage would be exceedingly high.

THE COMMISSIONER: Would the percentage be nearly 100?—I don’t like guessing, but the percentage is high.

The argument was as to the evidence, but the evidence supports Mr. Barber surprisingly fully.

MR. BARBER: It is a matter of surprise. I was doubtful about my facts after I had stated them. How do you view the comparative failure of the organization for fire protection in January of
this year in the mountain areas.

THE COMMISSIONER: The witness may suggest that the organization had not failed?—I am not going to suggest that.

MR. BARBER: That is that the organization failed in fact to stop the conflagration?—I have definite views. I am not going to argue the point about success or failure.

Will you give us your views?—It is necessary to go back a little way once again. The commencement of works for forest protection against fires in the mountain regions to which you are particularly referring, dates from somewhere about 1926. While the suppression of fires was attempted in the nearer mountain regions prior to that year there was very little in the way of protection works. In 1926 a commencement was made to elaborate and develop a scheme of protection works to adequately serve in the protection of that very large belt. The belt is exceedingly large and it is exceedingly rugged, and it is practically impenetrable. The building of a fire protection organization insofar as works are concerned was, and still is, an exceedingly long job. It is not a thing that you can do in a year or ten years. The first thing we had to do was to get some sort of tracks to enable us to get into the belt. Having got foot-tracks in, we had to get a horse-track, and the next aim was to get in a track for wheeled vehicles. From 1926 to 1939 we were able to elaborate a certain organization. I believe that organization to be fundamentally sound, but it cracked in January because it was not anywhere complete, and it may not be complete at the rate we have been moving— the best rate we could move— for another 20 years.

THE COMMISSIONER: Why?—Because of the tremendous amount of work to be done.

Did you go back to the question of money? If you had sufficient money could you have done the work?—If you consider the road problem of the agricultural and pastoral lands and the length
of time and the amount of work and money done there, that rea-ning proposition is as child's play as compared with the rea-ding of these forest areas.

THE COMMISSIONER: Your answer is yes?---No.

What is your answer? I asked you whether it was a question of money, or the lack of money?---I beg your pardon. In part yes, and in part the lack of time and the amount of money and materialavailable. The matter of rea-ding is not a thing you can start today and put in a hundred mf miles of road this year. There is a great deal of preparatory work to be done. The point I made was that when we got the fires this year our organization - while I believed it was soundly conceived - was not completed. There is this additional point. In this year from the standpoint of forest fires we got a set of conditions which none of us had experienced hitherto. That applies not only to Victoria. In listening to Mr. Lane-Poole I gathered that they had struck something in Canberra which was in excess of any condition experienced previously. An officer of the Western Australian Department was extremely interested to get the meteorological details relevant to the recent fires, to enable him to compare them with the worst experiences they have had in that State, to see whether their organization was being built strongly enough, or whether it might also crack.

MR. BArBER: Have you anything to say about the suggestion given in evidence that the Commission has not carried out fire protection works to the same degree in protection forests as it had in reserve forests?---May I have the map held up? A few moments ago I made the point that the protection works in the mountain areas had been commenced about 1926. Those works naturally were commenced in the areas where there was the greatest activity - where the markets were best and where the timber was most valuable. The central market in Victoria - Melbourne - was kept in view, and we naturally dealt with the
areas nearest to Melbourne. It so happens that the great timber bulk of the inner country - Upper Yarra, Dandenong and the Erica districts - was composed of dedicated State forests. For a period the early works were concentrated on those areas, and I think that was natural. A commencement was made there. In connection with the idea that the Commission has not extended works to Crown lands, I don't think that the thing has been put in its right light. The Wood's Point district is almost entirely Crown lands area, and it was brought under forests control about three years ago. I think that Mr. Torbett submitted a fire protection for Wood's Point which was prepared in the early part of last year, and it definitely makes proposals for works on Crown lands for protection purposes. In the same way the Erica plan for protection works, which was drawn up last year, is an extension of a plan made some years previously to include Crown lands between Walhalla and Mt. Useful, near the valley of the Aberfeldy River. The plan was extended to include areas to which Mr. Gowans made reference.

THE COMMISSIONER: Are these in areas in which the Commission had doubts as to its rights to institute protective measures?—They are protected forests.

MR. BARBER: Do you desire to say anything about the disposal of tops?—

I understand that there has been some comment on the fact that in certain areas which were given a thinning and cleaning a proportion of the tops were let lie. Is that so?

Yes?—In connection with cleaning and thinning operations in the ash forests, that is the only portion of the State in which any tops were left following cleaning or thinning operations. The greatest proportion of tops were heaped and burned. In every case that was done for a distance adjacent to tramways, fire lines and roads; In so far as the inner portions of the areas concerned, the tops were left lying on the ground, and I suggest that there is a greater
hazard in an area in its natural state than there is in one in this condition. I believe that with the areas cleaned and the tops spread on the floor there is less risk of very fierce fires under the conditions such as we had in January last. In the one case, you have inflammable material from ground to crowns which, under conditions of low humidity, present all the requisites for an inferno.

(CONTINUED ON PAGE 2473.)
WITNESS (Continued): On the Wednesday of the week in which the fires were bad, I saw a fire burning in tops, and it was by no means a fierce fire, nor was it a dangerous one.

MR. BARBER: When you say you saw a fire burning in tops, you mean the tops or heads on the ground?—That is right. I did not mean a crown fire.

This morning, Mr. Lakeland said something about land utilization, and Mr. Gowans asked him whether the Commission had done anything in connection with the exchange of land under the power in the Forests Act; Have you anything to say about that?—Do you mean the exchange provisions of the Act particularly?

There are provisions in the Act enabling you to exchange one site of land for another, with the Lands Department, at any rate?—That condition applies for a limited time. It has been renewed on two or three occasions, I believe, and Schedules of Exchange are continually going through—small adjustments as between land for forest purposes and land for settlement purposes. On a broader scale, there was one particular case where the matter was attempted from the Forests Commission's standpoint in a much bigger way, in the Heywood district. I think that was early last year, or perhaps late in the previous year. A complete report was submitted by the local officer, through his Inspector, for a complete reclassification of the land in that area, as between forestry and other purposes.

Are you familiar with the working plans for the Grampians and the Wartook area?—Yes.

Do those plans set out the Commission's policy for those areas as being primarily efficiency of catchment area for water supply?—In both cases.

They are two separate cases?—Yes, the Wartook plan is drawn separately from the Grampians plan.

That is the primary object in each case?—In each case.

MR. HARDY: When Mr. Lane-Poole was speaking of the early history of
forests, he mentioned one method was the examination of the head and the finding of charcoal there, which indicated that, in pre-white man days, the forests were still subject to the influences of man, as I think, he put it. It was suggested that the aborigines fired the forests at times. I do not think Mr. Lane-Poole made it clear that the presence of charcoal in the peat beds did necessarily mean there was influence of man, because, if we were to suppose that lightning set fire to the forest, the charcoal found in the peat bed might have been the result of meteorological fires. Would you accept that view?—I should say it is a possibility.

The origin of the fires in the forest at that stage is subject to doubt, at any rate. It is so long ago since the peat was formed, that, although the aborigines might have been here, I think fire by lightning might have been a cause. That has been referred to in cases other than this, in other parts of the world, although it seems to be a negligible cause here?—I admit lightning is a cause of fire.

It may have been the cause of the charcoal in the peat. In cleaning a forest, would you remove dead or moribund trees because of their being a source of danger to forest workers, when the newer crop comes up, and because they were forming a breeding ground for insect pests?—That is in thinning operations quite.

Or should they be left, as some authorities say they should be, to moulder into the ground and, perhaps, make a seed bed for future crops, as they have done in the distant past?—I am afraid I do not appreciate your point.

One policy is "Hands off, do not touch anything"; the other policy is "Weed out the dead or moribund trees"?—Forestry practice aims at stimulating or speeding up to obtain from the area the maximum output in the shortest time. Under the conditions of tenure, it necessarily will follow; whereas, if you maintain your primeval forests, your retained period will be
considerably prolonged.

Leaving the old trees and the dying trees for the primitive areas, and weeding them out of the commercial plots?—That is the current practice.

Is another reason for removing the old trees that the best seed for future crops is not obtained from over-mature trees?—As far as seed goes, it is generally understood that a tree in the prime of life gives the best seed.

The retention of old trees is not an advantage with regard to seedlings?—

I have seen some good crops from old trees.

On the question of lighting fires through the forests, you have mentioned the scarring of the saplings and other trees by actual contact with the fire, the wounds healing over, and leaving no trace later on. Would you go further and say that the young saplings may be injured by the raising of the temperature of the cambium, without leaving signs?—Definitely.

One not knowing sufficient about it might go through a forest and say "This one has escaped injury, everything is all right", while internally the tree may be injured without showing external signs?—Quite.

MR. GOWANS: With respect to some of the questions asked by Mr. Hardy, did I understand you to say to him that it was the practice to remove dead trees from the forest?—In the course of thinning operations?

Yes?—In the development of a stand, suppressed stuff dies.

That is the smaller stuff you take out. What about the ring-barked trees we saw so much of in some of your forests—trees that were deliberately ring-barked because they were over-matured or diseased; they are not removed, are they?—Not at all.

What effect do they have in the way of fires?—It is very difficult to say.

You know the practice with regard to them in America; they are taken out?—They are taken out?
Yes?—Actually, quite a lot of money is spent by our people adjacent to roads and fire breaks, for distances varying from two chains to four chains, infelling old trees of that nature to increase the fire-proof condition.

The practice is actually carried out in other places than on fire breaks. Go to any place where there is any kind of intensive work being carried out by the Forests Commission, and you will find the older trees, or the diseased trees, ringbarked and allowed to stay there?—There is an operation which we term the liberation operation; ringbarking is part and parcel of such an operation, and it may be carried out in one, two, three or four series.

Dealing with what is called thinning, we were told by Mr. Elsey at Erica that a fire had started in an area where these thinnings had been laid down on the ground. He said such a fire was a difficult one to stop once it got into there, that it did definitely affect the intensity of the fire; do you disagree with that?—I agree with the fact that a fire in tops is a hard fire to suppress, but I disagree with his statement in regard to intensity. The point I made is, in so far as comparative intensities go, under bad conditions you get a far worse fire in an area where there no tops on the ground than you do where they are lying packed down.

We were told by the Chairman of the Commission, in spite of what Mr. Elsey said, that the fire menace is, in fact, reduced by extra precautions that were taken around areas which were being thinned. Is that the general practice?—I have made reference to the matter of heaping and burning tops around the periphery of such areas. The practice in summer seasons following that is to definitely strengthen patrols in those centres.

Is there any clearing of breaks around the edge which has to be thinned?—The break is actually build around the periphery. The crowns of the trees are left, and are heaped and burnt.
Are you in a position to say whether that is the invariable practice?

The surrounding, do you mean?

Q...Yes?...In every case where I made an inspection that had been carried out,

You told His Honour, appropos of a question I had been asking Mr. Lake-

land, that the practice of exchanging lands, as between the Forests Commission and the Lands Department, had been carried out from time to time. Do you know what is the present position with regard to the lists which are drawn up by each Department?

Do you know whether, in fact, there are 32,000 acres of Crown lands listed by the Lands Department for exchange, and 850 acres listed by the Forests Commission?—I am not in a position to either deny or verify that.

Are you in a position to say whether it would amount to about those figures?—I have not the slightest idea.

In answer to His Honour, you were prepared to assent to the idea that possibly one of the important factors in the comparative failure to deal with this fire menace this year was the absence of money, and the slow development of the policy of fire protection was a consequence. I suppose you would be prepared to put the causes on a very much broader basis than that? would you not?

I do not understand that.

May I suggest to you that in general there are much broader causes than the mere absence of money in the difficulty about developing the fire protection in a short time. Would you assent to this, that one such cause was the fact that there was no State fire protection scheme, a fire protection scheme applicable to the whole of the State menaced by fire?

THE COMMISSIONER:
That part of the State under the dominion of the Forests Commission?

MR. GOWANS: No, I am putting it wider than that. One cause is that there was no fire protection scheme developed for the whole of the State?—I am afraid I shall have to ask you to come closer than that before I can answer. I think I can see where you are making for, but I do not want to agree with
THE COMMISSIONER: Just answer the question you are asked, do not mind what Mr. Gowans is making for. Cannot you answer a question? This witness seems to be trying to be clever, saying that he can see what is being approached, when probably he cannot. Perhaps you will assist, Mr. Barber, by asking the witness to answer the question put to him.

MR. BARBER: With great respect, I suggest that the witness—

THE COMMISSIONER: I do not want your opinion; you can either ask the witness or not. These witnesses come in here and propose to take charge of the proceedings. It has been shot through his whole evidence; the whole thing is evident.

MR. BARBER: I beg Your Honour's pardon?

THE COMMISSIONER: This witness has come in here so full of his self-esteem that he is trying to take charge of the whole proceedings; that is clear, is it not?

MR. BARBER: I do not agree with that.

THE COMMISSIONER: We will not argue about it.

MR. GOWANS: (To witness): Perhaps I have not made myself clear in my question. What I was suggesting was this, that one of the very broad causes of the comparative failure to deal with the fire menace this year was the absence of a scheme developed for the whole of the State which might be menaced by fire?—That applies to rural lands and everything else?

The whole thing altogether: there was no co-ordinated scheme of fire protection?—Yes, I think that might be so.

Coming a little nearer, there was no State fire control authority?—Yes, I think I can agree with that.

Will you agree with this, that a further contributing cause was, that, although we had a forest authority in name, in fact there was no real authority, whether it was because of lack of power, or whether it was because of policy that it had not been directed that way, or for any other reason—in fact, we had no real forest authority operating in Victoria, A forest authority is distinct from a mere timber authority, or any narrower definition?—I think we had a forest
authority operating, definitely. I might perhaps agree with you that, in so far as that fire authority's responsibility in connection with fire was concerned, it was not in a position to make it fully operative, or intensively operative over the whole State.

That leads to the next position I shall put. In the past, the fire protection policy of the Forests Commission has not loomed as large in the general scheme of things as it should have done, that it has not fully realised the import of the proposition which you and two or three witnesses previously have put, that fire protection should be in the very forefront of forest policy. Do you think there is any merit in that suggestion, that in the past the fire protection policy has not loomed as large as it should have in the policy of the Forests Commission?---I do not think I can agree with that.

It may be suggested that, whatever may have been the policy of the Forests Commission from the point of view of forests protection, that policy was left to be carried out, as it had to be, by District Officers and Field Officers throughout the State who were inclined, according to the evidence that has been given, to put royalties before roads and other fire protection measures. Do you think it is possible, from your study of the position, that that may be the way in which the thing has broken down to some extent. No matter what the fire protection policy of the Commission may have been, when it came to implementing it to the full, somehow it has failed, that, in emphasising the silvicultural policy, it has suffered against the fire protection policy?---No, I do not think so.

Taking your evidence, I have formulated six propositions which seem to me to be not necessarily a summary of your evidence, but necessary corollaries to it. I want you to consider them, amplify them, or deny them, as you see fit. Firstly, it seems to me that there should be no lighting of fires
in timber areas, what we now call forest reserves, at any time except by or with the authority of the Forests Commission?—-
Yes.

Secondly, in private lands, the policy should be to encourage the lightening of fires, from the point of view of economic necessity, except at the black-out period?—In other words, that private owners should be encouraged to make the greatest use they can of fires during permissible periods?

Except in what we call the black-out period?—Yes, I agree with that.

Thirdly, looking at it from the point of view of machinery by which your suggestion can be put into operation, in the less valuable timbered areas there should be a more liberal burning policy adopted by the forest authority and carried out, except during the black-out period?—Yes, as an extensive means of protection in those areas, I think increased burning is necessary.

As an aid to that policy of conversion which you spoke of—conversion from purely timbered areas into agricultural or pastoral areas?—That fires should be used?

There should be a more liberal policy with regard to fires. I do not say necessarily it should be encouraged, as it would be in private areas, but there should be a more liberal policy than there has been in the past with regard to the use of fire?—-

What areas are you suggesting, if they are not private areas, that are being converted to grazing land?

I said less valuable areas, not private areas on the one hand, and not timbered areas on the other, where timber is the first consideration, as in reserved forests; but in the areas in between, in do you think there should be a more liberal policy with regard to the use of fire in those areas, with a view to bringing about the ultimate conversion of those lands into agricultural or pastoral areas?—Prior to their occupation for that purpose?

Yes?—No, I disagree with that.

What is the basis for your disagreement?—Because, at the present time,
until the purposes for which the land is to be ultimately utilized is determined, it is rather difficult to say whether it is going to remain as timber land or whether it is going to become pastoral or agricultural land.

As an aid to that determination, should you not set up some sort of inventory of all State lands at this stage and decide what you should do with it, instead of leaving it there with less valuable timber on it, and forming a fire menace. Should not something be done at present to determine what your policy will be, whether you will make it a timber area or whether you will convert it into agricultural or pastoral land? I agree that such a classification within the State to determine the purpose for which the land is to be utilized is very necessary.

Is it not necessary at this stage to decide what you are going to do with those areas where at present there is less valuable timber, or are you simply going to leave them as they are? If it could be decided, and if they could be so utilized, it should be done now.

When it is decided that those areas are best suited for conversion into agricultural or pastoral lands, is it not desirable that there should be a liberal policy of burning in order to clear them off? If that position is determined, yes.

The next proposition is that during the black-out period there should be a strong compliance with the law everywhere, whether timbered areas, private lands, or areas in between? I agree with that.

The next proposition is that the determination of the black-out period should depend on local considerations, and should not apply generally to the whole State? I agree with that.

Assuming that is the general trend of your suggestions, what are we going to do with some of the existing legislation? For instance, your suggestion is that we should endeavour to do away, as far as possible, with the concept of illegal
burning, where in fact the practice is entirely different, say, in private areas. Section 20 of the Police Offences Act, if applied strictly, would stop the lighting of fires anywhere, all the year round. Have you any suggestion to make on how that piece of legislation could fit into the scheme of things that you have been suggesting?—Only to say that if it conflicts with the scheme as adopted, amendment of the legislation will be necessary.

We may have to work that out for ourselves. In this classification between timbered areas and private property—rural lands, as you call them—where are you going to place the high plains country?—I should place that in the category of protection forests.

Would they become forest areas that would be subject to exactly the same regulation as reserved forest areas?—Yes, except that the primary objective of men is self protection.

Then you must have some kind of modification of your policy with regard to reserved forests, because, in reserved forests, nobody is going to light a fire unless it be the forest authority or the fire authority?—Yes.

On the high plain areas, you must give a certain amount of power to the people who are using those areas as grazing areas to light fires, must you not?—Either that, or co-operate with them to do it.

(CONTINUED ON PAGE 2483.)
How are we to co-operate; that is to say, what is the machinery by which that will be done?—I think it will need added policing of the grazing of those lands.

By a forest authority?—Yes, as the authority controlling those lands. That would mean employment of a great many more men than there are at present in those areas?—It would certainly mean a good many additional men.

Do you know whether there are many men in the High Plains area?—Without going into the records, I should not care to make a statement regarding the number.

If you are going to take control of grazing there, would that not mean that there would be brought into existence a force that was not previously existing?—There is one man of whom I know, but he is not on the Bogong High Plains, but on similar country down towards Mt. Howitt.

What is the altitude above which the area becomes high plains?—I have not any altitude in mind. It is a topographical and physiographical matter.

THE WITNESS WITHDREW.

MR. BARBER: Your Honour, I do not desire to call any other witnesses.

MR. GOWANS: But there are two I desire to call.

MR. MACINTOSH ELLIS, Sworn and Examined:

MR. GOWANS: You are a consulting and operating forester carrying on a practice in Melbourne?—Yes.

You are also a Bachelor of Science of Forestry in the University of Toronto, Canada?—Yes.

Would you tell us something of your experience in forestry?—My experience covers about 30 years and I have been all over Canada, in parts of the United States, and in France, Scotland, New Zealand and Australia.

You were at one time forest adviser to the New Zealand Government and director of the New Zealand State Forest Service?—Yes, for about 10 years.
You are at present forest advisor and works manager for the Australian Paper Manufacturers Ltd.?---Yes.

For four years you have been intensively operating in the central mountain ash forests, making forest surveys and organizing other work?---Yes.

You have been through all the burnt-out areas since the fire this year?---Yes.

I want you to tell us something of your views as to the effect of fire on the forest in general - in the light of some of the evidence you have heard?---The effect of fire in the ash country in which I am particularly interested was to destroy or kill the stands. It is an agency for regeneration. In other words, the ash habitat can be considered as a fire climax. It has secured regeneration, through the agency of fire. In fact, I know of no young stand of ash that has not been the result of previous destruction by fire. It has been evident that fire has been used in the way suggested long before the white man came to Australia.

I think there was some suggestion by Dr. Patton that there were some trees 3000 years old, and that that indicated that fire had not been through the area?---I do not agree with that under any consideration. In fact a tree 3000 years of age is a very rare thing in nature. You could find it in the Kauri forest of New Zealand. The life span of ash is about 300 years. That is indicated by the environment, by the type of growth of the tree, and by its physical condition.

It comes to maturity in about 80 years?---I should say that it comes to physical maturity in about 100 to 125 years.

At what stage is it millable?---At about 40 or 50 years.

That would mean that if we had a cycle of millability of about 40 or 50 years, and a cycle of conflagration of fires in a period somewhat less than that - and you could not prevent conflagration of fires - you might as well give up the job of growing
job of growing timber?—I think that you can eliminate the conflagration of fires. We have had only one record of a conflagration of any size, and that was in 1851. I am satisfied that ash is the fastest growing tree in the world. From my experience it is a tree worth looking after. You can work it on a rotation of about 90 years.

I want to take you to one other aspect of the use of fire, and that is its use in connection with milling operations and the disposal of what Americans call slash?—In young countries such as Australia, North America and New Zealand, where the forests are wild—not man-created and managed—it is not economical to use intensive methods of forest regeneration. Those may come in 50 year's time. Broadcast burning "under control" of the logged-over areas in the ash country is the best and most economic means of getting rid of the debris.

I understand that in America stack burning is used as distinct from broadcast burning?—That is used to a very limited extent. It is not the practice in North America to stack and burn. Under the conditions prevailing in the mountain ash regions, the cost of stack burning is easily £25 per acre. Under the best of conditions controlled burning under the broadcast system could not be more than £3 per acre.

Have you considered whether a requirement that millers should stack burn would make milling unprofitable, or more or less profitable?—I consider that any regulation tending towards stack burning in the ash country would make milling much less profitable.

To such an extent that it would be hardly worth while carrying on milling?—Yes.

It is carried on in Western Australia. Have you any experience of that?—In a general way. Conditions in Western Australia are quite dissimilar to our mountain ash regions. What about the use of fire in connection with silvicultural operations such as thinning?—That refers to the young age classes.
I do not recommend the use of fire except along the controls and
surrounds of the young age areas.

Do you think that the practice of taking the thinnings when cut and putting
them down where they are cut adds to the fire menace?—It does not
in the long run, although it may for a year or two. In any
forest such as an ash forest, the stuff is soon decomposed and
becomes mulch. The practice here is good and in line with
French practice.

What is the usual practice in regard to safety precaution measures at the
time when the thinnings are freshly laid down?—The usual prac-
tice to make the surround and intensify the patrols. It is
really not a big factor in increasing our fire hazards.

Have you seen it done by forest officers in mountain ash country in
Victoria?—Yes.

Have you seen the lay down a surround?—Yes. — a break.

I suppose that you are not in a position to say wether they intensified
their patrols?—I cannot speak from personal knowledge. I
know that the gang working during the thinning season are very
much larger than the gangs elsewhere.

Have you seen thinning operations carried out in other than ash areas?—
I have seen them carried out principally in silver top areas,
mainly on the same basis.

Do you think that they form any more of a fire menace?—The wood is
small and the foliage and tops soon decompose.

Coming now to the question of the use of fire as a measure of fire pro-
tection, what are your views?—I am definitely in favour of
controlled burning for the purpose of lessening fire hazards and
protecting the young age classes as well as the matured timber.
It is a practice that is adopted in every young country, and
has been used with success for many years.

It is carried out in the way that has been suggested — by the selection
of strategic positions?—Yes, that is purely a matter
of management. Principally the greatest hazard is in logged
over country. In connection with the 1939 fire, I noticed,
largely speaking, that the areas where the burning and the
damage were greatest were logged-over areas. That applied to
the areas north of Noojee, for instance. That country had
been burnt, but not under the modern policy.

What steps are taken in connection with intensive controlled burning to
avoid the danger of erosion?—That is not a great factor here
in the ash region, because the accumulated litter on the forest
floor is so heavy that a little exposure of the mineral soil
is a good thing. In my opinion there is no erosion in evidence
in that particular class of country, which soon recovers.

At all events, I presume that the area actually to be burnt in that way
would not be so extensive as to create any great danger from
the point of view of erosion?—No. It varies from 100 to
500 acres. It is intermeshed with the balance of the burnt-
over areas.

It has been suggested that there should be a breaking up of large forest
areas by means of wide cleared breaks, grassed and grazed. What are your ideas about that?—I should say that
that proposition had to deal with conflagration fires, and has
not anything to do with prevention breaks. The country in the
particular mountain ash area under consideration has been
settled for about 70 or 80 years. If that country had been
suitable for the pastoral industry, it would have been selected
long ago. A good deal of the country in East Gippsland consists
of sub-marginal forest land and is chiefly valuable for forest
purposes. The economic unit is not present and the settlers
could not live on that land. In the Otway and Strezlecki ranges,
there are about half a million acres of derelict land
which is today abandoned. That is what happens when you

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divide these mountain areas into five-mile breaks.

Suppose you cleared these areas having, say, two-mile breaks, selecting as your site the tops of ridges not necessarily for settlement. Do you think there is any merit in that suggestion?---I think there is merit in the suggestion of establishing fire breaks along the ridges, but not in the wholesale clearing of that high mountain country. That would not be economical and it certainly would not serve any useful purpose. The alternative is an intensive reading system to provide access to and to make it possible to protect the country.

To use an expression voiced by Americans, what about this policy of compartmentisation?---I have heard in the evidence references to compartments of from 1000 to 7000 acres. Ultimately, of course, that is very much too large. In any plan of forest protection, rather than consider a unit of any size, it is a matter of segregating each watershed, and each subsidiary watershed, surrounding it with breaks and dividing the areas with roads.

The essence of the plan is not to cut the map up into sections, but to place the compartments in such a way as would harmonise with the topography of the country?---That is so. In other words, in 20, 30 or 40 years, the compartments would be 100 acres under an intensive managed system.

How do you carry out this practice of compartmentisation?---You have to make a topographic plan of each watershed and sub-divide that watershed in terms of the type of timber, the soil, the means of access and the means of protection. The first boundary would be the ridges surrounding the watershed, and the internal boundaries would be according to the topography and the leading spurs.

What determines the boundary—what, in effect, is the boundary?---The break around the top of the watershed.

Is that cleared, or merely a burnt break?---It is a break that
has exposed the mineral soil.

Is it done very much in America?—It is the usual practice.

To what width?—From 16 to 40 feet.

THE COMMISSIONER: It is not supposed to be a protective break in itself?—

---It is a means of access. The Americans distinguish between

a break and a means of transportation.

MR. GOWANS: Do you carry out your controlled burning along the edges of

the break?—Yes. Just when it is required to be done.

Tell us something about the pre-suppression measures carried out in the

United States?—Those measures include detection, means of

communication, and transportation, apart from prevention and

education. The outline of that system has been given to the

Royal Commission by certain previous witnesses. The system

originated in North America about 1906 and has been developed

ever since. I can add nothing to what has already been

said on the subject.

I understand that you have been good enough to furnish to the Royal

Commission the brochure on "the theory and practice of forest

fire protection in the United States" — by A. D. Folweiler,

Associate Professor of Forestry in the Louisiana State Univers-

ity, 1937. I do not submit it as an exhibit, but it is

extremely helpful. Some suggestion has been made that North

American forests are less inflammable than are the forests in

Victoria?—North American coniferous forests are more inflamm-

ible than Australian eucalypt forests. In the last few months,

a fire in Northern Ontario burnt over 2,000,000 acres, caused

the death of 20 persons and rendered homeless about 400 others.

I understand that in British Columbia about 2,410 fires last year

destroyed 106,000 acres of virgin timber?—Yes, it was

most valuable timber. The history of fire destruction in

North America is greater than the history of such events in

Australia. The methods adopted are equally applicable to
Australia.

Much information with regard to that is to be found in the brochure?——Yes.

I understand that you know about the general measures taken in the direction of fire protection, which you think would be of value in a fire protection scheme. One suggestion you make is with regard to a Federal contribution?—Yes. In view of the fact that the central mountain forests contribute to the waters of the Murray and that more than one State, for instance, South Australia, and New South Wales are concerned, the Commonwealth Government should contribute substantially to fire protection in Victoria, even to the extent of 50 per cent of the amount involved.

That has particular application to the protection of the forests for the Hume catchment area, the water from which finds its way into the Murray and is used by States other than Victoria?—Yes. In the United States, a substantial contribution is made to the States in similar circumstances.

You agree with the desirability of co-ordinating land utilization?——Yes. In my opinion there can be only one authority dealing with the matter of fires. Mr. Kelso has already admitted that on page 1779 of the transcript of evidence, where he speaks about wild forests.

MR. GOWANS: I shall quote the portion to which you refer. It is:—

"The Board feels that it could no longer confine its attention, however efficiently, to its own areas alone. It must take some concern in what is going on in the timber areas outside of the Board's areas and perhaps remote from them."

THE WITNESS: That is a most significant remark and applies equally elsewhere, to forests and contiguous areas. There can be only one authority in the case of an emergency. With two authorities there would be chaos.

I understand that Queensland has a Co-ordinator General?—That has not a specific reference to forestry. The office referred to
is principally used for co-ordinating several departments, such as the Public Works Department, and so on, whose interests are more or less common. I think that the questions of land, forest and water would be simplified if such a control could be established. Sir Herbert Gepp referred to the idea the other day. I suggest the establishment of a Parliamentary standing committee to deal with forest, land and water. Such a method was employed for several years in New Zealand, and I found that the Committee established contact with Parliament that could not be obtained in any other way. It was a most useful body, but the principal has not been adopted to any extent in Australia. I also suggest that the Commonwealth Government should contribute any funds required for the establishment of a forest experimental station. All these problems of silviculture, forest protection, stream floors and so on, should be in the hands of an investigatory body which should be given a continuing interest throughout the areas concerned. That is needed definitely in Victoria. The forest experimental station should be manned by scientific persons who can devote the whole of their time to the problems. We do not know how to use fire in Australia, nor do we know very much about silviculture. Therefore we are continuing more or less blindly to spend money. There should be a properly organized division of the forest authority and it is a most important part of a forest programme. It is at such a point that the Commonwealth Government should make its contribution.

Do you also consider that we might learn something from the United States from the point of view of its intensive educational campaigns, carried out with the object of making people realize that the forests exist for their benefit?—As the result of my observations in this State and other parts of Australia, I am satisfied regarding the major causes of fires. My view is applicable to the fire of this year.
It was due entirely to public apathy and disregard of the law. If the Commission, as the fire authority, very much augmented its activities along the lines of juvenile and adult education, together with subsequent law enforcement, that would be a material factor in reducing fire danger and damage. I am satisfied that practically all fires in Gippsland—fires which get into valuable timber—come from the marginal areas and principally from clearing fires. If we can get the people concerned to co-operate in a subsequent manner, we would not have much more trouble with ash forests.

There is one matter I omitted to mention in the course of references to milling operations. You know that it has been suggested that it would be desirable to take the mills out of the forests. What do you think of that proposition?—I think that a sawmill should be at its source. Wood is a very low grade material, and a big problem in the exploitation of forests is in connection with transportation. If you took the mills out of the forest areas, it would mean hauling a great proportion of timber that would be useless. The proposition is unsound. There would be very few cases in which it would pay to take mills out of the forest.

As a general proposition, you are inclined to reject it?—Yes. Put the mill at the source.

Do you think that carting logs can, in some circumstances, be worth while?

—Definitely. The trouble is that logs that have to be carted long distances are the selected logs. If the mills are taken away from the forests, the low-grade logs will not be utilized.

Take a man who is carting logs from Gould, near Eridge, to Melbourne. How would it be profitable to do that?—The profit is marginal. Selected logs are brought into Melbourne from a distance of 125 miles. Most of them are converted into very thin boards, shooks, cases and that sort of thing, and on that basis there is a profit.
THE COMMISSIONER: What do you mean by "marginal" profit in that connection?—I mean there is a very small profit. Those who bring logs into Melbourne are persons who not only deal with sawn timber, but also retail another product. That is to say, they obtain part of their profit from operations subsequent to milling.

Would you call them contractors?—There are certain arrangements of which Mr. Clark knows; the Country Roads Board regulations and so enter the picture.

But are they contractors in name?—In essence they own logs and sell them to the manufacturers.

THE COMMISSIONER: Mr. Gowans wants to know what they call themselves?—Log suppliers or log merchants. It is their itinerant sort of business. There is one other point to which I wish to refer, and that is in relation to bush fire brigades. If the bush fire brigades were linked up with the fire districts, that would be a smoother way of working and perhaps add to the satisfaction of the community.

You had the fire district system in operation in New Zealand where you were responsible for its introduction?—That is so.

Would that mean that there would be a fire district for each bush fire brigade?—I tried to localize the arrangement so that the brigades would have appropriate geographical regions.

A brigade would operate in one particular area and not outside it?—Yes.

In that way there would be control of a district from the point of view of fire fighting and that control would be in the hands of the bush fire brigade?—Yes.

It would not mean that the whole of the State would be divided into fire districts, but only the most appropriate areas?—Yes. It would be done in relation to areas contiguous to Crown forests.

In regard to the difference between the Lands Department and the Forests Commission, my idea is to dedicate unalienated Crown land containing forests, and they would be provisional
State forests, but they should be put under the control of the forest authority which could withdraw from those lands from time to time by arrangement with the Lands Department.

That would be about the opposite to what is now happening?—In New Zealand we had the assistance of the late Sir Francis Bell, who by the way was a philosopher and could see the value of giving the initiative to the forest authority. That idea worked out splendidly in practice. There was no confusion, nor was there any division of responsibility. The system adopted worked out, from the angle of fire administration, in a fine way.

MR. BARBER: It would make the people who wanted the land for other than forest purposes do the "grabbing", and take the land from the forest authority. There would be something psychological in that arrangement.

THE COMMISSIONER (TO WITNESS): Is there anything further you wish to volunteer by way of information?—I have dealt with the ideal of the forest experimental station. I wish to support the land use survey idea, but I would confine the survey to more or less the forests of the State. There is also the matter of appropriation for the purpose of establishing fire measures. If the State laid down a programme for, say, 10 years, it could appropriate 10/- per acre as to capital and 6d. per acre as to maintenance. Those would be desirable figures as a basis for putting a scheme into force. The question of technical education also comes into the picture. The project envisaged is large but nevertheless excellent. It would, however, require trained men. Speaking purely from a personal angle—in the interests of Australia generally—I should like to see a strengthening of the senior school of forestry with greater usefulness than has been derived so far. There are many problems of a technical nature and Victoria, like other States, lacks highly trained forest technicians. Something will have
to be done in that direction is a successful project is to be carried out. I should like to suggest that the regional administration should be strengthened. My view is purely personal in this regard. When these forestry problems are local to a large extent, the office of inspector could be strengthened so as to give the occupant of that office more executive authority. That would prove desirable.

THE COMMISSIONER: Assuming that he is qualified to exercise that authority in a proper manner?—Yes. I assume that he would have experience and technical knowledge.

(LUNCHEON ADJOURNMENT)

(CONTINUED ON PAGE 2496.)
UPON RESUMING AT 2.15 P.M. -

MR. BARBER: It is your duty to travel around the forests of Victoria from time to time?—Yes.

Have you observed the fire precaution measures that have been taken by the Forests Commission Staff?—Yes, to a large extent.

Insofar as you have seen them, do you think they are based on proper principles?—Yes.

At any rate, so far as you have been able to observe, they have been reasonably adequate to cope with local outbreaks of fire?—Not adequate in the sense that they are a complete plan, but I should say good progress has been made in this matter, Rome was not built in a day.

I gathered from your remarks regarding the United States of America that there are lessons to be learned there, which may be of assistance to Victorian foresters?—I consider so.

Even to the extent of sending someone there, from the Forests Commission, to investigate American methods?—Yes. The progress they are making over there is so great with their marvellous resources that it would be certainly worth while every year to keep in touch.

I was not quite clear as to how far you went in your suggestion regarding burning in ash country; I take it you excluded fire altogether from young stands of trees?—Definitely.

That would be areas carrying trees up to 20 years old?—I would exclude fire from all stands of growing ash, except where it was necessary to protect them.

Except for protective purposes; exclude it from all growing ash and that would apply to all ash up to 60 and 70 years old?—Yes.

On what country would you permit burning?—I would burn all ash country in process of logging or exploitation — after the timber had been cut from it.

After the timber had been cut? That would mean in ash country, as I understand it, it would be on clear-cut country?—In my
opinion, it is a clear-cutting proposition, because fire should be used to assist regeneration.

Having regard to the fact that ash is almost invariably a clear-cutting proposition, you can cut out stands of ash, and then burn over that portion for regeneration?—Yes.

As to the stacking proposition, I suppose that could be considered in irregular stands of stringybark— I mean stacking and burning?—It may be all right there, but certainly not in ash country.

What burning would you permit in forest country generally, other than ash country? I refer to messmate, peppermint and stringybark country?—Of course you do not clear-cut through that class of country, but I would endeavour to burn where areas were cut over.

And burn once?—Once only.

You do not advocate continual burning?—I do not. That stops growth, and if you destroy that the timber goes.

MR. HARDY: Your Honour may remember that earlier witnesses were examined on the question of fire starting in bush areas after having travelled a considerable distance underground. In this connection I have before me an article published in "Empire Forestry" for March, 1922, by Ellwood Wilson, dealing with forest fires in Canada. He says: "Quebec has experienced the driest spring and early summer for many years. For over six weeks scarcely a drop of rain fell, and the wood became so dry that on rocky slopes, where the soil was thin, the trees died entirely. The soil in the forests was like so much tinder, and any fires which started sprang up again and again, after they were extinguished, and even after heavy rain had fallen. The fire would get into rotten logs or duff, creep along underground for unbelievable distances, and reappear again after everyone thought the danger was over. Owing to a large number of men being without regular employment, many persons were fishing in the woods,
and to them the majority of the fires can be directly attributed. The railroads showed a very great improvement in the matter of setting fire to forests, notably the lines under the control of the Canadian National Railways, which has been the worst offender in the past." I should like to ask the witness whether the conditions of the forests in Canada vary so much that this statement would be applicable to one kind of forest only, would he qualify that statement by stating that it would be applicable to one type of forest?---What the writer mentions there is applicable to the peat country. Spruce grows on raw humus to a large extent in swamps, and in the dry season if a fire gets in there, into the peat, it might burn for months, but you have nothing like that in Australia.

But in certain forests where the dry humus goes to a considerable depth there would be parallel to some extent, would there not?---I have not seen anything like similar conditions in Australia, but I have seen them in New Zealand.

The only evidence we had of such fires was at Anglesea and in the mountain ash country referred to by Mr. Ezard. You do not think that such conditions are generally applicable here?---No.

MR. BARBER: Can you tell us from your experience in Canada and in New Zealand, who is responsible for the watershed for city water supplies. Who is responsible for the forest management?---Usually the municipality. For instance, in Wellington, New Zealand, there is a city forester who controls the various water catchment areas, and incidentally they exploit these watersheds.

For milling?---Yes.

Even the ones supplying cities like Wellington?---Yes, they cut timber in the watersheds.

They do not seem to worry about pollution there?---No.

Do they take any internal protective measures other than protection
around the outside of the dams and protection against fire?—
It is much the same as here; there are roads and firebreaks.

But they do take these measures?—Yes.

MR. GOWANS: Is there any system of water purification?—In Wellington
I do not think so. They may chlorinate the water there, but
I have never heard of it.

Mr. Kelso says that in places where milling is done purification of the
water is necessitated?—I am not aware that that is done in
Wellington. The City Forester there used to be associated with
me and he said nothing about that.

You told us that fire protection measures in the United States are being
developed very rapidly?—Yes. They have a Civil Conservation
Corps there with anything up to 20,000 young men engaged largely
on stand betterment work.

That is a Federal organization?—Yes, Federal. They spend hundreds of
millions of dollars annually on that work.

They call these employees the C.C.C. men—not the G-men?—That is so.

Apropos of your statement regarding the rapid development of forest fire
protection measures in America I should like to quote the following
passage from "Theory and Practice of Forest Fire Protection
in the United States": "Louisiana State University, 1937":

"The numerous ramifications of the field of forest fires
protection cannot be adequately covered in a publication
of this type; this is merely an attempt to bring together
between two covers a preliminary digest of the fundamental
principles of forest fire control and, in a limited way,
their application. With this phase of forest protection
in a period of rapid evolution, much of the material con-
tained herein will shortly be obsolete. To prevent the
publication from becoming outmoded too quickly, the loose-
leaf binding has presented a means of keeping the contents
reasonable up-to-date without too great an expenditure."
I suggest that we should consider a loose-leaf system for this document Mr. Barber has put in.

THE COMMISSIONER: At the moment I did not see the import of your remarks. I must apologise to Mr. Ellis for my having been the occasion of this joke. Do you think we should adopt that suggestion, Mr. Barber?

MR. BARBER: I think I rather missed the point, Your Honour, looking at some other papers.

MR. GOWANS: Do you think it worth considering?

MR. BARBER: I think it is fair to consider any recommendation made, even by Counsel assisting the Commission.

THE WITNESS WITHDRAW.


EXHIBIT "R.R." Booklet "Mountain Ash", A.V.Galbraith. I should like to quote a short passage on page 69 as follows:--

"In recent years a fair amount of thinning and cleaning has been carried out in stands of young ash regrowth. The aims of the operations have been partly silvicultural and partly fire protection. For instance, many areas in key positions from a fire protection standpoint have been given a cleaning and a thinning and the debris disposed of. In other cases the operations have been purely silvicultural, and the debris, which rots in about two years, let lie on the floor of the forest.

"The following is an extract from the instructions issued for this work:-

"The operation to be carried out will be in the nature of a combined cleaning and thinning, undergrowth and dead, dying and diseased trees to be felled. Such material
to be laid flat on the floor of the forest and allowed to rot, except as specified hereunder:

"All material cut is to be stacked and burned -

(1) on a strip 5 chains wide along any boundary of the area being treated from which fire may be expected;

(2) on a strip 5 chains wide along each side of all roads, used tramways, firebreaks or fire-lines within or bounding the area."

(CONTINUED ON PAGE 2501.)
MR. GOWANS: You are Manager of the Hardwood Millers' Association of Victoria, are you not?—That is so.

I understand you have prepared a statement of evidence which you desire to put forward on behalf of your Association?—Yes.

I understand that your evidence deals particularly with the suggestion that the mills should be taken out of the forest as a measure, not merely of fire protection, but also as a safety precaution?—Yes. The statement I have to give is as follows:

Evidence has been given by witnesses of the desirability of enforcing sawmillers to locate their sawmilling plant outside the forest areas and in view of the Forests Commission's proposed new policy as reported in the newspapers, it is my desire to analyse the advantages and disadvantages of the proposed system.

(1) It is an established fact that in all cases it is much more costly to mill outside the forest. In those cases where the extra costs would be appreciable reduced there has to be special local conditions, such as a good market for mill waste in the form of fuel, sawdust, pulp wood, etc., and in the chief sawmilling centres such local markets are negligible.

(2) It has not been determined precisely what is meant by mills operating outside the forest. Taking the Tanjil milling areas as an example, it may be considered that Icy Creek and Noojee were outside the forest and as these townships were swept by the recent bush fires, it is reasonable to assume that something more is required. It would appear from past experience that mills operating on logs from the Tanjil areas would have to establish on high-priced cleared land in the vicinity of Heerim South if they are to be absolutely safe from bush fires, and it is reasonable to assume that such localities would be difficult and costly to purchase for the establishment of sawmills. In the case of Erica and Matlock forests and mills would have to be located in Moe or Warburton respectively at distances...
ranging from 30 to 70 miles from log supplies.

(3) Investigations by the Forests Commission and sawmillers into sawmilling practice in Victoria have proved beyond all doubt that the economic factor governing the financial success of sawmilling under Victorian conditions is an adequate and regular supply of logs to the mills at low cost. The easiest and cheapest means of achieving this is to locate the sawmill in the heart of the forest and for this reason mills are often moved a distance of only two miles in order to keep in close proximity to log supply. It is not possible to compare Victorian sawmilling practice with that of other countries for the following reasons:

(a) In mountain ash forests the country is so rough and precipitous that logging is a costly operation. American visitors have been amazed at the difficult conditions under which Victorian sawmillers operate.

(b) High grade mountain ash milling logs yield in sawn timber approximately 40% of their true volume due to heart wood, sapwood, etc., and the average yield of sawn timber from Mountain ash forests is estimated at 30% of true log volume, namely, a log weighing 3 tons will produce approximately 12 cwt. of dry sawn timber which means, in effect, that a sawmill operating at normal capacity outside the forest must transport every month 1308 tons of waste and water to produce a saleable dry product weighing 327 tons. I believe these figures to be correct within 5% of actual practice and if it is desired I will submit the basis of these calculations to the Commission to be checked. It must be apparent then that the transport of logs must be reduced to a minimum if any milling proposition is to be financially sound.

(4) Another factor which precludes any possibility of establishing mills outside the forests is the problem of faulty or defective logs. Even in high grade forests there
is always a high percentage of defective logs which will yield only 15 to 25% of sawn timber. Mills located in the forest with short log transport can convert these to sawn timber if not at a profit, then at only a slight loss, but no sawmiller unless forced by the Forests Commission would undertake to transport the best of these defective logs to a mill located even ten miles distant. In view of this considerable loss in utilization of forest products, it is difficult to understand the Forests Commission's proposed policy.

THE COMMISSIONER: What do you take to mean "the Forests Commission's proposed policy"?—The proposal to take the mills out of the forests?

I do not think that is the proposed policy of the Forests Commission.

I think the Chairman of the Forests Commission told us that that would not be practicable—-that is, if you take the Chairman's view as that of the Commission.

MR. BARBER: Page 2180 of the evidence makes that point quite clear.

MR. GOWANS: On page 2180 Mr. A. V. Galbraith says: "My eleventh point deals with centralization of mills. While it is generally considered that, the establishment of sawmills in locations other than adjacent to their log supply, must be uneconomic and not conducive to the best utilization, it is also considered that location of mills outside the forest has definite advantages from the standpoint of fire protection." He goes on to deal with that point and says that he is all for the location of mills outside dangerous areas.

THE COMMISSIONER: I think he told me in answer to a question later, that it was not a practicable proposition and would be too costly.

MR. BARBER: I think that is so—at a later stage. I think that is a fair statement of the Commission's policy. Mr. Galbraith, in his evidence in chief, went further than anyone else by
saying that it was desirable to aim at centralization outside the forest, but he dealt with the economic and practicable side of the question.

THE COMMISSIONER: He hedged his statement about with all sorts of conditions. I do not think that Mr. Quinn need anticipate the decision of the Forests Commission as being a definitely formulated policy that the mills should be taken out of the forests.

MR. BARBER: In essence our attitude is that we would love to see the mills out of the forest, but we do not think that that is possible in the existing circumstances.

THE COMMISSIONER: And you do not think it is fair?

MR. BARBER: No, but there was other evidence, other than ours, advocating that policy.

THE COMMISSIONER: Quite so. I took up this matter merely as it applied to the Forests Commission's policy, as dealt with by the witness.

MR. BARBER: Yes.

THE WITNESS: My statement continues:

(5) I have been dealing with mountain ash and woolly butt forests which supply the Melbourne market with joinery, flooring, lining, weatherboard stocks, etc., which are relatively high-priced products when compared with ordinary hardwood or building scantling. The price of select quality timber averages approximately 28/- and merchantable quality 25/-, while scantling quality sells at 19/-, all prices being F.O.R. Melbourne. There is a large number of mills operating exclusively on low grade forests producing 100% scantling quality timber. It is held that mountain ash and woolly butt sawmillers, producing high-priced timber would find it extremely difficult to carry on business on a profitable basis operating outside the forest; the case of the scantling sawmiller would be hopeless if he were forced to locate his mill outside the forest and away from direct log supply.
Another objection to the policy is that it would involve two measurements of the logs, thereby involving the sawmiller and the Forests Commission in considerable extra administration and overhead expenses.

The foregoing clauses enumerate the principal disadvantages of the proposed policy and it is now proposed to examine the advantages.

**Advantages:**

(a) Approximately 50% of the mill workers would not be endangered by forest fires. The balance of mill workers, such as feller, winch and transport drivers, etc., would still be working and living in the forests.

(b) There may be certain obscure advantages in limiting, as far as possible, the number of workers in forest areas from the point of view of fires, water conservation, and silviculture, but these advantages are readily apparent.

(c) From the sawmillers' point of view, he would not be required to house 50% of his employees.

**Analysis of Advantages:** The Forests Commission's major consideration in proposing this new policy would probably be forest protection and safety of employees. It is pertinent to enquire why it should be necessary to move mill location outside the forest for these reasons:

Regarding forest fires the statistics show that in 1928-29 only 5% of forest fires were caused by forest licensees and in 1929-30 no fires at all were caused by forest licensees. Sawmillers would represent only a small percentage of licensees. It is reasonable to assume that the percentage of fires caused by sawmillers would be less than 1% and in mountain ash and woolly butt areas, as far as my memory serves me, there has never been a disastrous fire caused by a sawmiller in the last 20 years.

An extract from Forest Commission papers on the "Cause of Forest Fires" is as follows: -- "Fires caused by forest licensees are usually not serious and cover only a small acreage - the reason being that the licensee, to protect his
his licence and his produce, takes immediate steps to quell any outbreak." It is apparent, then, the sawmills are not responsible for disastrous fires and it can readily be proved that the fires of 1926, 1932, and 1939, which started from areas outside the forest, on private property and Crown lands, during the months of November, December and January, have not been any authorities' responsibility and have therefore been ignored. It is submitted, therefore, that loss of life on sawmills has been caused by fires which originated outside sawmilling areas altogether, and to remove sawmills from the forest as part of a new policy is to admit that the Forests Commission expects, at some future date, further disastrous fires which will sweep the sawmilling areas and again endanger life and property.

Sawmill plant and machinery and buildings have always been liable to loss by disastrous bush fires, but even under existing conditions it is submitted that provided proper precautions are taken, human lives should never be lost.

It appears, therefore, that the sawmilling industry under a new policy is being asked to bear an unfair surcharge for the reason that a State authority is unable to control illicit burning on areas entirely outside the sphere of sawmilling.

It is shown that 1,300 tons of waste and water would have to be hauled considerable distances every month by sawmillers. Assuming that the extra distance were only 20 miles instead of 50 as would be the case in some instances, the cost would not be less than £5,000 per annum per mill. This would be an impossible burden for the sawmiller to carry and the whole industry would break down under such an imposition.

Interstate and Foreign Competition:- It would be wrong to expect the sawmilling industry to carry extra burdens in the way of increased costs in production because it is, under the
best of market circumstances, subject to intense competition from Tasmania and foreign and overseas imports. During the last two years, the industry has had to carry the cost of 22% rise in wages and a shorter working week, as it was found impossible in consequence of competition, to pass the extra charges on to consumers.

Salvage of Fire Killed Timber:— According to the expert Committee's report made to the Minister of Forests, it is intended to adopt a plan to salvage 900 million feet of log timber out of a total loss of 2,070 million feet of fire killed timber. In order to salvage the maximum amount of timber out of the damaged areas—which must be done in a limited period—it is proposed to place 50 mills in the fire killed timber. All of these would be in most difficult logging country and it may be found necessary, even in the short period, to chase log supplies by shifting the mills. As the salvage plan was accepted by the Forests Commission and recommended by the Commission for acceptance by the Government, it is difficult to understand the new proposals for two mills, as such a change would seriously affect salvage operations and result in a huge loss to the State.

It must be remembered that the great bulk of sawmilling from now on, will be carried out in fire killed areas, the work on which may only last four or five years. Any period beyond that depends entirely on experimental treatment for log preservation.

As many of these areas are situated in the roughest parts of the State and are almost inaccessible, it would appear to me to be a hopeless and impossible task to convey logs for any great distance.

Working Conditions and Safety Methods:— In the great majority of bush sawmills owned by members of my Association, adequate provision is made for safety of human lives. The great majority have installed dug-outs or other safety methods.
and mills generally are regarded by bush workers as a centre of communication and safety. Telephone, roads or trams all help to make a decent symbol of community settlement within the forests. The workers are provided with housing accommodation, rent free.

If, however, the working gangs had to split by working half in town and the other half left in the heart of the bush—the fate of the latter would be infinitely worse in the time of danger. It would be almost impossible to provide safety measures in the bush without mill organization close at hand. On the other hand workers who enjoyed the privilege of working in towns would have to pay rent and receive 2/- per week less pay (difference of town and mill rates), thereby causing hardship and discontent.

I am of the opinion that a crown fire in our main timber belts— all of which have been burnt this year— will be impossible for many years to come, and therefore submit, in conclusion, that sufficient thought has not been given to the various aspects of the proposed new policy and that neither theoretical nor practical considerations would justify the removal of sawmills from within the forests and proximity to the raw materials.

(CONTINUED ON PAGE 2509).
MR. GOWANS:—Do you think you have taken into account all the considerations both for and against the proposition?—I think the principal objections have been considered.

I have not heard any mention of insurance, under which a big saving would obviously be effected, would it not?—That would depend largely on what areas the mills were in. If they were in a town with an adequate water supply, which it is hard to get adjacent to saw milling areas, I suppose the rates would be less.

Have you looked into the question of how much less they would be?—No, I have not.

THE COMMISSIONER: Do most of your members insure their mill and plant?—As a rule they insure the expensive parts of the machinery only, but not the whole plant.

It is cheaply replaced?—Yes. We never regard the plant as a severe loss. If we can save the lives of our employees and save the bush, we are more or less satisfied. We cannot grrouch much about losing the mill, although it is an expensive item.

That is always on the cards.

Can you give any information about the rates of insurance on mills?—I am afraid I cannot. I could obtain them.

MR. GOWANS: Would you furnish the figure you have mentioned for verification, and, in addition, go into the rates of insurance?—Yes.

THE COMMISSIONER: I suppose the rates are very heavy?—Yes.

If you have not gone into them, you can hardly say with certainty that it would be impracticable to insure mills?—If the rates were reduced by as much as seventyfive per cent, that would be a small saving compared with the cost of hauling logs out of the forest.

MR. GOWANS: I did not hear you deal with the suggestion that it might be possible to co-ordinate the mills into one big mill in a town area?—I do not think it would be possible. A factor in the success of a sawmill is an adequate supply of logs. To some extent, you have to cater for having logs two or
three weeks ahead at least. It seems paradoxical to say that most of our fire zone areas are also our heavy snow areas in the winter. Unless you have a short haulage to mills during the winter, you get very intermittent working, and a hold-up every second day or so by snow or bad weather. If you have your mills studded around the forest where they get a regular log supply, it makes all the difference between success and failure.

You consider that the element of transport of logs in the winter may make all the difference between the economic success and failure of the mills?—I do, and the Forests Commission would have to take into consideration that roads leading out of forest areas for the carting of logs all the year round would have to be specially constructed to stand up to the extremely heavy traffic.

The Commissioner: Do you transport mill products all through the year?—In some places they are held up. Matlock area is closed for some time.

Do you carry the same weight of milled timber as of logs?—You are limited to a certain weight on various roads. I think in Matlock area the limit is three tons gross.

That is the limit you have to observe in any case. It would be quite impossible to carry logs at Matlock.

What weight do logs run to?—From three to seven or eight tons, and sometimes heavier. The difficulty would be when you had to supply orders for long lengths of sawn timber. We have supplied lengths up to sixty-four feet recently for a Federal Government job. I would not like to have to undertake to cart a big log sixty-four feet long very far. That timber had to be produced, and, if the mill had not been close to its log supply the order could not have been executed.

Would there be any saving in handling by taking the mills out of the forest?—There would be an increase in handling. There would be an increase in the cost of log haulage and in the cost of the disposal of waste at the other end.
It has been suggested that if you had one large mill dealing with a number of cutting areas, you would have a better chance of disposing of waste, particularly if it was mountain ash, so that it can be used for paper pulp?—The paper pulp people have still to come to light in using mill waste. It is held up as a theory, but has not been attempted yet as a practice.

Are they using waste?—Not to my knowledge.

MR. GOWANS: In connection with this evidence, I would direct attention to evidence given by Mr. Young on page 880 of the transcript. (Statement read "There is one other suggestion that interests me..........that seems an awfully silly question").

THE COMMISSIONER: I think Mr. Young admitted in fact that he knew nothing whatever about it. He was very positive in his evidence, but, when cross-examined, it appeared that he had not taken many factors into consideration.

MR. GOWANS: That might have been so, Your Honour, but I thought he might have considered some factors that we have not considered today.

THE WITNESS: I do not come under the category of a "spot mill".

THE COMMISSIONER: What is a spot mill?—A contraption that can be put up in a paddock in a few days and start to cut timber. We do not take those into consideration.

They are not in the main current of your industry?—No.

They are too unstable?—Yes.

MR. GOWANS: We were told by Mr. Sanderson, who cuts beyond Halls Gap, and hauls into Stawell, that he regards it as economic.

THE COMMISSIONER: In his case, it suited him, because he had a peculiarly appropriate site in Stawell for the purpose. There was no capital outlay.

MR. GOWANS: He had the advantage also that his cutting area, where his mill was burned, was on a tourist road.

THE WITNESS: There are other advantages he enjoys there. In the first place, he is milling for a local market, and he has no
competition. The cost of freight guarantees him against competition. His timber is small, and easy to cart. He cannot be compared with any other case I know of in the State. It is purely a local trade, and as I said, the idea is all very well if you have a sale for the product.

MR. GOWANS: He is cutting in a stringy bark area, where the waste would be greater than in a mountain ash area. Do you agree with that?—I think the recovery would be heavier.

THE COMMISSIONER: I think the witness is speaking of the selling of waste. Apart from the facility for selling it, is not the waste greater?—I do not think so. Sometimes a stringy bark tree cuts up better than an ash tree. The product would out of it has not be so well graded.

MR. GOWANS: Your Honour asked the witness, L.A. Sander son, to provide some information. The following letter has been received from him:

"Stawell,

March 16th, 1939.

"Dear Sir,

Judge Stretton, on his recent visit to Hall's Gap, requested me to write you, giving particulars and reasons why we are rebuilding our mills in Stawell in preference to the previous site in the Grampian mountains.

"Firstly, I will put forward the industrial view. In the bush, we use Caterpillar Tractor for Logging to Landings (two landings at a time), and from there to Mill, use Trucks and Trailers registered as 7 and 8 ton carrying capacity respectively.

"Previously we used one truck unit in bush, and the other on cartage of sawn timber from mill to Stawell, 25 miles; in eight loads of logs brought by the log truck per day, two loads represented bark, and frequently this truck assisted in timber deliveries, and, at time of fire, 250 logs were destroyed in log yard.

"Mill output is approximately 1,250,000 super
in round per year, and one truck in bush kept close to the
tractor, always had the mill well supplied with logs.

"Previously the sawdust was all burned, so also were
the edgings, and two loads of bark per day, all dead loss;
now we use the sawdust for fuel, and a little of the edgings
as well; the balance of edgings will be cut into firewood
for this town's other industries, also house consumption, and
sold at a small price, and coupled with the logs being loaded
much more quickly than sawn timber, the cost will balance the
additional amount of travelling necessary.

"We are actually carting our sawdust, edgings and heart
waste to the town, where we can sell same to assist in meeting
the additional cost of cartage.

"Additional advantages in our case are that the mill
is now right on the rails, reducing handling costs considerably
into trucks, also it does away with the timber yard we had,
to cater for the local trade, (as we are wholesale and retail).
Further, we are now situated where we can (if the Forests
Commission will grant us the necessary rights) mill all the
hardwood and red gum that is in Victoria north of us
indefinitely, or in other words, this mill can be kept going
perpetually, the source of supply being - the Grampians for
hardwood, and the surrounding country for red gum and pinus
insignis and our markets are the people north of us, where the
timber is actually grown at their back door, and is particularly
suitable for their conditions, being of lesser water content
than timber grown further south.

"This is all practicable, and will provide work
for approximately thirty men indefinitely, providing the Forests
Commission or the Country Roads Board do not impose further
restrictions, such as reduction of loading or closing of roads.
Any actions such as that would immediately cripple the business,
but in the past they have been most helpful, so we have
no reason for thinking they will be otherwise in the future.

"I might mention here that the log trucks will now do three trips each per day, which will be in all six loads of 2500 super in the round - altogether 15000 super per day, with a total mileage of an average of 300 miles per day, and the timber is then on rails.

"The previous daily mileage was 170 miles, therefore, the extra amount is 130 miles per day, and which has to be met with sale of firewood, and the various advantages as mentioned before.

"Further, as we retail iron, cement, nails, and all building requirements, we have our stocks delivered by rail right into our store room, which greatly reduces handling charges and cartage, and local tradesmen and other customers either take delivery at our mill (which is also now our yards) or we deliver at a covering charge.

"Risk of fire practically eliminated.

"Now the employees point of view. Firstly, their living conditions are very much improved, and they too are now able to participate in functions, sport and the various interests that their more fortunate workmates in the towns enjoy.

"A very important and necessary advantage is the education for the children, and any showing promise can have the advantage of technical and high school, thus giving them an even chance with the town children.

"Then, again, is the nearness of doctor and hospital for either parents or their family, and further the men are much more independent, as they are not at the mercy of a company or individual, wherein which, if their employment ceases, they have the chance of another job without having to move home and family.

"So also is the risk of flood and fire practically removed, and it is only those who have
experienced these dangers that appreciate them.

"These are some of the reasons that have influenced us to build on rails and in the town, but there are so many that I cannot possibly include them here, and, at a later date—say, three months—we would be glad to advise how the scheme is progressing, if you desire the information, and it is going to be helpful to the majority.

Yours faithfully,

(Signed) L. A. Sanderson."

MR. GOWANS: That seems to support your suggestion that this man's position is a peculiar one?—Yes, it does not work out in practice. Did you say something about cutting 10,000 per day? Fifteen thousand a day?—In the front part of the letter, he speaks of 1,250,000 super feet in the round. With the very best allowance for cutting and conversion, he would not show more than 630,000 feet of sawn timber per year. That is a small mill. It is not a forest mill, that can cut 5,000 or 6,000 a day.

THE COMMISSIONER: Is Mr. Sanderson a member of your Association?—No, but I know him well.

Do you suggest—do not answer the question if you do not want to—what his motive might be for advocating the removal of sawmills generally from the forest, if he does advocate it?—I would not like to accuse him wrongly, but I would suspect that he is in such a nice safe pocket for the local sale of his timber that he would be rather pleased to see the mills around Beech Forest or Portland with added costs. That is only a speculation.

MR. BARBER: As I understand it, a mill in the forest has to be shifted from time to time?—Yes.

That would depend, of course, upon the particular area. How often would have a mill have to be shifted?—That would depend entirely, first, on the quality of the timber, and, secondly
on the nature of the country. It may be possible for a mill to cut out a very big area without shifting.

Is the shifting of a mill a costly business, and would that cost be eliminated by centralization? Have you taken that into consideration?—It does not cost very much to shift a mill. It is a very small factor against the cost of taking logs out. It is not only the cost of taking logs out that counts, but also the impracticability of it.

Have you considered the additional social amenities enjoyed by the wives and children of mill workers if they were in town as against being in the forest?—We always consider the welfare of our employees, but if we stopped to consider their social wellbeing, none of us would be left.

It comes down to this, that you cannot see how your present profit could be maintained if the mills were taken out of the forest?—I do not see how we could entice enough private capital for the operation of a salvage plan without other cost.

Is Mr. Saxton a member of your Association?—The Saxton Timber and Trading Company is.

Have they decided to take their mill out of the forest?—They are considering it, and they would have a chance of making a success of it, because they have a local market.

Are they not considering hauling to Moe?—There is talk of it. They have a sale for everything there, and they are in a favourable position.

THE COMMISSIONER: They had a dreadful family tragedy, which may be behind their decision?—I do not think they are keen to go back into the bush.

THE WITNESS WITHDREW.

THE COMMISSION ADJOURNED UNTIL 10 A.M. ON WEDNESDAY, APRIL 5th, 1939.
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