SECOND DAY.

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 JANUARY, 1939.

Held at

MELBOURNE

on

WEDNESDAY THURSDAY, 2nd FEBRUARY, 1939.

PRESENT:-

HIS HONOR JUDGE STRETCH, ROYAL COMMISSIONER.

MR. GREGORY GOWANS appeared to assist the Commission.

MR. W. SLATER appeared on behalf of the Victorian Foresters' Association.

MR. W. F. EVANS appeared on behalf of the Federated Engine Drivers & Firemen's Association.

MR. A. W. STONEHILL appeared on behalf of the Hardwood Millers Association of Victoria.

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

MR. KELSO appeared on behalf of the Melbourne and Metropolitan Board of Works.

MRS. F. GOTTIE appeared to represent the humanitarian point of view and to request the appointment of a Ministry of Social Services.

MR. A. D. HARDY appeared on behalf of the Forests League.
JAMES FRANCIS BAIRD, sworn and examined:

MR GOWARDS: What is your full name?—James Francis Baard and I am
President of the Hardwood Killers' Association. At the
present time I live at 24 Atkinson Street, Oakleigh. I am
the owner of a mill at Erica and sawmilling mill at Oakleigh.
I have been engaged in the milling trade roughly 30 years.
I had a break of about 25) five years. It is about 35 years
since I first came into the business.

Were your mills injured during the recent bush fires in January?—No,
neither the mills nor the stacked timber.

Where is it situated exactly?—It is situated on the west bank of the
Thompson River at Erica, probably in a northerly direction
from the Erica township.

That is in the direction of the Raw Rase?—Yes.

And about how far from Erica?—The first mill is about eight miles and
the second mill about eleven miles.

How many people do you employ on those two mills?—We have about 80
men employed there at the present time doing one job and
another. The average number of men is between 80 and 85.

Do you cut timber under lease or licence from the Forests Commission?—
Yes, under licence.

I suppose you have tramways from your mills down to Erica?—Yes, we
have a tramway which we are building. We have two miles
to build. We have built about 16 miles, but up to the
present we have not coupled it up. We had a private siding
on the Walhalla line but it was not very suitable. We have
undertaken to put a line into Erica railway station to
couple up from where we ran off the other line running down
to our private siding—about 6½ miles. We run through,
I think, 17 different private blocks of property. We have
right-of-ways through those blocks, and we constructed
about 4½ miles of that 6½ miles. Now we are at a dead
end. We do not know whether it will pay us to complete
the unfinished portion.

Why would it not pay you?—Because of the short tenure. Also, we have to straight away alter lines at the other end to push it through; because we know the salvage timber will not last anything like the green timber. Therefore we have to take our lines off the end near the town to the other end to get what we can.

Can you tell the Commission the first time this year that the fires began to threaten your mills?—It was early in the New Year, I would say somewhere around the 4th or 5th of January. I just could not say exactly but about a week after the New Year they started to look ugly. There were lesser fires; we had fires about Christmas time.

Taking these fires about Christmas time, in what direction would they be?—There were fires burning all through the Christmas holidays. I was there myself and there were fires burning on the eastern side of us, across the Thompson river practically the whole of the Christmas time.

Were they large or small fires?—They were fairly large, but the Forests Commission were dealing with them and keeping them in bounds.

Did you or your employees give them any assistance?—No, not then. Our men were all away and I do not think I would be much good myself.

When the fires became threatening in the New Year were they the same fires or new ones?—That same fire across the Thompson River. It came round our stacking yards in the No. 1 mill and threatened us. We had a great deal of fighting to do and a great deal of worry. If I might say so, what made our troubles less was that the Forests Commission allowed us to burn around our mills and stacked timber. They gave us permission earlier in the New Year. We burnt
around both mills and the stacked timber about September or October. We burnt some of the rough scrub, which made the fire, when it did come, of a less volume and easier to control.

When you burnt these precautionary fires did you do so under the control of the Forests Commission?—Yes, with their permission.

Was there a Forests officer present?—No. The Forestry officers well know we understand how to handle fires. They never bother us.

THE COMMISSIONER: What is your tenure?—We have no tenure. We just pay our royalties. Really there is no tenure.

You have a licence from the Forests Commission?—Yes, we are licensed to cut from year to year. That is the usual tenure.

That could be revoked at any moment?—Yes, but it has never been known to have been done.

I suppose you have a good deal of capital locked up in your mills?—Yes, we have.

That could be taken from you at any moment?—It could be if we grossly abused the Forest laws, which I do not think we are likely to do.

MR. GOWARDS: Of your own knowledge or from reports can you give the Commission any idea of the cause of the small fires which occurred before Christmas?—I was born and practically reared in Gippsland, and I think I know the whole bush fire trouble. Naturally there is a number of people who live adjacent to bush areas, and probably right in bush areas as the clear country runs out to the foothills — they get in that country and when the scrub starts to grow up round them it is only natural for them to burn that scrub away — in fact they have to do so. If they did not do so there would be much greater loss of life than we have had. That practice goes on year after year. These people have to burn the scrub to live. If they did not burn it
they could not live as the scrub would grow up and they
would be wiped out. Unfortunately there is always somebody
who gets into one of these places who does not understand
how to handle fires. They light a fire when it should
not be lit, that is in the period of the year when
fires are dangerous. They will light fires at that time
and those are the people, I would say who are the cause
of the fires. Nothing is done wilfully, but I think it
is more through ignorance than anything else. They know
other people are burning and they try to follow suit; but
do so at a time when it is absolutely dangerous. I do not
think anybody who has the knowledge lights a fire at a time
when it would injure any person.

I suppose these fires would be lit even in the prohibited period between
November and March?—No, I could not say that. I would
say probably November or December they may have been lit,
because the fires that really caused the trouble came from
down Tanjil way, from the south-west of us. They worked
over the hills and those fires really destroyed our timber.
We did control the fire we were battling with, that is the
fire that crossed the Thompson river. We not only saved
the mills but we saved a young forest. We were anxious to
save it because we knew it was of value. It was the
property of the Forests Commission. We knew it was of
value, and our men together with the Forestry officers
struggled with that fire for about a fortnight. We saved
our mills, our stacked timber, and practically the whole
of that young timber. The fire that came over the mount
came on that bad Friday. Our men were battling to save the
No.2 mill and it went while they were battling.

Tell the Commission the steps you took in checking this fire?

THE COMMISSIONER: Not on that date, but the general scheme of protection?

our general scheme of protection is that probably
in the early spring the scrub is cut around our mills.

How far?—Not a great way; a few chains. We just cut it all round the mills.

Give me an idea how far it is?—It varies according to how the scrub is. We cut that scrub to make a face so it will light and burn back into the other scrub. After that fire has been burnt one year you cannot repeat the operation because it does not grow quickly enough to be burnt the next year. You cut the scrub near the mill, rake it away and burn it.

MR. GOWANS: I suppose in burning back you select a day?—What we did was to burn back and save our No. 2 mill on Friday.

We burnt back between 3 and 4 o'clock.

Do you mean Friday the 12th?—Yes, we burnt back and saved the mill.

What was the direction of the wind?—It was in a pocket and was not in any particular direction. We had waked away from where that burn finished. It does not matter what direction the fire is in, because you have an up draught. When they reckoned the fire was within striking distance they lit the fire to burn back. They told me that as soon as it was lit it was down the hill. It would not have been with the wind, because there was no wind there, yet that fire went like a flash towards the approaching fire. The up draught of the flames caused the wind to rush in from all quarters.

THE COMMISSIONER: If you misjudged it it would go the wrong way?—
If you misjudge it, you are gone.

MR. GOWANS: I suppose those tactics would only be justified in the last extremity?—Yes, absolutely. No man will burn back unless he has to, because he runs the risk of burning his own property.

I suppose that once you start off this back fire it is a question of letting it go; there is no chance of checking it?—It
burns back to where the fires meet.

Were you able to take any precaution by way of flanking that fire?—

You could not flank anything like that. The time was too short, as it would not be more than 10 minutes until it met the other fire. It is then a case of getting busy and saving your property. The men were kept busy for hours and practically all Friday night.

THE COMMISSIONER: Will you tell the Commission of your preparations in the early spring. One season you burn back, the next season you are cutting and clearing away what was burnt the previous year. How far do you burn the break?—

Very little. If you did a chain it would be ample, because there is very little to burn after a year. It takes about three years to make a growth that would cause any trouble.

MR. GONARIS: In the first year you burn back, how far would you burn back?—Probably for half a mile, as far as it would go in the early part of the season; but a fire will not go too far in September, in a normal year. Even this year we burnt in September and October and it did not do any harm.

Do there any danger of that fire getting away from you?—No, it could not do any harm if it did.

Do you take any steps to check the fire?—We are lucky if we get it to burn enough.

What steps do you take?—These fires never trouble you. The trouble is to get them to burn enough. They will always go out overnight and will never burn anything.

You mean at that time of the year?—Yes.

You know of cases in which logs will burn for weeks without any perceptible sign?—That is quite true.

Is that only in the hot season, or would that apply at that time also?—What I am trying to convey is that if you get a day in the early part of the season you are a lucky man.
You have no chance of burning anything except what is
out and dry, and if you get a day suitable in the early
part of the season you know that it will not be followed
by a spell of hot weather. You can burn quite confidently
and it is quite all right; but if you leave it until later
that same stuff may burn you out. Any man in the bush knows
there will be fires if the fodder is there to feed them.

Would you suggest that everybody should be permitted to do that, or
only those people who are sufficiently expert to justify
the confidence of the Forest Commission?—I would
certainly not say that everybody should do it, because very
few people have a chance to gain a knowledge of it. I
think that in every milling centre there should be a
committee formed by the Forestry officers and the sawmillers,
and that Committee should direct the people in that district
when to burn and when not to burn. When that committee
stated it was time to stop burning I think it should be
a criminal act for anyone to light a fire. However I
not think it is almost an criminal an act/to light a fire
at the right time.

You were telling the Commission the first step you take is to burn
back one year and the following year you cannot burn
because there is not sufficient undergrowth. What do you
do then?—There is very little danger. We generally
cut the scrub and make it back, because the scrub that
grows the first year is so green that I would say it
would actually prevent a fire, and not help it. The
young growth is always very green and there is not much
of it. I would say it would be more of a deterrent to the
fire than a help.

You were going to tell the Commission your general precautionary
measures?—Yes. The general precautionary measures are
the burning as I have stated, and as a precaution we
make dug-outs.

The Commissioner: That is not a preventative measure, is it?—I thought that a preventative measure. However, in my mind the only way to prevent fires is to burn at the right time. All you can do is to use fire to fight fire. That is the practice the Forests Commission adopts in the mountain ash country. That is very good, but I think they could thin a certain section on each side of these breaks, probably eight or ten chains each side. I think the rubbish they cut down should be destroyed and the part that was thinned would not help a fire in any way. It would be just the same as though the trees were not there. It would be necessary to leave a track up the middle where Forestry officers could travel but they need only be about ten feet wide. I should say they should clear or thin a strip of 5 chains on either side and let the young trees come on.

Would that be the felling of the tall timber?—No, cutting out all the scrub and just leaving the trees. I suppose for every tree that would be left they would cut down ten; these forests grow very thickly. It has not been done very much but I would say if it were it would cause a real good break. If we have to burn that scrub at a time of the year when it would not do much harm, it should be done.

Would the fire not bridge the thin portion of the break and then get into the thick timber?—No, because it would not burn in those trees.

I mean would it not bridge the break and travel through the tree tops?—It is possible, but it is not natural for fires in the mountain ash areas. It is only on very exceptional days when the fires seem to travel in the tree tops. Mountain ash is very poor burning timber. However, on a day like that Friday it was an exceptional day. I do not know
whether I am in order in telling you this, but I think you should know. My son and a bush manager told me before the Christmas holidays that if we did not get rain in the near future the whole bush would go up. My son said "I have never seen conditions so suitable for bush fires in my life as they are now." "Any time you walk through the bush you can feel the soft springy matter underneath but right now when you walk through the bush your feet will cut right through. It is as brittle as cheese and dry as tinder. That was back in November or December and it just shows that anybody who was observant could see what was happening. The conditions were there. The bush fires are only caused when conditions to suit them are present. I do not think anybody is to blame; I think fires are always with us. There is always somebody foolish enough to light fires. I have seen people burn snakes. The fire will always get away.

Your opinion is that fires are generally caused by some person, not by natural causes?—Yes. I think they are mostly caused by people through want of knowledge. I do not think they are done wilfully.

Do you think any of them are caused by natural causes?—We know lightning causes fire. In fact, Mr. Saxon told me he saw lightning strike a tree near Mr. Ingram's mill and they had a real job to put it out.

MR. GOWANS: That is near Hoojoo?—In Tanjil. That was during those bush fires.

THE COMMISSIONER: Do you know of any other natural causes except lightning?—They do say glass will cause fire, but I have never seen it, although I have seen fire jump up from suitable places. I have seen sawdust heaps get alight from underneath when apparently out. However, that is about the only way I have seen a fire caused, and these
heaps were on fire underneath.

Mr. Cowans: They might be caused by spontaneous combustion?—-I do not think so. Sawdust will burn underneath for years without breaking out, and then suddenly break out.

At the time you and your son became aware of those abnormal conditions in the bush was it possible to take any further precautions other than the ones you had already taken?—-No.

It was too late then?—-Yes.

Are there any breaks cut through the forest in the region of your mills?—-There are breaks everywhere—every mile or so.

About what width are they?—-Roughly 14 or 15 ft., but they are not fire breaks, only to burn back from.

They are made as a jumping off ground for burning off?—-That is the idea.

I suppose the importance of keeping those breaks clear is not so great?—-It would not be so great, but still I think they should be kept clear.

Were the breaks in the region of your mills cleared?—-They were kept clear. In fact, I can give you a piece of information in regard to that?—-There was a break of roughly a mile on the north side of my No.1 mill, and when the fire came up from the river our men went down and lit along that break. Of course, the river was probably down three or four miles. They found it so effective in stopping the fire at the break that my son rang the Forestry officer and told him they appeared to be able to hold the fire along that break which is running about a mile from our No.1 mill. My son told him the trouble was that it would get into the regeneration part. He said "Can you spare me a few men. It is only a chance but if you can I will put my men in and will cut a break running from that line across the hillside to our No.1 mill". I suppose that is a distance of about one mile.
or one and a quarter miles. That break was finished. They just cut the break, rolled it off, and lit it. The fire was following them. They cut that break and burnt back from it. They finished it on the Thursday evening before Friday the 15th. That break held that fire, as bad as it was, until 4 o'clock on Friday. They held the fire at that break right along the hillside, which is fairly steep, until a piece of bark flew back behind them.

For how long did they hold the fire there?—Until 4 o'clock on that bad Friday. I reckon that is equal to six months of any ordinary time.

What time did it reach the break?—It was there the whole time. It was there the day before. It was a wonderful effort, and to me it was something that I did not think was possible. I did not think it was possible to hold a fire on a day like that, but it was held. It was blowing up to the regeneration. We did not want it to get up there. We went up a couple of miles and ran across in a different direction. We made a new break and burnt on one side of that break and the other side of the other break.

The Commissioner: What direction was the wind. I do not understand how you burnt back unless there was a fire in the vicinity sucking it in?—It will always run back. You get the scrub and rake it away and there is nothing to burn. When you light a fire under those conditions it is quite a harmless thing; it is only when it gets momentum on that it gets dangerous. You think you can do anything with it, but when it gets a go on it gathers momentum.

Is that irrespective of the direction of the wind?—The wind plays a great part, also the hillside; but in this case the stuff was so dry we were burning right down hill, and I should say against the wind. Certainly the wind was not helping us.
Mr. Gowan: I suppose on a day like Friday when it would still burn back a mile away it would go more slowly against the wind than with it?—Yes, but it was such a day that a man would only light when absolutely forced to do so. We were forced to do so because the fire was right on us. No man with property in the bush would light unless absolutely forced to do so. On an ordinary day you might not light to clear yourself a bit earlier and cause the same amount of danger to yourself but wait until the night when it would be less dangerous.

I take it that when you are burning off like that you have to have men on the flanks of the fire?—We had all our 80 men employed. We paid $1,000 in wages without producing one foot of timber, and still it got all our bridges which we have to rebuild. Really that is the cost of the fire to us without any production.

I suppose we can take it from your evidence that you belong to the school of thought which believes in burning off as a preventive measure. You know, of course, that there is another school of thought that this burning off causes insalubrious damage to the forests?—Yes, I know that; but of course mountain ash forests are very difficult to deal with. Mills are nearly always placed on the rim of the mountain ash belt, because they do not like the thick timber to build in. They bring the timber out from the forest to the mill. To burn the mountain ash country is a very sickish job. If you burn it with a heavy fire, you kill the timber. In the old days when timber was plentiful we did burn forests. There was no restriction. I have never known a miller to kill timber, because he was looking after it. I suppose as they got more mills in the bush, and inexperienced people were getting into the bush it was absolutely necessary to put the precautions on and stop those people because they
would have burnt the world. It is only people with bush fire experience who know when and how to burn. You get that experience with time.

Apart altogether from destroying the timber there is also the criticism that it burns the carpet off the floor of the forest and so allows the rainfall to get away?—I do not think that comes in. I do not believe that at all; but what it does is to form mature, as it is rotting vegetation. I would say it would be very essential to retain that if you could; but our view is that if you try and retain that you might lose a lot. It is a question for the department, whether it would be better to try and save the whole or portion. I would not care to offer an opinion on it; it is really a forestry matter.

But I suppose you have often seen an area which has been burnt off in a hot fire where there is nothing to retain the moisture on the ground. It runs away on the banks and there is erosion and so on?—There is no erosion to speak of in that country. The erosion in the mountain ash country is very slow, because it is nearly always granite country and very porous. I have never seen erosion taking place in mountain ash bush. Any normal rain would soak in and it would be phenomenal rain that would not be absorbed.

I suppose you have seen the surface of such an area which, at all events, looks as though it would not hold any rain at all?—No, not in the mountain ash country. In other country, yes; that is the timber that gets killed with the fires. The other timber is practically immune from fires. There may be a small proportion killed, but very little of the thicker barked timber.

We take it the officers of the Forests Commission approved of these methods you adopt?—The Forests Commission did not only approve, but at our suggestion they really helped us. They sent men up to help us burn all the rough along the valley
in the early part of this year. They have done that in other years, so I have nothing to complain of with regard to the Forests Commission. I think that if they were asked they would give anybody any help. A lot of people would not make the request and then complain they were stopped because of the Proclamation that is put out to stop all and sundry burning. Within reason I think the Forests Commission not only gives permission, but every assistance.

Are there Board of Works areas near you?—No, but I have been near them when I was at Warburton.

What about the State Rivers & Water Supply Commission?—I do not know.

How do they burn off?—I think the scrub qualities of their areas would not help them to any appreciable extent. I know they want consider it is an advantage, which I suppose it is, but there are vast areas very thickly scrubbed which are a real menace from the bush fire point of view.

Does that apply to the Thompson River near you?—No, it does not; but it would be a very difficult matter to have to deal with.

In what way?—They have to put fire precautions in. They want to conserve the water. If you burn the watershed you get all the ash and charcoal into the reception basin, which I suppose in turn is conveyed to town for the people to consume. They try and prevent that. Their position is very difficult.

You regard some of their areas as a menace to forests?—They are, but I cannot see any way to overcome it, that is, if you want pure water.

Suppose they burnt breaks along the edges of their areas?—That would be a safeguard and a great help. There is always somebody to start a fire if the conditions are suitable.
You are aware, are you not of criticism that is levelled at millers that when cutting timber they leave the tops of the branches around?—My answer to that is, that in all cases a miller has really got to burn his debris. It is part and parcel of his licence. If we did not burn it up we would be notified, and I do not know that we would not be put out of the forest. I have never allowed that to happen. We are only too pleased to get rid of that. We know our winches and ropes are in those parts and if that debris got on fire might burn £1000 or £2000 worth of material.

You are required by the Forestry officers to burn this from time to time?—Yes, but we do not want any pushing to do that. We all do it. A man would be absolutely mad if he did not.

You have heard the criticism?—No, I have not, as a matter of fact.

THE COMMISSIONER: Not as applied to yourself?—I have not really heard it as a criticism of anybody. If it is I think it is thoroughly unfounded.

I have not heard it until I heard it from Mr. Cowans.

MR. COWANS: I think I have heard it somewhere?—There is a lot of criticism from people who do not know anything. I might have heard it but did not take any notice.

With regard to the Forests Commission regulations, have you anything to say to the Commission which might assist it in assessing the value of those regulations as they stand, or necessity for amendment?—I do not think that will be necessary from a lay person or even a samiller. We know the conditions were unparalleled. I think the Forests Commission has a lot of intelligent officers and I would naturally say they do not want any recommendations from myself or anyone else. They will take full advantage of the knowledge they have to try and cope with future fires. There has never been anything like this before; it was absolutely
unprecedented. I have never seen anything like it before although I was born and bred in Gippsland. I think the Forests Commission will be fully alive from now on to make the best possible laws they can.

You cannot suggest any particular regulations you would like to see in force other than what you have stated?—No, I do not think so. I know full well the Forests Commission would accept them from me if necessary, and any assistance I could give.

Do you think you have enough Forestry officers around your area?——Yes, I think so.

What dug-outs have you at your place?—We have one at each mill.

We really put tunnels in the hills. We would drive in about 20 ft. and then put a "T" piece in.

THE COMMISSIONER: The "T" piece is at the end furthest from the mouth?—Yes. We put 2 40-gallon drums of fresh water in the tunnel, and we also fitted them with oxy cylinders in case the air got bad. That was just a precaution. Really it was our engineer who gave us the idea. Somebody said the air might get very foul and he said "What about an oxy cylinder?" We came down to Melbourne to get some; they were not very plentiful as they had been working with them. I sent half a dozen cylinders up and they put one cylinder in each dug-out, and kept the others handy. I thought they would be very handy, also a very big help.

Would it not explode in the heat?—No, it would not. However, there is no heat right in the tunnel. I did warn them how to let it go, and I allotted a man at each mill to take charge of it. They were going to let it go through a wet rag so there could not be an explosion.

Yes, you would have everybody poisoned if you just turned the gas on. People would be rendered unconscious?—Yes, but we put a man in charge of each cylinder and explained to him that he would only have to allow sufficient oxygen to
escape to make breathing easy, and then he was to cut it off.

MR. GOWANS: It was pure oxygen?—Yes.

Did you take any other precautions with regard to the ventilation of the place?—You cannot very well, because the dug-out would probably be 12 or 14 ft. underground. I think vents allow the hot air in and it fills up the tunnel.

We think ventilation is unnecessary because the air underneath is quite cool. Any of our men who got knocked out fighting the fire were carried into the tunnels and they were restored in no time because of the cool conditions there.

THE COMMISSIONER: How long did you find it necessary to use the dug-outs as shelters when the fire was passing?—They were never used as shelters at all because we had cleaned well out.

The fire was not as close as that?—It was there all the time. It was not so close as to make you go off to the dug-outs?—It was all round us, but not so hot as to go to the dug-outs. The men were there all the time. The fire was not so hot that the men could not save the mills.

Suppose the only precaution you had taken was the construction of these dug-outs and you had been burnt out. How long do you think, on that Friday, it would have been necessary to shelter in the dug-outs while the force of the fire passed?—It may have been for hours on that Friday; it may have been a matter of two or three hours.

MR. GOWANS: What is the dimension of the dug-out at the No.1 mill?—I have never taken such notice. I suppose it would be 6 ft. high, 7 ft. wide, and it runs in about 20 odd ft. There is a "T" piece on the end. There would be ample room for everybody if it was needed. They stored it with furniture. We were asked if it could be used for furniture and we offered no objection, because we did not
think it would be used.

Did you in fact empty the furniture out at the time?---No, we knew it was not necessary. They knew it was there and it would have been emptied out at once if necessary.

Is the dug-out timbered?---No, it is not necessary.

Is there any support at all?---Just at the front where it starts, it is timbered. There is earth thrown over it, and there is an iron door.

I have heard a suggestion that some of the dug-outs are timbered throughout; would you make any comment on the desirability or danger of that?---I would say that if it were necessary to timber a dug-out to stop the earth falling in it would be a good idea, providing that water was put in the dug-out. I do not think the timber in a dug-out, even if it were dry enough to burn would take fire; but a supply of water to put the fire out if the timber did catch on fire would be necessary. I do not think there would be any danger of the timber in the dug-out catching fire.

You were going to tell the Commission of the dug-out at No.2 mill; is that about the same size?---Yes, although much longer. It is a very good dug-out. I think there is a spring of water running out at the end of it. I think they have water practically all the time. It was put in at a lower level.

Roughly it is of the same design as the other dug-out?---Yes, although there is not a "T" piece at the end. The tunnel runs in 30 odd feet.

That is big enough to shelter everybody at the mill?---Yes.

What is the distance between the two mills?---About three miles.

It would be necessary to have a dug-out at each mill. There is no sense in relying on getting to the dug-out at the other mill?---No.

Is that work carried out by you voluntarily or is there some regulation with regard to it?---The Forests Commission asked us to do it, but there is no compulsion to do it as far as I am aware.
THE COMMISSIONER: Is there any specification given to you for the
construction of these dug-outs?—No, there has not been.
We are supposed to use our own intelligence. I think it
would be very difficult to do that because of the sites.
Where you can get a tunnel into a hill, the further you go
in the deeper it will be and the more ground you will have
above the dug-out. However, this other mill was built on
flat country, where those conditions could not apply. On
flat country they would have to make a cut in the ground,
put logs over it, with earth on top. That would be quite
safe. The only trouble would be in regard to falling trees,
one would not want to have trees near that might fall on
the dug-out, as that might destroy it.

MR. COWANS: It has been stated that every mill in Victoria has not a
dug-out. Does that agree with your experience?—I do not
think that is right. Really I have never bothered my
head as to that. If I went to a mill I would not bother
looking for a dug-out. I would be looking at the machinery
and so on.

Can you recollect any mill you have visited, where you know positively
there was no dug-out?—No, I really could not say. I
have heard other people say there have not been dug-outs
at the mills, but to my knowledge that is not so.

When did you put in these dug-outs?—About six years ago. We put
in a dug-out at the No. 1 mill as soon as we built the
mill and got ready to start.

Were your mills there in the 1930 fires?—When I went out to Bega
I bought O'Shea's mills. O'Shea did not have dug-outs,
and he lost some men.

There were some fires in 1932?—Yes.

Was it then they lost the mill?—That was the time they had a loss
of life. As soon as we went out and had the mill built
we put the dug-out in.
MR. SLATER: Your experience indicates readiness on the part of the Forestry officers to work closely with you in relation to fire prevention measures?—Absolutely.

I think you indicated that on this last occasion, Mr. Elsey, the local Forestry officer, repeatedly responded to the suggestions which you made, and co-operated with you in regard to fire prevention measures?—Yes, absolutely. I might say Mr. Elsey was very busy with other people. He knew we had a number of men of our own and that we were fairly capable, and he used to ring us up.

There was complete co-operation between Mr. Elsey and you people in relation to the suggestion you made for arresting the progress of the fire?—Absolutely.

May I take it that on every occasion there has been readiness on the part of the Forestry officers to work with you to prevent fire?—We have had no trouble at all with the Forestry Department over that.

I am not dealing so much with the Department, I am speaking of the Forestry officers?—Yes, we have had no trouble at all with the Forestry officers. They give us a very free hand where they know it is all right. If ever we wanted to run contrary to them, it would be only doing something they were not aware of. They might think it wrong, but they would not know we were doing it.

Have you ever had such an experience?—I think on one occasion we did light a fire in the early part of the season and the Forestry officer instructed our men to put it out. It was put out and afterwards we had a laugh over it; but they did not know we lit it.

You did not advise the Forestry officer?—The advising business is very difficult, because you get an opportunity so rarely to burn early that you simply have to take it. You cannot run around and ask questions. If you get an opportunity
in September and October, you have to take it; but they do not object if they know. I think on this occasion the forestry officer did not know, and he put the fire out. In any case, it was not a serious thing apparently, he was a very zealous officer?---Yes, and he did his duty.

MR. STORR: On the subject of precautionary regulations, you are aware that lives were lost through motor cars trying to escape along the highways being cut off by fallen timber?---Yes.

Would you suggest it would be practicable for timber to be burnt back on each side of the road for a sufficient distance to prevent trees falling on the road?---That would be having timber felled on each side of the road?

Yes, felled or burnt?---It would be a good idea, but in regard to these people bolting away when fires were dangerous, I do not know what to think of them, whether trees were there or not. If they get "the breeze up" as they say in the bush and want to bolt from the fire, they would probably get burnt in any case. The driver of the car might get stifled, run off the road, and wreck the car. If people would do as they were told, as we got our people to do, they would be safer. If our people had not done as they were told, some would have been burnt. We had to control our people and they had enough intelligence to do as they were told. Our people wanted to bolt, just the same. Our instructions to the bush foreman at the end of the track was to make them stop until they were told they could leave. I forget what day it was, but it was some days before that they wanted to bring all the women in. We made them stop until after 12 o'clock at night before we let them come along. We then sent men to clear a track to give them an all-clear
route and they came in. I think this idea of "up sticks" and "away" is absolutely the worst thing in the world. It may concern people not connected with the mills, people proceeding normally along the highway may be caught by fallen timber? For travellers on the road I would say it would be a good thing if trees within reach of the road were felled; but of course it is going to be a tremendous work. Probably it could be done on the top side of a road; on the low side of the road the timber usually falls downhill. I think regarding timber on the top sides of roads in the timber country it would be a good recommendation, to have the timber felled in thickly timbered country; in the case of a fire like the one we had the roads would be blocked anywhere by these dry trees. Probably the cheapest way would be to fell them and roll them away. I would say that would be quite a good idea.

THE COMMISSIONER: Where are your workmen and their families housed, are they housed in one colony, or are they dispersed about the country side? Some are at what we call our stacking out yard, the place where we stack our dry timber. That is about four miles from the town. Some live out at the mill.

Do they live in cottages or houses? Just cottages.

What precautions are taken to protect their homes? When we make a break we go right around the whole colony. I might say we have not lost a hut or house.

I think your good record might make your evidence valuable on this point. You say you have them within the break you make, a break which you have right around your outfit? Yes.

Are any of them segregated out in the bush to any extent - living there? Yes, there was one man who had a house out in the bush, I suppose it would be 15 chains away from the mill. It was a very peculiar thing. Why he went out there and...
built, I do not know; but the fire burnt all around and left the house. I think there were two others who had rough huts, which were burnt. We always encouraged the people to board near the mill, we make provision for them to live at the mill sites; but if they want to build a hut out away from the mill, we do not object.

Where these married men with families? No, to the best of my knowledge, they were both single; but in the case of the married man who built about 15 chains up the line, I think that fire even burnt under his house, yet it did not burn the house.

What about persons not employed at your mills, are there any settlers scattered about those hills? No, none whatever.

It is not grazing or agricultural country? No.

You know of nobody about there? No, I do not think there is one soul except the boarding house keepers that is not actually working for us there. In regard to the boarding house keepers, we always given them a house rent free, to carry on as a boarding house, so while they are not employed by us directly, they are indirectly.

What about the country between you and Walhalla, or what was Walhalla. There must be some settlers living there? There are settlers out from Erica, for I suppose about one to two miles; but they are not in any way connected with us.

I know that, but I am asking about your knowledge of the district.

What means of communication have they, just bare bush tracks? We have tracks out in the bush, and the tramline. But I am talking about these settlers. They have a good sand road to Walhalla, it is a constructed, graded and sanded road.

What width would that road be? Two cars can pass on it quite comfortably. I may say that out as far as our No. 1 mill we have a very good road, on which you can drive a motor car.
None of the settlers thought of constructing dug-outs for themselves? I have never heard of it.

What do they do, rely on a horse and cart, or a car? If they have a bit of rough country, if they are old settlers, they burn early. If a new settler comes in, he may burn late, and that is where the trouble comes in.

Say a bush fire does approach them, what do they do, do they make for the best shelter they can find? I have never known many get into trouble. They are mostly able to take care of themselves. These people are mostly resourceful, as a rule, because they are really pioneers.

In your opinion, whereabouts did the bush fire commence which burnt around the Erica district. Have you any theory or knowledge about that? I think I have, because while up there during the Christmas holidays the Forestry officers were tending a fire, I think it was in the south of the Tanjil belt, somewhere down in the rough country, not in the Mountain Ash country at all. The whole time we were there they used to go backwards and forwards and they were very hopeful up to the time we left of keeping it out of the Mountain Ash area altogether. That fire was burning there the whole time, probably started by some settlers. However, the fire which came over and killed all our timber came right over Mount Erica.

In what direction did it come? About north or north-westerly. It may have been the Warburton fire, the two may have met.

It came on a north-westerly wind? Yes.

The prevailing wind up there on that Friday would have been north to north-westerly? Yes, but we were lying right behind the ridge and one would not have thought it possible for the timber to have been burnt, yet it was.

To sum up your evidence, you believe in burning early in the season as a preventive measure? Yes.
And as a measure of safety, in case fire does encompass you, you rely upon the dug-outs? Yes, but I would like it to be noted that in this burning early you cannot always do it because the season may not be suitable. I would recommend there should be a committee in the milling centres comprising sawmillers and forest officers. I think there should be some control, because very few people have the knowledge when to burn. Most sawmillers and forest officers have that knowledge. I think if such a committee were formed in each centre it would eliminate a lot of this bush fire trouble, because they, or the police, could notify the settlers when to burn. If you put a Proclamation in the paper, people do not take any notice, but probably the Forest officers would know if a person was going to burn. The Forest officer might say, "That has to be burnt this year before a certain time," and he would make that man carry out the burn. Now nobody takes any interest in it.

I should think you would want a man of experience to choose the actual day? If there was a committee some of the members would know, and others would soon find out. Sawmillers have to know, otherwise they would burn themselves out if they did not know. That is my opinion, that there should be such committees, and I would like to make that as a recommendation.

THE COMMISSIONER: That will go into the notes of evidence.

MR. KELSO: You may be able to help us in some matters of experience. You spoke about the effect of burning on Mountain Ash. From your knowledge, would you consider that Mountain Ash might be damaged by fire. I think you have said already it would. Is that correct? With a hot fire, it kills it right out.
We will not presume a fire in the tops. I mean the kind of fire you would get by burning the bush in its natural state. Supposing you had a stand of small seedlings, would they stand such a fire? Well, we have had a very, very great surprise with this late fire. Previously I would have thought where you got a heavy wind and a hot fire the seedlings would have been burnt in the fire; but it has been our experience with the last fire that these seedlings absolutely acted as a break in places. The wind seemed to bend the seedlings down until they smothered the fire. They stopped the wind getting to the fire, they were so thick.

But in an ordinary way, apart from the chance of circumstances, and that apparently was a chance of circumstance, has it been your experience that to some degree at all events young Mountain Ash is destroyed by that kind of fire? Yes, Mountain Ash is easily destroyed, it is very susceptible. Really, you want to burn at night.

Supposing that sort of burn does destroy some of the Mountain Ash and supposing you persisted to burn say, every third year, in the end what would be the effect on a forest of Mountain Ash? No good. If it was necessary to burn every three years it would be very bad. I do not think it would be necessary.

Is it your experience that the result of burning is to produce fire scrub? It does to a great extent, but my contention is where you have a growth of timber of any sort the light is shut out from above, and it does not grow the scrub so much.

Then you will agree a great deal of reduction in the Mountain Ash and a great increase of fire scrub will take place, culminating in more frequent burning? Yes.

And there is always a certain loss in Mountain Ash timber when you do burn? No.
Young Mountain Ash seedlings? Oh yes.
After a given period you would lose your big trees and have no young ones? That is the real problem facing us.
Do you see a way out? You cannot burn in that way.
If you want to preserve your Mountain Ash Forest, you cannot burn it?
No.
I mean to preserve it more than one hundred years after the present old trees are gone? There is none of that bush left now, it is all gone; but I believe you could if you burnt those old trees.
If we burn in the present period we may retain the old trees, which are fairly resistant, but we will not have those old trees in one hundred years' time? No.
You said something about forest thinning. You said you would suggest cutting ten trees and leaving one. Have your knowledge of the procedure of forest thinning actually going on?
I have seen the thinning done.
Can you describe what they do? They go through and they leave trees spaced at different distances. There seems to be no particular reason, but they take out probably three trees and leave one, one which promises to be the straightest and best growing young tree. Of course, there is all sorts of country to thin. The Mountain Ash bush has a very, very heavy re-growth and you probably might leave only every tenth tree.
The idea of that being that the tree that is left will be a good tree?
Yes.
For the purposes of forest industry, that is desirable? Yes.
What is done with the thinnings? They stack them, but that is a danger.
It is a danger? Yes.
Are they burnt? I believe they could be burnt on a wet day.
Are they burnt? No - they are all burnt now.
Nature burnt them, but as a matter of policy or practice, are they burnt? No.
What would be your opinion of a fire getting into an area 12 months after it was thinned? I do not know if the rubbish was stacked whether it would or not.

I am not asking that. You do agree with me that this practice of making thinnings and leaving them there might render the complete destruction of the forest inevitable, if a fire got into it? I think it would.

What would be the size of the trees taken out in thinning? They may be from an inch up to two inches.

Or eight inches? I suppose it would be possible, but I have not seen any of that size taken out in thinning.

THE COMMISSIONER: Do you call them seedlings? Yes.

MR. KELSO: They may be up to ten years of age? I have never seen them up to that size myself.

Supposing you got a fire into that area on a bad day, would it have a bad effect on the fire. I do not mean a bad effect on the forest, I am referring to the effect on the fire?

Taking the regrowth that we had - mind you, this was very contradictory to what I thought, the young trees were growing as thick as hair on a cat's back - as thick as they could grow.

They were not 8 inches thick? No. The fire got into the young growth and it did not destroy that young growth. One would have thought the fire would have gone wild.

But what would be the effect on a fire in a thinned forest where one tree out of every ten was left and the others were taken out, stacked and left there in a dry condition? If allowed to be dirty, such areas would burn. If kept clean they would not.

Presuming that is the practice and the conditions, that these thinnings have been there for 12 months, what would be the effect on a fire travelling ordinarily through the bush when reaching that area? It would go.
would it go into the tops?—Yes.

THE COMMISSIONER: How much room do they take up when stacked?—It would be according to the amount of thinning taken out, but generally it is half a chain thick and there is a big row stacked through the bush. If a fire got anywhere near it it would be terrific. I do not know how that trouble could be obviated.

MR. KELSO: one way would be to have no thinning. You have said yourself an unthinned forest is surprisingly resistant?—It is very much of a surprise. I never expected it.

Then I submit to you the suggestion it might be left in that condition?—They cut branches up there. You would have to thin out to keep the branches clean.

I am not talking about branches. The thinning is done to produce good timber. Do you expect it will produce better mountain ash if left unthinned?—I believe better mountain ash would come, because the strongest trees would survive; nature would do it.

Have you had any experience there. You have seen them growing just as well as in the thinned area?—Yes, they eliminate one another. I have seen them go through the whole process, right up to a couple of feet through.

You spoke about your bush branches, you told us you burnt around the masts, which is a very proper thing. You also told us you burn the heads in the bush. If that is done, that is also very proper. What do you do during the proclaimed period from the 1st November to 1st March. Do you continue falling in the bush?—Yes.

What do you do with the heads?—We leave them until we have a safe period.

So that all the heads you cut in the bush in that period are left lying in the bush during February and March?—Yes.

What is your opinion about that as a menace?—It is not a very big one
We always have plenty of men ready to jump on it quickly if a fire comes.

But I understood you to say you could not put out fires once they started in this period?—The ones that started.

You would agree the condition of this inflammable debris would help a fire?—If a fire comes.

I am always presuming that, it would not help?—The trees that are fallen always have green leaves and they take some time to dry.

Is it your experience that really dead timber is more inflammable than leaves and sticks about half dead?—I would say that the leaves and sticks are more inflammable.

I think you did state you did not think fires could be put out—I will not put those words into your mouth, I will give you a chance to put it right in a moment. You told us that fires were burning in December on the Aberfeldie side of the Thompson River?—Yes.

Really, there were small fires?—I do not think it was a small fire. I think it was the one fire.

That fire was travelling in the bush about one month before it became critical. You said the forestry staff was tending it, I think "tending" was the word you used, and that they were assisted by your men. Actually, what does "tending" amount to?—To stop it from spreading.

Did they stop it from spreading?—I think they did. I do not think that fire ever got over the Aberfeldie range.

But it still remained a fire, was it ever put out?—No.

Do you think at some stage in that four weeks it might have been put out?—As a matter of fact I recommended the forestry officers to fire that country at once, it would do no harm and would relieve us there.

You suggested burning a lot of the country east of the river?—Yes.

What would happen to the towns on that side?—At the same time the
same men could have stopped it at the road.

Do you think the fire might have been put out, without burning back?—Perhaps it could have been put out if there had been enough men.

How many men were doing this tending?—I could not say, but I had the impression there were about a dozen or more.

Were any of them your men?—Yes.

How many were in the forest?—I could not say.

There were about a dozen altogether?—Yes.

Would you expect that a dozen men would be enough to tackle a matter of such importance?—I think you said "If it is once lit then good-bye"?—Yes.

How this fire was alight?—I think I was speaking of that particular day.

You were trying to give us an idea of how inflammable the bush was.

You said the bush was extremely inflammable?—Yes.

And if a fire had gone in it would be dangerous. Here it was recognised the bush was in an extremely inflammable condition and there was a tremendous lot of public property in danger. If that fire could have been put out, do you think there were enough men to do it. I am not making implications against anybody, I am merely forming an idea on your experience of what we might have done if we had known enough?—Here the fire was burning it was useless country, country where the timber was of no value and I do not think it was worth while for the Forestry Department to risk men's lives to try and put it out. They stopped on the road and they stopped that fire from spreading, which was what they were sent to do.

You think that they were there to stop it spreading, not to put it out?—To stop it spreading over the road. Where it was burning it was doing no harm at all.
And it was let burn there?—They could not do otherwise, if they had
gone down to put it out some men might have lost their
lives; it was dangerous.

There is a period with every fire when it is not dangerous, at night
time, when it is small, and there is no wind?—It is
possible there may have been such periods, but I never went
over. Without phenomenal weather that fire would not have
crossed the river, but it did.

I accept these statements in general. What I am trying to get at is
whether in your opinion that fire could have been put
out if it had been tackled at some period, or whether
once it started it must be allowed to creep on, and only
be what you call tended?—I really could not say whether
it would have been possible, but I might tell you that fire
never really did any damage to any real extent.

Until it did damage?—No, when that fire came over on our side we
controlled it.

Would you agree with the suggestion it was somebody else's fire they
had not tended that did the damage?—Certainly, it was
the fire that came over the top. We controlled that other
fire; once it came over the river it was our fire.

You said something about the Metropolitan Board's areas at Warburton;
did you know them?—I knew some of them.

Do I understand that the implication was that the forests of all
Water authorities are dirty, or only some particular ones
under the Metropolitan Board of Works?—To my mind the
Metropolitan Board of Works necessarily has to keep the
rubbish on its watershed areas, to make them watersheds.
You could not burn the Metropolitan Board's watersheds,
as I understand it.

That is a legitimate opinion for you to hold. I was trying to get
at some expression of fact. Some statement of actual
knowledge of a particular place at a particular time?—
Well, I have driven along from Heasleville to the Black's
Spur many times and as you go along past the reservation on the left hand side of the road you can always see a very big growth of rubbish on that.

What do you call rubbish?—Scrub; god-wood, bracken and so on.

That is just very superficial observation when driving along the road?—Yes, but I have been up to other watersheds, such as the O'Shanassy.

I suggest there are three conditions of forests, one clean, where it has been burnt, the second is where it is in its natural condition and the third is the condition in which there is artificial inflammable matter of the sort we have been talking about. In which condition would you consider these watersheds are?—I would reckon they were as near as possible in the natural condition.

And reasonable clean as such?—Yes. I am not trying to speak against the Metropolitan Board at all, because I can see if they were going to follow methods along these other lines, it would be a most difficult matter.

I am not suggesting you are saying anything against the Metropolitan Board; it is only a matter of fact?—Yes.

Mr. GOWANS: You were asked about this matter of thinning part of that forest, especially where there is Mountain Ash. Do you know whether there are any particular areas to which that thinning is confined?—I think they have done patches all through the different districts, not big patches. Some were done at the Victorian Hardwood's mill out from Yarra Junction, also patches nearer at Erica. I suppose more in an experimental way.

I am instructed this thinning is confined to the sides of breaks and tracks, with the object of making them secure?—That may be the case, but I do not think it would be possible to help without burning off the debris they clean up. When you burn that you are up against the loss of the very
growth on which you have wasted money to clean.

Do you know of your own knowledge whether any of these thinnings have been left stacked up in the last 12 months, or whether they have been burnt off?—They were all burnt in the fire, but previous to that the thinnings close to our workings, the scrub, was still stacked. It would be very inflammable.

My instructions are that during the last 12 months the practice has been adopted of burning the stacks of thinnings. That does not agree with your experience?—I do not think they were in our district.

Would it be a big job to burn them?—Yes, without destroying the young growth. They spend the money on sorting out and cleaning this young growth, and if they tried to burn the waste it would be very difficult. It would be possible to burn that rubbish when out and green. It would not burn fiercely and I should say probably that would be the better way.

Once it was stacked you would have men watching it if it was burning?—But you could not stop it flaring and killing the young trees.

Have you seen any of this thinning carried out during the last 12 months?—No.

Getting back to the question of the importance of burning breaks, and the utility of burning back in the early stages of the summer; I suppose your opinion comes to this, that it is necessary to sacrifice some timber in order to preserve the rest?—Yes, surely. You could sacrifice quite a big percentage, if you knew you could save the rest and it is certainly worth while to sacrifice quite a bit with those hopes in view.

If I can put it in my own way, the problem comes to this, as to how much you can sacrifice, consistent with the preservation of future timber, and how little you can sacrifice consistent with the preservation of human life and property at the
present time; that is what it comes to, does it not?—

Yes.

Mr. Hardy: apart from the question of spontaneous combustion, in your long experience, have you known of any cause of fires caused by the friction of one branch on another?—I have never known of it specifically, but I have often heard of it and I believe it would be quite a feasible possibility.

In that case it would be dead timber?—Yes, if the limbs of two dry trees were crossed, probably in a mesemate bush, and they were working in the wind they would set up a friction, the mesemate bark would catch and no doubt when it caught on down fire the particles would drop and start a fire. I have no doubt that would be quite feasible.

That would be the friction of two limbs rubbing against each other?—

Yes.

Do you know of any case in mountain ash country similar to instances which have been reported on the low lands, where a stump has burnt down to the ground and then the fire has burned under the ground along the root tunnel. Then afterwards when wind has come it has been roused and the fire has occurred?—Yes, it is a very peculiar thing, on one of the days we were worried with our mills, we were at our own No. 1 mill, I was up there myself, and we were fighting around there—everything was quiet down at the stacking out yards, we were coupled up by telephone all round— and we were informed that a fire had started down at the stacking out yards. It started right away from everything else, in the green scrub which had been burnt previously, and nothing other than that very cause could have started that fire, unless some of the children did; but some of the parents declared they were not near there. That fire started right away from everything and something like you suggest must have started that. It is quite
possible for it to happen, and it could happen.

Do you know of any instance probably due or suspectedly due to a fire arising from phosphorous used in baits for rabbits, foxes, and so on?—No, I have never known that to occur.

Do you know of any case where matches described as safety matches, but which are only safety matches up to a certain point of heat, may have caused a fire through being dropped about?—No.

THE COMMISSIONER: You will be available to give further evidence before the close of this Commission if required?—I would need to be notified. If you communicate with Mr. Quinn, I will make myself available.

THE WITNESS WITHDRAW.
MAURICE EDELOPE EYER, sworn and examined:

MR. GOWARS: Where do you live?—At Gembrook. I am the Vice-President of the Hardwood Millers' Association.

Have you a mill at Gembrook?—The firm of Dyer Bros., have a mill there and another mill at Balook.

In what part of Gembrook is your mill situated?—It is east of Gembrook in the Parish of Tonimbuk.

What about the mill at Balook?—It is right at the township of Balook, in private property. Balook is just about 24 miles from Traralgon, out towards Yarragon.

Were either of your mills affected by the recent fires?—Not the mills themselves.

Were they threatened by fire during January?—At Gembrook the mill itself was not actually threatened by the fire, but we had a quantity of tramlines, a winch, and a bush camp, two and a half miles away from the mill.

From what direction did that fire come?—That particular fire that burnt those huts came from a westerly direction.

On what date was it that the danger was most imminent?—I think that would be on the 8th January.

Do you know where the fire originated?—No, I do not. There were several fires burning in the Bunyip district for several weeks, and that fire that came to the winch from a westerly direction may have come for several miles, from the Little Yarra way.

What was the general direction of those other fires burning in the district?—Well, we had a fire that came up towards our mill, which is on what is known as the back creek, at the foothills of the Beonak range in the Parish of Tonimbuk. It came up from the Bunyip River, about four or five miles away. It came up there in November, and it burnt right up to the low-lying country which is really sparsely timbered, bayonet grass country. It burnt right up to our mill in that direction, with an
an Easterly wind.

You do not know the cause of that fire?---No.

Nor do you know from where it came, from whose property?---Well, in

that country people go out shooting and fishing and we assume that people who go there, campers, excursionists and that sort of thing are careless with fire and it gets away from them. However, that particular fire actually made our mill safe, because it crossed the creek. The

Forestry people had a camp a couple of miles away and they brought men and went around the fire one night. The next
day I myself took men around it and the following day, a Sunday, I went around again. That fire did not break out again.

When you say you went around, do you mean you took any steps to put it out?---Certainly, it was with the object of making sure there was no timber that would fall into the unburnt areas and start it up again. If there was anything burning, such as a log, we would cut it away and make a break between the part burning and the part unburnt.

What ultimately happened to that fire which was threatening your mill on the 8th January?---Earlier in the year, about October, there has been a fire that came through part of the area and it had made a break between the winch and the mill, that country was burnt between there.

Do you mean the fire that threatened you on the 8th ultimately burnt itself out?---Yes.

Near your mill?---About a mile away.

How many people do you have working or living at the mill?---We usually have about 20 men working at that particular mill.

With their families?---Two families, that is all.

What precautionary measures in general do you take at any time during the year?---In our particular instance we have no dug-out at that mill, for the reason that we are on
the flat country away from the timber and right at the
junction of two creeks, where there is a good water supply.
All the scrub is cleared away. In fact, we have a swimming
pool in one of the creeks; there is a big open space
and there is really no danger of our being hemmed in in that
country. We are right on the open country; on the other
side it is country that is very sparsely grassed and
timbered, and the amount of timber is not so great as in
the timber country. Some years before, three years ago,
when we had the mill up in the timbered country, we
provided a dug-out there in case of emergency.

Where was that?—It was really on the same area, only about three
miles away. We shifted the mill around on to the uncut-
out part of the area, for convenience in working.

Is this swimming pool you speak of a fairly deep one?—It is 3 to 4 ft.
in depth.

Is there any danger there similar to what we read about in the papers,
of the water becoming too hot?—No, not in this particular
instance. There is nothing about it to catch fire.

During the year do you take any steps to burn off the brush around
your place?—Well, usually we are notified by the
officer in charge of the district to burn during a certain
period. We get a circular notice. I got one this
year in October, to burn all the heads before the end
of October.

Did you do that?—We burnt some of them. The officer that issued
the notice was away on holidays and another man was sent
there in his place. He came when there was a bit of a
fire in some heads, where the men had been instructed
to burn. He was afraid it would get into a patch of
seedlings adjoining. He came to the mill and got
me to take the men up and surround this bit of a fire
in the evening. He was really greatly concerned about the danger of it getting away. He already had a couple of men, or three men up there, and when I got up there with 12 or 14 men the heads that had been burning had burnt out, the fire had come to the green stuff and had died down, so he was then quite convinced there was not then much danger. However, as we were there we did scrape a break right round it and we made it safe.

What was the name of the forestry officer who directed you to burn, in the first instance?—An officer by the name of Grigg, of Belgrade.

What is the name of the second officer?—The second officer was the unfortunate man who met his death at Toolangi, Mr. Barling.

What were you burning off on that occasion, just the heads and branches?—Just the heads of the trees. In fact, the particular fire that Mr. Barling was afraid of getting away, was one that started in some unknown manner. Our bush fellows, although I had given them instructions to burn in accordance with the notice I got from the Department, assured me they did not light this fire and they did not know how it came about, although it was about half a mile away from where they were working. There were other forest men working in the forest there, and they say they have no idea how this particular fire did break out.

Have you any idea yourself?—No, I have not. It is a hard job to form opinions of these outbreaks.

When you burn off the heads do you collect them together, or do you simply put the fire through the part where they are?—The practice in a lot of cases is that when you get a patch, at that period of the year when it is safe to burn, when you get a notice from the Department to carry out this burning operation, you burn out certain patches, blocks you have worked out, to burn up the heads.
You send a man around and he lights the heads as he goes.

Is not that likely to lead to a general fire?—No, as the practice is confined to the time of the year when it is not dangerous for lighting fires.

But I mean even in that particular area. When I said a general fire I did not mean a fire over the country side, but a fire over the particular area— one not confined to the particular heads that you light?—The thing is that at that time the fire will only travel from one head to another where there is a connection. If the fire comes to a snig track it will not cross it at that time of the year, although the track may be only 4 ft. in width.

And there is no danger of it getting into the tops of the trees that are left standing?—Those places are never fired until you have cut out that particular class of timber.

Does that mean there is no timber left standing there?—Well, an odd tree; but the fire would not be sufficiently severe at that time of the year to rise to any great height.

On this occasion you were directed to do it in October?—Yes.

Apart from the burning off of heads of trees, do you take any other precautions in the way of burning back at the mill?—Well, at the mill we have adopted a practice of slashing the scrub early in the season, if there is enough there, and burning it early in the season—during the time we are instructed to burn the heads.

About how far back would you go with the slashing?—About 3 or 4 chains from the mill.

and you would burn back to that?—Yes.

(Page 65 follows.)
MR. GOSANS: That is in connection with all the supplies to your Geobrock mill; what about the mill at Ballook? — There we are working under totally different conditions. The mill is situated right in the middle of grass paddocks. There is no great danger.

You do not need to take any precautions? — No, there are no dug-outs.

Where do you get your timber from at Ballook? — We bought the right to cut timber from the forest.

I take it that you cut the timber under a license at Geobrock? —

Yes.

At the other place you have no license from the Forestry Commission? —

No.

How long have you been engaged in the milling industry? — Since 1906.

You heard Mr. Eardi's opinion as to the desirability of safety provisions

Do you agree with it? — I agree with it in regard to the making of safety provisions around the mill.

What about the suggestions that it causes damage to the existing timber? —

If it is done at the right time just around the mill, it will cause very little damage. The fire will not travel and you can burn enough to make the property safe. I am not referring to periods when burning is not dangerous. Of course, there comes a time when people who have lived all their lives in the bush know that it is dangerous almost to strike a match. The last couple of months of this season have been such a period. There is a feeling that everything is ready for a big flare-up, given a small fire and the right wind.

Do you agree with the regulation that prohibits the lighting of fires between November and March except under supervision of a forestry officer? — I certainly do.

Have you any suggestions as to whether the forestry regulations are too straight or too elastic? — No, the only thing I would suggest is something on the lines proposed by Mr. Eardi.
Different districts have different conditions and men who have been operating in one district for a number of years have a special knowledge of that district and its conditions. I think it might be advisable for sawmillers, or even settlers, to be consulted in the matter and a decision arrived at in conjunction with forestry officials. Once the proper procedure is fixed, it should be applied strictly.

In 1936 there were very serious bush fires in Victoria, and again in 1932. Now we have the most disastrous fires in our history. Does not that suggest to you that there is something wrong with the methods that have been used during the last twenty years at all events in the way of either preventing or curbing the fires? My experience in 1932 awakened me to something I had not known before and it changed my opinions about the fires considerably. At that time we were operating on the same area but we were at the top of the mountain three miles away at a mill which I had constructed there. There were no fires in our area or within miles of it so far as we could see. A wind got up and started to carry a fire. It was reported at Warburton at about 3 a.m. That fire was at our mill at 5 a.m. It came from Old Warburton and it swept a track of country eight or ten miles wide. I think it just about struck Powelltown also. A place was burnt out at Bruna on the main Gippsland line at 6 o'clock in the morning by the same fire. That fire travelled approximately 20 miles as the crow flies between 2 o'clock and 8 o'clock. I think no fire break that could be cut would stop a fire like it.

You emphasised the word "cut". What about a fire break that could be burnt?--- within reason, either cut or burnt. I have no hesitation in saying that that fire was leaping from...
one hill to another more than a mile at a time.

You say that that fire affected your views. What conclusion did you come to - that it was not worth while doing anything? -

No, not that at all. Before that time, not having had that experience, I may have thought that it was possible to control a fire by a fire break and lighting back to meet it but in the case of a fire that travels at that rate it is impossible to light back so as to do any good.

It is over you before there is time. That is what I term a head fire. There are fires that creep along the ground and then there is another type of fire that will rage through the scrub and timber, perhaps 50 or 100 ft. high. There is this sort of fire with rolls and rolls of black smoke suddenly bursting into flame as it travels along. That is the kind of fire that does the damage in the forests and causes so much loss of life in those areas.

Is that the type of fire that has been termed a crown fire? -

Yes. If I may suggest a method to minimise the danger it would be to burn considerable areas of the low-lying and nascente country, especially on the northern slopes. I suggest that consideration be given to this method of protection and of minimising danger.

Why the northern slopes? - Experience teaches us that all disastrous fires come with a north wind. That wind takes the fires up the northern slopes and they jump on to the next ridges. An hour afterwards the southern slopes may be burning but the northern slopes have been swept clean. It is generally admitted that the timber growing on the northern slopes is not of the same quantity or of the value as that growing on the southern or easterly slopes. If we were to sacrifice that timber it would minimise the danger and give greater safety.

Would it be possible to confine such fires to the northern slopes? -
Not such fires as those but if the northern slopes were burnt out by cutting fire breaks in the spring time, even 10 or 15 chains apart, and firing the northern slopes earlier in the year, the danger would not be so great.

Do you think anything of the practice of cutting fire breaks a chain or so wide?—I think they are very necessary if back firing is to be done.

Is that their only value?—The other value is the convenience of being able to get about. If you did not have breaks or forest roads through these areas, it would be impossible to get men in there to do anything.

I appreciate that, but I was putting the question rather from the point of view of fire prevention. A break of, say, a chain wide would be of use only as a starting off ground for firing back?—Yes, it could be used for that earlier in the season before the really dangerous time arrives.

MR. KELSO: You said that on one occasion even the experts differed as to whether it was a suitable time for burning off—burning ahead. Have you found as a matter of your own experience that it is difficult to be quite certain when to burn off? I take it that you cannot burn very early in the season because everything is too wet, and you cannot burn too late in the season because it may be dangerous. Therefore, the time for burning is restricted and because a matter of very close judgment. Is that correct?—Yes.

A matter of very close judgment?—In this particular season it has been more dangerous than during the normal seasons.

In any ordinary season a determination of when is the right time to burn off requires pretty good judgment?—Yes.

Have you a knowledge of occasions when there has been a failure of judgment. Sometimes it has been thought that it is all right to burn and the fire has got away?—No, never.
I might mention that this year has been the only year when there would have been any doubt about it. The fire I mentioned as burning the heads died down at night and it was not dangerous even at this time.

I am not taking about your particular area. Have you ever known from your own knowledge of a failure to apply this judgment of people thinking that it was all right to burn when it was not all right?---No.

MR. SWINDON: Do you know whether it is possible for permits to be offered in the proclamation period for burning off the heads of trees, or have you ever received permits from a forestry officer to do so?---No. I do not think it is necessary. When that proclamation is issued I think it should apply to everyone. I believe the proclamation is issued when the various officers and their advisers feel that the time of danger has arrived, and no one should be allowed to light a fire except to save property and life - to burn back, etc.

You are not in favour of special permits being issued at any time during the same period?---No, not to ordinary burning.

(At this stage Mrs. Cotter started to put a question to the witness).

THE COMMISSIONER: I understood that we were to have the benefit of your evidence, but I did not understand that you were appearing before the Commission. There is a difference between giving evidence and appearing.

MRS. GOTTER: I just wanted to put some questions to the witness.

THE COMMISSIONER: We have accepted your statement that you will be giving evidence but there is a distinction between that and appearing. Unless you can show that you represent some person with an interest - not a mere popular interest - you will not be able to cross-examine witness.

MRS. GOTTER: I wrote to the Premier's office advocating the
On what day was the Adj. R.O.2 all destroyed? I do not know what the

The Adj. R.O.2 came out next to the Adj. R.O.2. Both these mills were destroyed by the recent fires.

Mr. Ossian: What is your full name, Alex Robert Cathcart? I live at Toorak and I am the Chairman of Directors of the Victorian Hardwood Co. Pty., Limited, and the Adj. R.O.2. I declare that the burning of the Adj. R.O.2, etc.

The Commissioner: I am afraid that is too general an interest to give you the right to cross-examine witnesses. You may certainly give evidence later if you have relevant evidence to give.

You have not given any application having been granted under special circumstances for burning off, personally.

I will direct your Honours' attention to Section 50 of the Act which is attached to the Proclamation that has been put in evidence. It provides in regard to the burning of breakable sheds, timber, etc. - (read). I do not know of any application having been granted in special circumstances for burning off personally.

Mr. Gereau: (To witness): It is in the practice to grant special permits in such circumstances, it will be in order for you to appeal.

Mrs. Ossian: I have an interest in the making of legislation to protect life and property. I have an interest in the making of legislation to protect whose interests may be affected by the findings of the

Miss. Ossian: They have no power to invite you here at all. I am trying to instruct you to what extent has any other political party. They have no power to invite you here at all. I am trying to instruct you to what extent has any other political party.
date was.

Was it the bad Friday?—Yes.

Was Ada No.2 mill burnt that day?—Yes.

There is a distance of about three miles between where the mills were?—Yes, that is correct.

Do you know where that fire came from?—I believe there was more than one fire. The fires converged, but the principal one came over the Warburton range from the direction of Warburton. The wind was north-west and the fire was travelling south-east.

It would be coming more from the direction of McVeigh's?—Yes, there were very wide faces of fire and I could not say exactly what point it came from. The fire was miles wide, but generally speaking it came from the north-west.

Was there another fire?—So I believe, but I have no knowledge of that.

From what direction did that fire come, as far as you know?—From the north-east. I understand that from a conversation with the manager, but I have no personal knowledge of it. He said that another fire came over the hills from a north or a north-easterly direction.

That would be further back towards the direction of McVeigh's?—Yes.

Which of those mills was destroyed first?—The No.1 mill; that is the most northerly one.

Were there any other mills in your vicinity?—Yes, Sharpe's mill which is really between the Ada mills and Powelltown.

Is that somewhere about Gilderoy?—No, that is between Powelltown and Yarra Junction. Sharpe's mill is on our bush line where we convey our timber. It is between the high lead and Powelltown.

The high lead is the track that goes off from Ada No.2 mill with the overhead wire?—Yes. The high lead is a lowering gear over a very steep range between the No.2 Ada mill and Powelltown.

Sharpe's mill would be south of the Ada No.2 mill?—Yes, practically.
What about the Federal Mill? was it destroyed?— I am not sure, but
I think not.

There is a mill at the top of the range at the Gap. Was that destroyed?
I do not know.

Can you tell the Commission something about the precautions taken by your
Company during the year to protect its mills against bush
fires?— No precautions were taken during the year—
do you mean to protect the mills or to protect human lives.
I mean precautions to preserve the mills from fire. Was any burning
back done?— No. It was considered reasonably safe.

The Ada No. 1 mill was pretty clear?— Yes.

Is not the Ada No. 2 mill in timbered country?— It is not timbered
immediately adjoining the mill. They were reasonably safe
against any ordinary bush fires.

At least you considered that to be so?— This was not an ordinary fire.
Do you know exactly what happened. Was it a spark that set it alight
or did a grass fire run up to it?— There was no grass about.

How did it happen?— According to the description of the bush manager
who was at the mill, it burst into flame. No doubt it
was due to something going ahead of the fire but that is
only presumption. I do not think anybody known.

Is the manager in Melbourne now?— No, in Powellton. His name is
Frank Hoskins. The sub-manager is Mr. Sedling. He was
at the other mill.

Were there any breaks in the vicinity of your mills?— There is a so-
called fire break through the bush but not near the mill.
It is a comparatively narrow track.

Which mill?— It is not at either of the mills but it goes through
part of our bush nearer the Ada mill.

Which one is it nearest to?— I would not like to say that it was nearest
to one or the other. Then there is our bush tramline which
runs through the mills. To a certain extent, it might be
called a fire break.
That is not very wide?—There were no real breaks made at all. They would be useless. The break through the bush that I referred to is covered with bracken.

Are there logs over it?—No, it would be clear of logs.

What about the lower breaks south of No.2 at right angles to the top of the high lead?—I do not know that.

Did you have any dug-outs at either of these mills?—Yes, at both mills.

Can you tell me the dimensions of the dug-out at Ada No.2 mill?—

Do you mean in square feet?

What was the height?—You had to stoop to enter it.

All the way in?—Yes.

Was it the same height all the way along?—No, it was higher when you got down the floor.

What height did it go to, about 6 ft?—I should say more.

What was the width?—I should say 4 or 5 ft. It was dug into a hillside and was about 5 or 6 ft. in depth.

What steps were taken to ventilate it?—There were funnels up through the earth to the surface.

Do you desire to express any opinion as to the feasibility of ventilating the dug-out in the case of a fire?—

Undoubtedly, it is desirable. Otherwise the occupants are liable to suffocation.

Is it likely to lead to the interior of the dug-out being filled with smoke?—

No, quite the contrary.

By reason of the rise of hot air?—Yes.

You had no oxygen there?—No.

In the case of Ada Mill No.2 the dug-out is practically of the same dimensions?—

It is a bigger one. The Ada No.2 mill dug-out was more commodious than that at the Ada No.1 mill, and there were more men in it.

How many people did you have at the No.1 mill?—There were eight or ten men there in the dug-out. There were other smaller dug-outs near the winches so that the men working in the bush could use them.
Comparatively, they were holes in the ground. There was sufficient protection.

How far away from the mills would the men be working ordinarily?---

You mean the bushmen.

Yes?---A mile or so - a mile or two miles.

How many people were at the Ada No. 2 mill?---14 or 15.

That dug out was quite sufficient to shelter all those people?---

Yes, they took shelter there.

Do you know if any attempt was made to fight the fire at the mill?---

I know that there was none. Most of the men and women had left the part where the most disastrous fires were burning and had come into Powelltown. These men stayed there in case the mill caught fire in any way that could be subdued. They were there for the purpose of putting out any fire which started at the mill.

There are only two ways out of the Ada Mills; the tram track down to Warburton and the tram track to Powelltown. There was no road?---There was no road.

The tram track running to Warburton is only about as wide as from here to there (indicating about 7ft.)?---That is the Federal timber track.

Yes. It was heavily timbered on either side?---Yes.

If there had been a fire there, there would have been very little chance of going down that track?---No, they could not do so.

Was the track down to Powelltown of the same nature?---No, it was well cleared on both sides. It is the tram track from the high land down to Powelltown and it is fairly clear on both sides. It is clear of timber but there is a certain amount of bracken. It is a much better cleared track than the Federal timber track.

The Federal Timber track is not your track at all?---No, it goes through our Ada bush; that is all.

You say this other track is the steam track?---It is the steam tramway.
track. On the way there is a tunnel through a hill about a quarter of a mile wide which would provide refuge for a large number of people.

What distance is the Ada No.2 mill from Powellton? About ten miles.

You got all the women out down that track before the fire came along?--

Yes.

What practice does the Company follow there in regard to burning off the heads of trees?--We burn off whenever we are allowed to.

Have you any idea how many times you were allowed to do so last year?--There was a better burn off last year than there was for some considerable time. I have rather strong views about the question of burning off. There is not sufficient co-operation or collaboration, whatever you may call it, between the Forestry Commission and the sawmiller on the subject of burning off. I was very struck with Mr. Beard's suggestion, which I was just in time to hear, that there should be a local committee formed to determine this question of burning off in each particular district. As the manager puts it to me, he has to beseech the Forestry Commission officer to allow him to burn off. There is an accumulation of rubbish stored in the bush -- accumulated during a period extending for years -- which is an absolute menace in the event of a fire.

Does that rubbish consist of the heads of trees?--The heads of trees not burnt off in the previous years. The heads of trees that have been there the previous year -- not only the last year's trees, that cannot be dealt with during the winter. Sometimes a year is so wet that it is impossible to burn these heads of trees before the 26th November, and, rightly or wrongly, the Forestry Commission's officers are very much averse to allowing the sawmiller to burn off. It is almost impossible to get permission.

It is rubbish which sometimes accumulates over two or three years?--

Yes.
Was there only one burning off during the whole of last year?—They were burning off in different areas that had been cut over.

I understand that there is only a very short period during which you can safely burn off?—That is so, and that is the difficulty. In my view it can only be satisfactorily arranged by having some local discussion with a view to prompt action whenever the time is suitable.

Did you see the condition of your bush prior to this fire?—Yes.

Was it like from the point of view of accumulated rubbish?—It was in a state of great danger. When you speak of rubbish

I understand you to mean scrub as well as dead logs.

THE COMMISSIONER: What do you mean by rubbish?—I mean scrub.

You used the word in the sense that the sawmill uses it?—Yes.

You mean the growing scrub and the dead litter in the bush as well?—Yes.

MR. SLATER: Did you include both?—No. I referred to scrub littering the bush. I call them "heads".

When you talk about rubbish you are not referring to heads?—No.

It would not be anybody's job to clear off that scrub rubbish?—No.

Neither yours nor the Forests Commission's job?—We would do it readily in co-operation with the Forests Commission if we were allowed to, but the Forests Commission discourages the lighting of fires in the bush in any circumstances. I understand that is partly due to the view held by the Commission that it is the burning off of rubbish that destroys the humus in the soil and is detrimental. I think you asked Mr. Bizard whether if you burnt off at all it would be necessary to repeat burning off and so destroy the young seedlings in the bush. That would be the case, but the burning off would be limited to such areas as were necessary to make fire breaks to prevent the fires burning the forests. That is the solution to my mind. You do not want to burn off right through
the bush and destroy all the seedlings; there would be no forests at all in the years to come.

I do not think it was I who suggested it?—No, I think it was someone else.

Did you see the condition of your bush in regard to the litter from heads of trees prior to this last fire?—Yes, it was in a pretty bad condition. You really want to see it to appreciate it. I do not know whether you have done so, but it is a waste of logs and tree branches.

I was going to suggest that that was the condition of the fire break on the south side of the Ada No. 2 mill?—I do not know; I cannot speak of that.

Are there forest officers stationed in your particular area?—Yes, at Powelltown.

You have some rather strict views to express about the matter of lack of co-ordination between the millers and the forestry officers. Have you any other strong views relevant to this inquiry that would assist the Commissioner?—I have on the subject of the origin of the fires.

THE COMMISSIONER: Before proceeding with that, what staff is available to the forest officers in your district?—I could not say.

You do not know whether it is adequate or inadequate?—No.

Do they rely on calling up your men to assist them?—Adequate for what purpose?

At the moment I am thinking of men for fire fighting?—I am quite sure that there is not sufficient staff to cope with the fires. They would have to rely on our men and that help would be very willingly given either for the purpose of burning off or fire prevention. We could make available 100 men to help the Commission.

I have mentioned the fire fighting. What staff is there for burning breaks. Is that left to the individual or is it under-
taken by the Forestry officers?—It is left to the sawmiller, subject to the supervision of the forestry officer.

The Forests Commission only sets out to supervise in that matter?—Yes.

It does not undertake the duty?—No, I believe not.

MR. GOVANNS: Do you always make your men available to the Forestry officers for fire fighting?—Yes.

Do you remember whether they have been required for that purpose in the last year?—No, I do not know. When I say I always make them available; I am quite sure they would always be available when called upon. I do not know if they have ever been called upon. I know that on one occasion there was a difference between the Forestry officer and the manager as to the disposal of our men. There was an argument about it and our manager was displeased about the forestry officer ordering our men about. He was not under any circumstances prepared to place them under the control of the forestry officer.

Are I right in believing that there is a recent condition in your lease which makes it obligatory to place your men under the control of the Forests Commission in certain circumstances?—No, not under the control. I think the matter was looked into at the time. I inquired from our solicitor as to whether the Forests Commission's officer had a right to order our men about.

The matter has cropped up in connection with the Workers' Compensation, has it not, as to whether they remain your employees or become the employees of the Forests Commission?—Yes, I think I am right in saying that the Commission has no authority. They do not pay the wages and they have no authority to order the men about.

At all events, that is your view?—That is my view.

You were going to tell the Commission something about the origin of these fires; what are your views?—My view is that if the
Commission searches for one or two origins of bush fires, it will be disappointed because the origins are multifarious. That is, the origins of any fire that starts in timbered country, but I am quite confident from my experience of living more of less in the bush and my association with the industry at Powlltown that the vast majority of fires that enter the sawmilling areas are lit purposely, and the immediate origin is the smouldering fires that it is nobody's business to put out. You can go to Powlltown (as I have done many a time) by rail to Yarra Junction, or along the road and out through the bush, and you will see fires burning in all directions. There may be half a dozen fires on the sides of the mountains.

Has it been your experience that it is nobody's business to put them out? It is nobody's business to put them out, otherwise they would be put out. They were allowed to burn, certainly for weeks, and possibly for months. A rather loose expression has been used, namely, that the fire is under control. If a fire is under control it is supposed to be harmless. My experience is that given the right conditions, a strong westerly wind and intense heat, no fire is under control in timbered country.

Then the only way to deal with the situation is to have some kind of Fire Warden whose duty it is to put fires out throughout the State?—Or to compel them to be put out. I suggest that the Commission might consider the advisability of legislation to compel any owner of land, within certain mountain areas at any rate, to put a fire out within a week or within a certain time after being given notice.

Are you also in favour of that applying to sawmillers — in the event of their not putting the fire out, the men should be placed entirely under the Forests Commission?—That is a matter of legislation. My present view is that if the sawmiller does not put the fire out,
it would be much more effective to get permission to cancel his lease. I think it should apply to sawmills as well as to anybody else.

Assuming many of these fires have been lit by human agencies ....?--

The man is burning off his allotment for general purposes. That was my experience about Mt. Evelyn at the foothills of Mt. Dandenong. There are fires there every hot summer and they are a menace to people living about the place. You see them burning round about the creeks. There is cheap rent and the absentee landlord. These men burn off scrub. That was a matter of common knowledge.

Your view would be that the fires do not arise in timbered areas but enter them from outside?---Yes, that is so. I have had evidence of that. No bushmen, no sawmiller, would take any risk of a fire lighting or spreading in the area in which his whole asset is at stake. His sole financial livelihood is at stake and he is the most careful man you can imagine about bush fires.

There certainly would be no advantage to a sawmiller in lighting a fire except to make himself safe; to protect his bush by burning back?---Yes, that is so.

Or burning it off?---Yes.

Is there any matter that you wish to touch upon in addition to what you have already stated?---No, that is all.

THE WITNESS WITHDRES.

THE COMMISSIONER: Mr. Gowans, will you please interview Mrs. Cotter and further explain what I conveyed to her in regard to her right to appear before the Commission. It may be possible that she has some interest which she has not been able to communicate properly.

MR. GOWANS: Yes, I have already made inquiries to ascertain the question she wished to ask to see if I could assist her.

LAUGHSON ADJOURNMENT.
JAMES CHARLES FOLBY, recalled:

MR. GOWANG: You have been sworn?—Yes.

Since you gave your evidence on the 31st January you have prepared a statement with regard to weather and bush fires which you desire to submit to the Commission?—On the previous occasion I explained that I was called in such a hurry that I did not have time to prepare any evidence. Since then I have had an opportunity of preparing a statement at which I would like to read as that is the most satisfactory way of presenting it.

If Your Honor pleases I would like permission to read the statement as I would then know what it contains.

THE COMMISSIONER: Very well.

MR. GOWANG: (Reading):

"WEATHER AND BUSH FIRES."

PRECONDITIONS METEOROLOGICAL CONDITIONS — FORECASTING.

The conditions necessary for the outbreak and serious spread of bush fires are:

(1) Inflammability of the twigs and small branches lying on the forest floor;

(2) High air temperature and low humidity; and

(3) Strong winds (usually northerly or north westerly).

The inflammability of the forest depends mainly on lack of rainfall and on the degree of evaporation of moisture during a predisposing period. The length of such a period cannot be stated definitely. A few dry weeks during the summer months will have a considerable drying effect but if they follow a long spell of low rainfall extending over the previous winter or autumn as in the present year, the inflammability of the forest will be much higher than if heavy rain falls in the winter, resulting in a considerable conservation of moisture.
The degree of inflammability of the forests may be determined to a sufficiently high degree of accuracy for practical purposes. In Tasmania the Derwent Paper Co. uses a method in which the moisture content of typical forest twigs is measured by means of "Hazard Sticks" which are half an inch and two inches respectively in diameter and placed in a typical forest exposure. These are weighed daily and the moisture content is expressed in percentage of the total weight of the saturated stick. When the moisture content falls below 10 per cent, the conditions are regarded as dangerous for the spread of fire. The practice in Tasmania is based on experience gained in American forestry technique. The State Forestry Department was extending the system when I left Tasmania last year.

A copy of my report on a Bush Fire Conference attended by me is attached. See Footnote.

Outbreaks of fire are usually not so serious after a wet winter or spring since the forests retain their moisture until after a spell of hot or dry weather occurs. The conservation of moisture may be aided by occasional rains during the summer, thus in some summers the risk of a fire is very slight.

A period of dry weather in the cooler months may not in itself be serious since the rate of evaporation is then much lower, and even though there may be high winds the moisture content of the twigs in which the fires first feed may be sufficiently high to prevent a rapid spread of conflagration. The latter appears to depend upon the generation of inflammable gases in the fuel and this is greatly assisted by high temperatures and low relative humidity in the atmosphere. When there is a combination of low moisture content, high temperature and a strong wind, combustion takes place at a very rapid rate.
High winds carry flames over considerable distances and these in turn ignite other fuel. The most disastrous fires in Victoria have broken out with northerly winds.

Information regarding dangerous fire conditions which can be supplied in advance by the Meteorological Bureau consists of:-

(a) A statement when predisposing conditions are conducive to the outbreak of bush fires; and

(b) A forecast of the development of conditions under which outbreaks may become a menace to live and/or property.

An example of such a statement is given on page 3 of the attached report on Bush Fire Warnings in Tasmania. Advices regarding the inflammability of forests, etc., might perhaps be given more publicity in Victoria than at present. When stationed at Hobart, Tasmania, as Divisional Meteorologist, I found the reports on the condition of forest twigs which were obtained by the Dermont Paper Co., a valuable adjunct to meteorological reports in estimating the degree of bush fire danger due to inflammability.

The forecasting of dangerous fire weather is not such a simple matter as it demands considerable experience and knowledge of forecasting technique but a Bush Fire Warning system has been in operation for a number of years and forecasts of dangerous fire weather have been issued with a high degree of accuracy.

The system in vogue is to issue a formal statement for broadcasting by the Australian Broadcasting Commission, to warn the public of the anticipated development of conditions increasing fire danger. The Forestry Commission is also given a summary of the situation and of any changes which may be indicated by weather charts.
Meteorological data were submitted to the Royal Commission on January 31st as follows:

**Weather Bulletin for Victoria (January 7th - 14th)**
showing 9 a.m. weather at various stations. In particular reports of wind direction and force and maximum temperatures for the previous 24 hours are shown, also temperatures at 9 a.m. (Dry bulb) and amount of rain, if any, in the preceding 24 hours.

**Rain Maps of Victoria.** Months of July 1938 to December 1938 inclusive and the year 1938 showing the total amount of rainfall at various stations and the amount below or above the average for previous years or records. Notes on the weather over Victoria during the month or year are attended together with a summary of the mean district rainfall. The latter gives percentage departure from the average for previous years.

Daily maximum temperature readings at Melbourne were also submitted in pencil. A copy in ink numbered (1) is attached herewith, together with the daily 9 a.m. and 3 p.m. relative humidities at Melbourne for the period 15th December to 31st January. The humidity data for Melbourne should represent conditions in the country on hot days but may be rather higher than country humidities on cooler days.

No data are available for country stations as yet as the reports are not posted until the close of the month. Telegraphic reports are available for 9 a.m. and a few of these are entered for comparison for the 10th and 13th. These show humidities higher than those at Melbourne. Other sheets appended are (2) showing maximum temperatures and humidities for the month or six weeks preceding the fires of February 5th, 1932, and February 14th, 1926.

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FOLKLY.
(3) A table showing mean maximum and mean temperatures at a number of stations in or near areas affected by bush fires during the three or four months preceding the fires of February, 1926, and 1932 and January, 1939.

(4) A table showing mean district rainfall and percentage below or above normal for the following districts -

- No. 82 (Lower North East).
- No. 83 (Upper North East).
- No. 85 (West Gippsland).
- No. 86 (East Central).
- No. 88 (North Central).

(Shown on accompanying map).

Several of the divisions shown on the rain maps previously submitted are sub-divided in this table which, therefore, gives a closer approximation to the rainfall in the bush fire areas.

In addition, it may be stated, that the mean district rainfall for three months preceding the bush fires amounted to approximately 2.5 inches per station in the case of the recent fires as compared with 4.1 inches in 1925-6 and 4.3 inches in 1931-2.

(5) Graphs were compiled by the late Mr. Henry Barkley based on an analysis of weather conditions and bush fire damage in February, 1926. These show the relation of resulting damage to

- (a) Relative humidity;
- (b) Wind velocity; and
- (c) Wind direction.

The graphs indicate a maximum of bush fire damage with northerly winds, low relative humidity and strong winds. The data upon which they are based is probably insufficient however to formulate a general rule. If a change of wind occurs without rain, fires may continue to burn strongly in a new direction. This may explain the secondary maximum of damage with south-wy winds on
The corresponding peak with westerly winds may be found if other cases were similarly analysed.

(6) Mean relative humidity at certain stations for three months preceding bush fires of 1926, 1932, and 1936.

(7) A statement of winds at Melbourne from 1st January to 14th January inclusive 1939.

The information contained in the above statements may be summarised as follows:

Conditions during the three months preceding the bush fires of January this year were considerably drier and warmer than during the three months preceding the bush fires of 1926 and 1932. Temperatures during the period January 8th-13th, 1939, were much higher than during the previous outbreaks referred to. This may be illustrated by the maximum temperatures registered at Melbourne which give an indication of comparative conditions prevailing in the bush fire areas.

January 1939 - 109.6 degrees on 8th, 112.5 deg.
on 10th, 114.1 deg. on 13th.
February 1932 - 93.1 deg. on 4th, 86.9 deg. on 5th.
February 1926 - 96.6 deg. on 7th, 93.7 deg. on 8th,
103.6 deg. on 14th.

Isobaric charts for January 7th - 14th are also submitted together with a copy of a chart for February 14th, 1926.

Footnote referred to on page 1.

"Research by the late Mr. Barkley showed that the risk of bush fires in the Gippsland Eucalypt forests became critical when a temperature of 90 deg. was reached with a relative humidity of 30 per cent. or lower, and a northerly wind."
MR. GOWANS: Attached to this statement are the various exhibits referred by you in your statement?—Yes.

I will put them all in as one exhibit.

..................................EXHIBIT "H"................Statements attached to evidence of witness, Foley.

There is nothing you desire to add to the evidence I have read?—No.

THE WITNESS WITHDREW.

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HAROLD BURSTAGE GAMB, sworn and examined:

MR. GOWANS: What is your full name?—Harold Burstage Gamb.

You are an officer of the Meteorological Bureau?—Yes, I am a forecast officer.

Does the Forest Department get any weather bulletins from you?—Yes, the Forest Department gets most of our publications daily. They get the Bulletin of Victoria weather which shows the temperature, wind, weather conditions and rainfall. They also get a daily rainfall map showing the distribution of rain over Victoria; they get a copy of the daily weather chart and a copy of the forecast issued for the next 24 hours.

At what time of the day do they get that?—They get the bulletin and rain map before 12 noon, and the weather chart and forecast later in the afternoon, about 2 p.m.

I understand the Bureau on occasions issues special warnings with regard to the possibility of bush fires?—Yes, when it is said by the forecast officers' conditions are becoming dangerous for bush fires— that is when weather is very dry with, strong northerly winds, or strong winds of any description are expected, and humidity is very low—we issue special warnings to the Forest Service and also to the general public through the Broadcasting Commission and the press.

I understand that the Forest Service uses these warnings for the patrols in spotting fires.

Our advice are issued as necessary or if it is expected
there will be changes in those winds.

Have you a list of the special warnings that have been issued for the last 12 months?—Not for the last 12 months. I have them for the present season. The first warning was issued on December 3rd and there was confirmatory advice on the 4th—the following day. The next occasion was December 15th with confirmation on the 17th, and on January 6th, 7th, 8th, 9th, 10th, 12th and 13th. There were also advisories issued on the 26th and 29th January, also one was issued yesterday, February 1st. The latter one, of course, was not confirmed this morning as it was not really warranted.

I understand from the previous witness that the method of issuing those statements is to make them available to the Australian Broadcasting Commission for broadcast over the air?—That is so. We also issue them to B class stations if they desire it. We disseminate the information as widely as possible. The tone of the warnings are that they advise the public over the air that conditions are dangerous for fires, and they warn the general public of the care of fires and lighting of fires.

Are they issued to the press?—Yes, they are issued to the press.

THE WITNESS WITHDRAWN.
ALEXANDER EDWARD KELSO, sworn and examined:

MR. GOVAN: What is your full name?—My full name is Alexander Edward Kelso, and I am an officer of the Melbourne and Metropolitan Board of Works; I am engineer in charge of the Water Supply.

Do you produce a map showing the area in Victoria controlled by the Board?

Yes. The only stipulation I will make about that is that it shows the water supply area controlled by the Board.

I have not specially marked on it the Metropolitan Farm or sundry areas for sewerage purposes.

............... EXHIBIT "O" ............ Map of Metropolitan Board of Works Water Supply Areas.

There are certain areas marked out in brown; they are the areas you are referring to?—Yes, those are the water shed areas of the Board.

Then there is another area marked in slightly different color?—The Upper Yarra Watershed area which has been granted to the Board, but not used for water supply purposes. There are special conditions applying to that that may become relevant to this inquiry.

In those watershed areas are there any inhabitants at all other than officers of the Board?—None whatever.

What organisation has the Board for control of those watershed areas?—

The organisation, and I take it you are referring to personnel, consists of two types. One type is concerned wholly with forest control, that is to say, they make and maintain breaks, they patrol; they are on hand continually at critical periods for the purpose of putting out fires, and that is their job. There is an organisation of that sort in each watershed area. On the spot they are under the control of a Senior Forester and each district is under the control of a district officer, who, of course, does other things. The whole of the districts are under the control of the Engineer of Water Sheds who is the Central...
co-ordinating officer. It is his duty to see that the whole
staff is worked to the best advantage, independent of where the
staff is placed or where the fire may be, and he is under my
direct control as to general, and in some cases, special operations.

The other type of organisation is the ordinary mainten-
ance and operating organisation, consisting of caretakers, their
assistants and the staffs under them; again directly under the
District Officers, so that in any given district all the forces
available may be concentrated on a point where they are needed,
and again those men under the Engineer of Watersheds. So that
as a whole the organisation is perhaps not a big one, but it is a
complete one in that its operating staff has a means of bringing
to a central point a description, a statement of any emergency
that may arise, and a means of using the whole of the forces
available in any particular place that may be necessary.

THE COMMISSIONER: Has any of your territory been affected by the recent
bush fires?—A great amount of it.

MR. GORDON: There are, I understand, by-laws with regard to the
control of your areas?—Yes, I produce the by-laws and will read
the relevant clause, which is Clause 56, By-law 34. (Read).
Otherwise the control of those areas is affected under the terms
of the vesting, that is to say, they are vested wholly in the
Board of Works for Water Supply purposes.

I understand there are no leases or licences issued by the Board for
cutting timber in any of those areas?—None whatever.

You have told the Commission certain of the Watershed areas were affected
by the fires in January; are the positions of those fires
marked on the map you produce?—Yes, but an explanation is
necessary to make it clear. I will make that explanation without further questioning if I may. I have gone further back than 1st January, because there may be a question arises as to whether that is unnecessary in considering the fires of January. Concerning the Maroonah Watershed I have marked on it the individual fires which occurred before the 10th January on which day a large fire, that we have heard spoken of, swept from the State Forest in the Toolangi district through the watershed in about an hour. The whole of the watershed was affected and part of it quite badly in that time, and had I shown the affected part I would have blotted out the records of the other fires which preceded it. Therefore, I have merely noted on the map "Watershed swept on 10/1/39".

The 0'Shaamassy watershed was not swept in the same way. I have shown on the plan the original entry of the fire into that watershed. I will describe the actual circumstances shortly, and I have noted on that watershed "Partly burnt". Now the position in that watershed is that the fires have been put out as at present; a substantial part of that area has been saved. Whether it will remain so during February is another matter. However, I have not attempted to mark the individual places where fire has been in that area, for I have not had those places surveyed and I could not mark them accurately. I can, however, give a general statement considering the position in that watershed.

In the Upper Yarra watershed I have not shown individual fires for the reason that we have no forest control in that watershed. We have knowledge of fires that occurred in it but we have no definite evidence that can be submitted as to a particular fire at a particular time. I have noted on the map "Watershed swept on 13/1/39".

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Coming firstly to the Wallaby Creek watershed, the general position there is that the watershed is substantially un-affected. No general fire swept through that area. Our experience this year has substantially been our experience of many years, that is that numerous fires have broken out on the boundary of that area and everyone of them has been put out. On the 9th December a fire swept in from the west on what was stated in some places to be a 90 mile an hour gale - from the Bruce Creek direction. I have no knowledge where it originated and a very close inquiry would be necessary to establish that fact. However, it swept through part of the Plenty. This watershed consists of three sections, the Silver Creek, the Wallaby Creek and the Plenty. The fire swept through part of the Plenty watershed, which I have marked clearly by red lines. It was attended by our staff.

On this occasion approximately 25 men were concentrated on that fire for three days, and was, at the end of the second day, got out. It was subsequently patrolled for a week.

Would you mind, as you go along, telling us who put these fires out? If the Commission desires the actual persons who have knowledge of all the conditions, they can be called. This evidence I am giving is in a sense a summary of the position. There is no other way to do it. There is no one person knows, from his own knowledge, of these things. I, from my own knowledge, know some of them.

Can you tell the Commission whether they were put out by your officers or by the officers of any other Department? This particular fire was put out wholly by the Board’s officers. The fire did not break out again after this week of patrolling although there was a thunderstorm at the end of that time and we had no more trouble from it. On the 13th December, that is some four days afterwards, a fire worked out from the Arthur’s Creek district, that is generally
south of Kinglake. It approached our area in the vicinity of Tommy's Hut and entered into the area a short distance on a front of half a mile. It was attacked by the members of the Board's forest staff and was put out on that day; was patrolled for some days, and no trouble recurred in that section.

The Commissioner: That is in the region of the Toolangi area?—That is generally east of Toolangi. Tommy's Hut is actually on the Dividing Range.

It is at West Kinglake—It would be correctly described as West Kinglake.

The direction, however, of that fire, as far as we have ascertained, was from Arthur's Creek which would mean that the fire travelled north-west—not a prevailing northerly at all events.

I would say here that we do not hesitate to go outside our area if a fire threatens it. We have actually gone 12 and 15 miles into the adjacent areas and our men have camped as long as 12 days after the fire was put out to make certain it stayed out. However, in a big fire like this we have not the staff available to take general control of the forests, and this fire was a fairly extensive one. We did tackle the fire outside our areas, because that is the best place to fight fires. We do not want our areas damaged; but we have not the right to go and burn breaks on other property. Naturally, if we had a misfortune in burning the break we would be responsible. However, that has been done; we have taken the risk in some cases, particularly in the State forests, and we have been uniformly successful in putting out the fires.

On the 21st December a fire approached, again from the east and was arrested on a half mile front on the Yea road, north, of course, of the Dividing Range, a distance of about 5 miles north of Tommy's Hut. This fire was put out over the night of the 21st, again patrolled and held safely and no recurrence.
On the 25th December another fire from the same direction, now about 3 miles north of Fossey's Hut and again in the vicinity of the King Parrot Creek and along the Yea road. It was fought on a front of a mile, put out, patrolled for some days with no recurrence. That fire was in State forests. On the 25th December, that is the same day, a fire broke out a short distance inside the Board's area. It was immediately attacked, was put out quite soon, again patrolled, and again no subsequent result. That fire did not break in from outside; it was carried in from outside, and the area is wholly within the Board's boundaries. It is roughly circular, involving, I think, about 50 acres.

What is the difference between breaking in and being carried in?—When breaking in a fire would show a trail right through the boundary; this fire showed no such trail.

MR. GOWANS: That is only an inference.—It is. It could have been lit; but as it occurred on the day a fire was burning about a mile away in the State Forest, the inference is a good one, although it is not absolutely watertight. That is the whole story of the Wallaby Creek watershed as far as these recent fires have been concerned. Every fire was put out. No fires started inside and went out. All fires except one were definitely swept into the area from outside. There were other fires in that vicinity; I have no knowledge of them. We have had some statements from our men; but I thought they were perhaps not relevant. There was a fire in the area in the vicinity of Sugarloaf Creek which threatened Yan Yean. The Yan Yean Reserve of 5,700 acres has not been entered by fire this year.

Turning to the Watt's Watershed, that is the Maroondah watershed, on the 9th December four separate fires were put
out or, I should say, started in the Donnelly's Creek and the Saw Pit Creek area. That is on the western boundary of that water shed. Myer's Creek settlement, that is the settled area of Myer's Creek is not far away; it is only a few miles south-east of Toolangi, of which we have already heard.

It is about 8 miles, is it not?---That depends upon where you place Toolangi. The actual fires were about 4 miles south-east. From the boundary of the forest area they were about one or one-and-a-half miles at their closest, that is in the vicinity of Mt. Bonita. Those fires were attacked on that day and were found to be very hot. They did not all break out simultaneously. The men were fighting one when another occurred and so on. It took two days fighting to get one out, but they were got out. They were not extensive; the large one was two miles approximately in diameter. They were again patrolled for a number of days and we heard no more of them. They were absolutely extinguished.

THE COMMISSIONER: What did you think might be the cause of them?---That is actual speculation. I am not in a position to speculate, but if you value the speculation of the men who attended those fires, they gave two reasons. One was the possibility that the fires originated from burning off in the Myer's Creek settlement area, and the other that burning debris was carried down from the fire known to be burning at that time at Toolangi.

MR. GOVANS: The Myer's Creek settlement area you refer to. Is that above Myer's Creek Falls or below it?---I am afraid I do not know where the Falls are.

They are five miles from Meanseville up the Myer's Creek road?---That is not very far from the line of these fires. I should think that the fires were in a straight line, pointing generally westerly.
From Warcondah?—No. The four fires were in a straight line.

A westerly or north-westerly line would cut the lot of them.

Is it seriously suggested that a fire could arise in the Warcondah area from burning fragments brought down from the Toolangi fire?—Seriously. It is not seriously suggested it did. I will establish for you with certainty that the Warcondah Plantation was ignited six miles from the fire on the big day.

Is that the fire you are now going to deal with?—Yes. I feel that there is no doubt it could, but as to whether it did, I have told you it is only speculation. Other fires in the vicinity of the Watts River watershed did occur before what I call the deciding day on the 10th January. It is known to us and it has of course been told in evidence here that there was a fire burning in the Toolangi area in the first week in January. Our district man attended that fire, and I say attended on this occasion. He did not take his men to fight that fire. He will be called to give such evidence as he can, but we do know from his observation and from that of other men that, that fire was burning in that district for at least a week. It was burning on the 1st January with certainty and that was definitely the fire which on the 10th swept into our area with such violence that no man could go near it. The district officer gave instructions for the withdrawal of the men and fortunately so. He was quite right. On the evening of the 9th he was requested by one of the officers of the Forests Commission to give assistance the next day, that is on the 10th, to the Forests Commission in the vicinity of the Karathong Plantation. He sent all the men he could spare, that is seven, to fight this particular fire, but owing to the rapid development of the fire he with-
Brew his eve at noee. His statement to me was that the Forests Commission men had at that time already been withdrawn so that he has a definite knowledge of the position of the fire.

The first outbreak of fire in the area was the pine plantation. The pine plantation I refer to is that right above the reservoir, not the one near the road; but the one remote from the road, close to the caretaker's house, - it is at the spillway end of the dam. At the time that plantation caught the fire was not in view over Mt. Hondo. There was a tremendous volume of smoke, but the fire was not then over the ridge.

THE COMMISSIONER: There is a picnic ground there, a public park?---
No, it was down behind the Reservoir. This particular part is close to the caretaker's cottage.

I thought the caretaker's cottage was below the weir?---There are two. One of them is at the exclusion gate and the other one is inside near the outlet door. You cross the dam and drive round to the back. It was the plantation around at the back that caught. However, there can be no doubt about it.

The men saw the burning debris being swept across while they were fighting the fire in the plantation. The caretaker from the other side came across in his car and told them the other plantation on the public side was on fire. They had already got the first plantation under control and they went across to the second plantation. They had a very good chance of having that under control when the main fire swept the whole place. Those men were exceedingly fortunate they did not get caught in that fire which came from the road, I should say in half an hour.

Did it take both of your plantations?---Half of the plantation which they were fighting is saved - undestroyed - the others have been gutted. There can be no reasonable doubt that, that fire did,
on that occasion, ignite six miles ahead, for the men who were beating it were in a position to see the ridge. They have stated, and will state to you, if you desire, with certainty the fire at that time had not crossed the ridge. It did so very shortly afterwards.

Can they say they saw the burning material coming across?---Yes.

I would certainly like to hear them?---They will be called. That takes us from the Macquarie watershed. The destruction there is very variable. There are some places that have not been so severely burned. There are some places where the fire was exceedingly severe, those facing north which were fanned by the full force of the northerly.

How did the town of Healesville get on. From the description the fires were all around the back?---This particular fire swept across. The fire on the 10th was fortunately not close to the town itself; it was almost wholly east of it, but I understand that on the 13th the fire came very much closer to the town of Healesville, along the ridges west of Myer's Creek road. At all events, I saw them burnt afterwards. I would say as a deduction that was the time Healesville was in greater danger; but, of course, Healesville has enough cleared land to prevent a forest fire from entering it, that is a direct burn. The danger to Healesville would be from those burning flying fragments, and I understand that was a real danger.

Mr. Coward: What day was Graceburn in danger?---Graceburn, I understand was in danger on this day, the 10th.

The Commissioner: It is pretty close to your public side plantation?---It burnt there but they have not been damaged to anything like the extent as some other parts. The fire did go through that area. I would say, and it may be useful in other respects, that the intensity of a fire is exceedingly variable. It does depend on a great
number of conditions and I am sure you will hear evidence that
will support that. Sometimes the fire does leave particular
places, although burning particularly strongly in the vicinity,
unburnt by the change of wind and moisture conditions and other
things.

THE COMMISSIONER: It is very erratic in its conduct is it not?—
Yes. I am going back again. I have gone through the
Maroondah watershed up until the 10th. After that I have
not attempted to make any statement of what was occurring.
The fires could go anywhere in that vicinity. Any unburnt
part would be swept unless it was put out at once. Such
places as were left in the vicinity of the watershed were
put out as far as we were able, but at this time we had a
tremendous job on our hands. On the 6th January, that is
going back some four days, a fire on the Warburton side in
the Yarra Valley swept up on the west side of the Don River
towards Mt. Toolebewong. That is commonly known as Nyora.
It did not come right up the mountain but was diverted in
a north-easterly direction on that day. On the 6th our
caretaker on the Bee River reported a fire on the Ben Cairn
road behind Ben Cairn. That fire was fought by our
Warburton men and by Forrests Commission men and was put out.
When I say put out I do not mean there was no vestage of
fire left. Continual patrolling is necessary after a
fire is put out on account of burning logs which cannot be
put out without water, and a lot of it. That particular
fire was not in the Board's reservation; it was on the Ben
Cairn ridge some half mile from the Corrand Merr Reservation.
It was left by our men, taken over by the Forrests Commission,
and the report is that subsequently that fire broke out and
got away again. On the 10th January, on the south side of
Ben Cairn is a very good stand of young Mountain Ash another
fire broke out at 5 O'clock. It will be a matter for speculation whether at 5 O'clock that plantation was ignited from the Maroondah fire some miles to the north.

MR. GOWANS: At least ten miles?—No, a matter of two miles, for the fire at that time reached the limit to which it did burn. If at 5 O'clock there was a change of wind to the south that fire lost its sting; it was not put out but it was not capable of throwing this huge volume of sparks which results generally from a heavy fire, that is a top fire.

What day was it that it burnt Robertson's place?—I cannot answer that, but I know it was burnt. I should say it was after the 10th, because our Corranderk catchment, which is part of the watershed, was not burnt out on the 10th. In fact, it is not now burnt out because we put the fire out subsequent to the 10th. Some parts, however, are burnt.

This 5 O'clock fire on the 10th occurred in State forests. However, I understand by that time the position was exceedingly critical everywhere along the southern slopes of the ridge — the Donna Buang to Ben Cairn ridge.

We have no more information about it. Our men have noted its presence and I have nothing more to say about that.

THE COMMISSIONER: Where is Ben Cairn from Donna Buang?—A little south of west and about three miles distant from the big outlying points of the main ridge, which runs along between the Yarra, that is the main Yarra, and the Watts.

MR. GOWANS: Your reservation runs along the northern side of the ridge?—We are right up to the top of the ridge, — the Ben Cairn — Donna Buang ridge. Our reservation actually reaches back to Donna Buang.

My recollection is that is a fairly narrow strip on one side?—No. The whole of the brown area marked on the map produced is the Watts catchment, and the Corranderk part of
it, the tributary part of it is just the southern portion. The ridge is the boundary of the brown line. Again, we virtually have the same picture, every fire which broke out in that watershed before that critical day was put out and we heard of them no more.

THE COMMISSIONER: What were the temperatures and conditions on the days you put out those fires - I do not mean the actual temperatures, but were they very hot days? - As to those days, the 9th, and the 13th, the 9th was the night we attacked the fire. We attacked that fire at night. We fought it all the next day and we had it virtually beaten on the night of the day on which it came in, I cannot tell you what those days were. We may be able to recall the 25th, I would think that was actually a hot day. However, all those facts can be established.

From what we have heard I was wondering what is the state of your reserves and how it is you can get the fires out in time. Do you act promptly? - What is the state of our reserves, as you heard of them?

I understood you have what is described as rubbish on your reserves? - I did not hear it stated, and if I had I would have done my best to establish whether that was a fact. In a moment I will be stating what I consider to be the condition of our reserves.

Tell me the state of your reserves and tell me how you can get your fires out on a day like that? - We got no fire out on the 10th.

I thought you said you did, the one that you attacked at night? - That was on the 9th December, not the 10th January. The evidence has not come in the way I intended to put it to the Commission, but what I have to say in this: that every fire which we have attacked as soon as it took place, that is, while it was a small fire, we have got out.

Going back a long distance in the history of the Board
the only fires which have come into our watersheds and have
done damage — and they are very few — have been fires which
had achieved tremendous dimensions before we could get at
them.

You have to act pretty promptly to do any good?—Yes. What I am
submitting is that in these areas, extending over 150,000
acres, we have had knowledge of the conditions over a
period of very many years, and in that time every condition
will have arisen except this very acute condition which
may occur perhaps once in 100 years. Under all
those conditions we have succeeded in putting out every
fire which threatened our reservation, and we have put out
every fire originating inside them.

MR. GOWANS: Do you use any methods other than those commonly used
by the Forests Commission?—Not to my knowledge. We
follow the ordinary methods of using shovels and beaters,
asking small fire breaks, burning back in a limited way
where necessary and using map sack sprayers where water is
available. We have that advantage that there is generally
water available somewhere, although I will say the hand
method without water has put out most of those fires.

You would not have any more men available than the Forests
Commission?—The position is that we have 50 men avail-
able in the watershed and we do shift them, so that we
can put the 50 men on any fire if we wish to do so.

About 100,000 acres out of that 150,000 acres in our area
is the forest part and we do not limit ourselves to the
50 men. If necessary, we bring in the ordinary staff
which is busy keeping the water flowing. When we have
been faced with the worst conditions we have brought in
our construction men. In the 1926 fires I was per-
sonally in charge of the fire fighting in the vicinity
of the O'Shannessy River, and on that occasion we threw into the fight 250 men from the Construction Works. In regard to this area I have not yet reached in evidence, we threw in 100 men this year from the Construction Works, and we do call on whatever resources we think necessary, up to our limit, when we have to do so. We consider it worth while, we consider that the loss that is involved is far outweighed.

MR. GOWANS: You ascribe the success of your method to the energetic manner in which you deal with these fires? Undoubtedly, firstly in having patrol men watching these fires - not waiting until we hear of them or until they have been travelling through the bush and have achieved dimensions that would require an enormous number of men to deal with them. They watch such fires day and night and they have men ready to turn out. Moreover, we do not leave the fire, we patrol it until we are certain it is finished. In many cases we do patrol for weeks.

Have you used the method of burning back into the fire as described by Mr. Ezard? Only in emergencies. In emergencies I entirely hold with the statement of witnesses that that is the only thing to do. You are then considering saving particular property and life, not only forests. That emergency arose on the 10th January; but we had no opportunity to burn back, the fire was too fast. However, in emergencies of such a nature and to my definite knowledge we had them in 1926, we have burnt back. If we have the opportunity, and we generally do, we make a small break to control the burn back so that it cannot get past the fire itself on the flanks, in the wind, and so make further trouble. That is quite successful, particularly if done at night. I am now proceeding eastward and I will have something to say about the condition of these reserves.

THE COMMISSIONER: Do you have trained men, do you have your men
controlled?—I would say there are no better bushmen than
the majority of these men, they are men who have been in
the forests all their lives and almost without exception
they are men who are reliable if left to act on their own
initiative; but they are under direction and there is
definite co-ordination with that purpose in view. A
fire broke out at Riddell about 18 months ago and we brought
in all our men. The conditions in all the other water-
sheds were safe and we concentrated the Yan Yan, the
Wallaby Creek and the Watts men, also some of the
O'Shamnessy men on that fire. We fought that fire all
night and got it out. However, such a co-ordination
involves difficulty; it involves an intelligence system and
I will have something to say in a constructive way on this
matter later on, as to what I believe is really necessary
in my opinion to deal with this actually serious emergency
that has arisen in our forests. On the 9th January a
fire was noticed by one of our patrol men in the Acheron
River Valley. He will be called and will tell the
Commission all he knows, which is not much. That fire was
a long way from his particular patrol line, which is on the
Blacks' Spur. However, that evidence may have some bear-
ing on the statement that has been made that the fire which
swept the Acheron Valley on the 10th January was the one
and same fire that swept Toolangi. I do not know what
importance may be attached to that, but that is an actual
fact and it was reported by the patrol man. On the night
of the 10th January this fire swept the Maroondah water-
shed and so far as that watershed was concerned it was
finished that day at 5 O'clock; but the travel of the fire
was by no means finished. This fire, or some other,
swept the Acheron Valley and at 11 O'clock that night it
crossed the Acheron Gap, that is to say, the place where
the Acheron passes from the Yarra Valley into the Acheron Valley. That fire swung around the eastern spur of that gap and at that stage, if not before, it again became an extremely active fire. It swept into the O'Shanessy Valley and down on our O'Shanessy quarters, that is the Board's accommodation house in the O'Shanessy Valley, quite close to the mouth of the valley and only a mile-and-a-half from the top corner of the Acheron. It swept around that spur with extraordinary vigour for a fire burning at night and came down on the quarters. There were 100 men fighting it at the quarters from midnight until about 4 or 5 O'clock in the morning. The alarm was given about 11 o'clock when that fire became visible, and in that period there was sufficient time for a concentration of that number and the quarters were in fact saved after a struggle. On that occasion, in an emergency, they burnt back. On the following day, and this is actually from personal knowledge, the fire burnt through crossing the O'Shanessy River. I cannot say just when it did cross the river, but when I saw it at 4 O'clock on the 11th January it was then across the river and had just penetrated the O'Shanessy Valley, although it was not then in the O'Shanessy watershed. Our fire fighting men were re-organised on the following day and we did, with considerable difficulty, on this occasion, control that fire. It was actually under control, but it was not out; there were parts of that fire burning in places that were inaccessible. It was burning in places we could not get into at the time, with the men we had. However, substantially although that fire was burning quietly in some places, it did go up that Valley for some distance without doing a great deal of them. On the following day, the Thursday, the fire was practically out;
but on the Friday the fire swept over again from the Asheron, further north in the vicinity of Mt. Strickland. Again on this occasion conditions were extremely difficult and a further part of that area was burnt. The position is, however, that we have saved a very considerable part of the area, that is the Mountain Ash area which is liable to very considerable damage if a fire gets into it. That watershed is not very badly damaged. In regard to Silvan, unfortunately I was so rushed that I finished this report only very late last night and I was not able to obtain the report that came in about Silvan. There is a very small reservation of about 2,000 acres there and I can say it was burnt or partly burnt; but I have not been able to mark on the plan the exact position where the fire was nor have I got the actual data.

Do you know where that fire came from?---I have not that actual knowledge. Probably it will be available from one or other of the caretakers there. If it is in the report, I cannot remember it. It is not a catchment there, it is simply that the whole of the drainage area around the Silvan dam has been purchased by the Board and set aside in order to exclude settlement. That is from the point of view of pollution, so this area is not in the ordinary sense a forest area, although it is bordering on the small Mt. Dandenong State Forest.

It has plenty of timber on it, has it not?---It had some timber on it when we bought it. The actual area is timbered, but not in any sense for forest purposes. It had been all milled before the Board obtained that area, except one small portion, that is not very large. That is vested under Title in the Board; it is not vested in the Board in the same way as the other areas are. One fire I have missed mentioning is the fire that broke out on the 31st December in the Cumberland area,
that is the Mountain Ash area, with the big trees. We had our patrolman up there because that is the northern boundary of our area. He noticed this fire; he was not able to get our men up quickly as this is very remote from the main centres of control. He had one man with him and he sent a message to the forest officer at Marysville, who brought out other men and they fought that fire which again was completely extinguished on that day, the 31st December. I would like to enlarge on the actual practice and the policy of the Board of Works in these areas. It is based on 90 years of experience in these identical forests, and the Board holds that fire is destructive to their most productive part, that is, the Mountain Ash Forest. The Wallaby Creek catchment was set aside by the Government for water supply purposes in the years when the Government itself was the Water Supply authority, that was between the years 1853 and 1891, when that area was controlled by the Water Supply Department of the Crown. In the early days of that watershed there was settlement in it and there was timber industry in it. There were timber cutters, splitters and millers in that area in those days, and it was so devastated that one can see the result today; there are certain places which are still named for the camps which were there. In those days fires did go out of the watershed and very destructive fires did great damage. The Government was so seriously concerned with the effect of that on these, that it said "We will set these aside permanently so that they may not be so destroyed"; The Government gradually removed from the area all settlement and all timber industry as their leases expired. If the Commission wishes, I will call evidence to prove that for many years, and probably right back to that time, no fire has ever gone out of those watersheds, having started in them, in that watershed or any other. Every fire that has started

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has been controlled in that watershed, and tremendous numbers of fires have been met which approached these watersheds from outside and have been extinguished. Only these very few extraordinary fires have actually swept the watershed. The Board's policy then is based on that experience and the knowledge that the very fine Mountain Ash forests in the Plenty area, Wallaby Creek and Silver Creek were in fact drifting back to bracken. Even now, some of those areas carry nothing but bracken, and that was due to destruction by fire. The Board has recognised that the only way to safely hold those areas for water supply purposes is to protect them as forests; to retain the forest, to encourage its growth and to do everything to re-establish the forest in those destroyed areas. That is the policy of the Board and it is also the policy of the Board to absolutely exclude fire or any use of fire for cleaning purposes, except in connection with fire breaks, and it is used there. That Wallaby Creek area is completely surrounded by a three-chain firebreak, which is cut and burnt every year, every part of it. There are numbers of internal fire breaks also protecting different places. If the Commission desires to see that area and the conditions of those fire breaks, I will be very glad to show them the area.

THE COMMISSIONER: I would like to do so.

MR. GOWANS: You are not using these fire breaks only for the purpose of controlling fires in the watersheds?—Definitely they have that purpose and do service. They are also a restraint on the entry of ordinary fires and are very valuable for that. Ordinary fires probably constitute about 90 per cent. of all fires; that is, fires that are not particularly dangerous. A fire break of three chains in width, if kept in a clean condition, will stop
such a fire. Those breaks are also used for motor transport and to bring the fire fighters to a position to fight a fire and to protect the fire fighters themselves while working there. It is also a definite place for burning back from. In that way a 16 ft. firebreak can be used. A 16 ft. firebreak does not sound suitable for such a purpose but it is, more particularly if the rubbish on it is cut; but if the rubbish is cut and not consumed, it is not. I say after a long experience it would be well worth while to burn every bit of rubbish from a firebreak and so make sure that the place would not become an inferno in the case of fire.

THE COMMISSIONER: Are you using the word "rubbish" in the same sense as it was used by Mr. Hazard - something growing? - No, something cut and dead.

We want to get our terms clear, if we can? - He used the term for heads of large trees, trees which were cut and the pieces left. We do not ordinarily use the term "heads" for cut scrub, because "Heads" means what is left of the big tree which has been cut for milling or firewood purposes. When I use the term "rubbish" I mean inflammable debris, really more inflammable than the ordinary forest. What I say about the 16 ft. firebreak, or any other firebreak, is that it is most desirable the cuttings from that break should not be cut and left there to dry and so become a danger to the men working there, - they have danger enough without that. If it is a matter of economy, then it may, in places, prove fatal if such debris is left. Otherwise, the 16 ft. firebreak is a very good means for starting a burning back, although it does not serve the general purposes of a good big firebreak.

MR. COWANS: Are you annually cleaning up these firebreaks? - We cut the stuff and burn it every year along these firebreaks.
The Board has recognised that the only satisfactory means of ensuring the permanency and sufficiency of water through these areas is to absolutely conserve the forests, to do everything to keep them and encourage them, because the Board knows from experience that even a small fire does destroy the Mountain Ash sooner or later. The Board itself does not use fire inside the areas; but it does on the firebreaks. In the vicinity of ash trees on the firebreaks, where we have left some big trees, the debris is removed, attacked and burned in places where it cannot destroy those trees. It is a matter of experience and although in some particular places Mountain Ash may, to some extent, survive a creeping light fire, some of it is destroyed, and if that kind of practice is carried on at frequent intervals, as it necessarily must be in some places, then in the end the whole lot of the young growth must be destroyed. If you destroy the young growth, at some stage you lose the lot. If you do not keep your forest continually regenerating, if you follow practices that sooner or later damage the young timber, then you are in fact endangering the trees. To endanger the Mountain Ash forests on these watersheds is to actually endanger the supply of water, not of course to stop it, but definitely to limit it and decrease the usefulness of the particular area for water purposes. Now it has been said there is a clash of policy. There is no clash of policy in forestry as such, that is, the preservation of forests and water supply. There is a clash between those who use forests for commercial purposes and those who control forests for water supply, because you cannot use the latter forests for commercial purposes and still have them.

Is there a clash between bodies?—There is not a clash between bodies, but between interests. I am not at present suggesting there
is a clash between organised bodies; it is a clash of opinion.
You have heard this morning something about conditions that may
sometimes be set up in areas where milling is being carried on.
Those are the conditions that are known to have been in existence
in connection with those areas when they were used for milling.
That is why those areas were excluded from use for timber industry
and it is the policy of the Board that for water purposes the
forest must not be used for industry because of the risk of fire.

THE COMMISSIONER: What does that result in?—That results in a forest
just in its natural condition, as it was before.

Do you go in for thinning in your forests?—No, we do not artificially
establish any condition in the forest that is not natural.

You let all the scrub and growth grow?—In the natural forest there is
not such scrub. I can show you forests in which there is not
such scrub and in which you can ride uninterrupted without
trouble. I am not going to suggest the forest floor is clean
by any means; but it does not carry dogwood scrub and this
other kind of bush which normally follows after fire. We have
parts of our areas where there is such scrub, and we will not
attempt to deny it. There are parts to which fires have had
access and we have put them out. In those parts I have no
doubt you could find bracken and dogwood. For instance, above
what was the Fernahaw Tea rooms locality there was a point that
was all bracken. You could call that dirty, and it is in
that sense. That is a point that has been burnt, it is where
the public have had access and where for many years there was a
settlement and where in our time the Board has actually been
drawing water. There have been fires caused by the public
boiling billies at spots other than in the fireplaces that have
been provided. That area is dirty but it is a great deal
harder to arrive at a definition of "dirty" than it is to arrive
at a definition of "rubbish".
Is it your view that once a fire has gone through one of your areas and created that state of affairs you have suggested, that area should be left in that state in perpetuity? In regard to that state of affairs, the real scrub does not generally arise through one fire; it takes several fires to do it. There is a gradual increase of what you can rightly call fire bush and types of scrub that are generated, thickened and helped by continual burning. It is well known bracken thickens in that way and it is very much the same with other scrub that appears after fires. It is our experience that if fire is excluded that kind of bush will gradually revert to the cleaner type of bush.

Is that your hope? We do not have to hope.

Is that your policy, to allow it to go back to that state? A good part of these areas is not in this state. With those that are in that state we hope we will be able to bring them back.

But by no action on your part; merely by the action of nature? Yes, definitely, except on the firebreaks, where there is action on our part.

Have you any idea of how long it takes to bring such an area back into a state of forest? No, you are now asking me something I am not able to answer, or say very much about except that our experience of the Wallaby Creek area shows that we are gradually reafforesting those areas which in the early days were gutted. We are gradually establishing through this area a very good forest and the bracken is being destroyed. It has taken a long while and it was done at great cost, but it has been worth it and the conditions are quite hopeful. I cannot specify and say 5 years or 50 years, but I do feel confident that parts that have been damaged in that way will under this exclusion policy gradually become natural bush again.
but I say a great part of these areas is still natural bush. It is not as clean as a floor that has been burnt, the mulch, as we have heard it called, of leaves, twigs and so forth is there, and there is generally a light scrub, perhaps knee or waist high; but that scrub is not thick. Scrub does not generally flourish in a good forest. That, then, is the policy of the Board, it is not only a policy of maintaining the forests, but of reforestation. The Board maintains a substantial nursery and it makes plantations in places where it feels there is a prospect of re-establishing these burnt-out bracken areas; but above all things its policy is a policy of reforestation in a natural manner.

Before you go further and leave this question of burning off, is it also the policy of the Board not to burn off; but for a different reason, namely, that this mulch would be destroyed and there would be a condition brought about where the water would run off on the surface of the earth?---That is so. Perhaps I passed over that more lightly than I should have done. I have said the maintenance of the normal forest condition is most valuable to the water supply and that is so. The maintenance of a forest mulch, perhaps 2 or 3 inches deep, with the roots of the trees, enables the water that falls on the ground to be retained. If you compare it with the condition of similar ground that has been burnt over, you will find in the latter case the water is not retained, it passes off quickly down the bare surface without impediment. In the former case it is picked up in the mulch, passes into the ground and is stored there. In the case where the ground has been burnt over and is bare the rain carries down what, from my point of view is filth, the soil from the hillside. The water rushes off quickly instead of going into the ground and being made available over a long period. The water carries the earth
down into the streams and reservoirs and nilts them up. The
burning destroys the things useful to the conservation of
water in the soil; it damages all the conservation structures
that are used for water supply purposes. In some areas the
water must become discolored after it has picked up a load of
clay; and so on; it is not polluted in the bacteriological
sense but it has foreign matter in it, it is dirty and must be
treated. In the other case the water is conserved in the
ground and gradually utilised by the streams which are perennial
streams and do not dry up. In other ways, the whole catchment
is a storage for water, if the forest condition is preserved so
that the water can get into the ground instead of running off
quickly. That is the water side of the business and to main-
tain that water side it is essential to maintain the forest side,
and that is the basis of the Board's policy in that matter.

Would you agree that, that state of affairs that you describe is an ideal
state from the point of view of a water catchment area; but
it would also be a very dangerous state in a season such as this,
if a fire were in fact to start in your area?---Definitely, no.
No fire has started in this area in other seasons which has not
been put out.

I appreciate that, but is not that due mainly to the fact you use these
energetic measures you have described?---If we are to save the
forests of Victoria we must use energetic methods everywhere.

I do not think you have quite answered what I am putting to you.

Whatever your view may be and whatever the ideal is that you
would attain, would these conditions in your catchment which
you describe be conducive to the ignition of these forests by
fire?

THE COMMISSIONER: Take it outside their boundaries and say the rest of
the forests, in the same condition. Do not make it look as if you are trying to pin something on the Board. I think the witness will then be more confident.

THE WITNESS: No, I appreciate the point. A forest could be clean in the sense that it has been burnt, and that forest is not so liable to ignition. It can be in its natural condition, but that forest to some extent would be liable to ignition, because it has debris on its floor, or it could be in the condition - I have no doubt you will appreciate it could have on its floor inflammable debris that was not natural, debris which would be more than the natural debris, something caused by the falling of trees to the floor of the forest and leaving them there. That would be more inflammable still. I did not try to suggest these forests are not inflammable, every forest is inflammable. With a natural condition on the floor, such as leaves and so on, a forest is inflammable. It is a matter of getting the whole position in focus.

MR. OWENS: Would your forest be more inflammable than a forest with the floor burnt off regularly?---Most certainly it would. Any forest floor burnt the previous year is not as inflammable as a natural forest.

It occurred to me it might be said why a part of your area, say, around Maroondah was ignited by debris coming from six miles away was due to the fact your area was in a more inflammable condition than the area in between?---It was the area in between that brought the fire in.

But it jumped that area, it jumped the six miles?---It jumped the six miles to our area. That fire had been travelling through these forests to the north of us under quiet conditions for some ten days. Under the influence of this gale on that dry day it became a violent fire and it did actually jump six miles,
Had it entered your area at the time this jump took place?—No.

Then it was at the boundary and it jumped six miles across?—It reached that boundary some time after the jump; but if you want to make comparisons there is no doubt there are some parts of forests in Victoria that are in a natural condition; but they will not be any more or any less inflammable than our forests, which are growing under natural conditions. If it is felt to be a safe and proper forest policy to burn all these forest areas around the watershed area, undoubtedly they will be safer and nothing will be more inclined to save us from these fires that do come from outside.

If these watershed areas were burnt they would be less inflammable; but they would be of no use as water catchment areas?—That is an overstatement, they would not be of so much use.

They would be actually damaged.

THE COMMISSIONER: Before you proceed further, would you say that generally good precautionary methods consist of cutting wide breaks and burning off as well?—Burning those breaks.

And burning beyond them?—No, we do not burn beyond them.

No, not from your point of view, but from the general point of view of forestry and fire prevention—let us get you on to an impersonal topic this time—would you say that would be good policy for ordinary forestry practice?—To cut wide breaks and use fires?

The ordinary practice is to cut good wide breaks as a method of prevention and for checking the spreading of fires?—I have no doubt at all that the use of wide breaks and in emergency conditions the use of those for burning back would be good; but under ordinary normal conditions the cleaning of those breaks by burning would be a valuable forest policy. However, I would say that would not be sufficient unless the men are there and unless those men are so thoroughly organised— and I would suggest the
type of organisation would be such as you would use if this country was invaded by an enemy - real centralised organisation. Unless that organisation is available to make every fire a point of danger to be attacked immediately with the utmost vigour, unless something of that sort is done, the use of fire breaks will only mean going part of the way.

We have all seen a fire burning in the hills and have been told that has been going on for six or seven weeks. You would not have that, you would have it attacked right away?—If it is worth while to this State to save its forests, with all they mean, then it is worth while to go to the great expense of establishing a real central organisation. I do not make any implication about existing organisations or their value; I believe the bush Fire Brigades are exceedingly valuable, but they are not centrally organised. It is like Julius Cesar invading Britain; he had an easy job because he fought the British tribes one by one. The Bush Fire Brigades are like the British tribes at that period, they have no centralised intelligence system to tell immediately where there is a fire. They have no centralised organisation to enable them to shift the whole personnel to areas where they are needed immediately.

Are any of your reserves in the vicinity of settled country?—We have settled country around our areas. The Wallaby Creek area is quite close to the Lake Macquarie settled country.

In the case of settled country, where you have scattered settlements, settlers dotted here and there about the country, what precautions would you take to protect these people. Your first precaution would be a concerted attack on the outbreak of fire; but supposing it got out of hand, what safety measure would you take?—Do you mean in the way of fighting fires once they get out of hand.
I should think once a fire gets properly out of hand you could not fight it?—

I wholly agree with the view that once a fire gets to the condition that fire was in on the 10th January there is no hope of fighting it. You must hope for a change in the weather conditions to make it tractable.

Supposing you had such conditions, what would you say should be done for the safety of settlers dotted about the country side, to safeguard their lives and property, although their property might be gone at that time?—I think their property would be in the hands of fate. Once a fire like that gets abroad some would be saved and some would not. With a limited settlement surrounded wholly by forests in some instances those settlements could be evacuated in a danger period. Otherwise, provision must be provided inside that area for the safety of the people.

Inside the area what safety precautions would you suggest?—Of course, this is merely an expression of opinion after hearing evidence; I have not had any association with the construction of dug-outs, but the provision of dug-outs does seem to be a very adequate method—adequate dug-outs.

I thought you might have followed that line of thought independently?—

No, I have followed the evidence given here today and have also seen statements in the press; but I am not in a position to say how big, where, or how such dug-outs should be constructed. I could not speak as to that just off hand.

Then we will not trouble you along that line. Will you just proceed with your evidence?—There is one thing I omitted in describing the Board's precautions to prevent fire. We have public roads passing through our watersheds and we make provision for the people to light fires in fire places on those roads. In one or two places we patrol the road for the whole length and we patrol the fireplaces particularly. In fact, we do find quite
a large number of people do not use the fireplaces and we do
have to put out fires that are lit by them. However, we have
not had any serious fires start in that way, because of the
regular patrolling. As I have already said, all fire breaks
are regularly patrolled.

MR. GOWANS: Have you any power to prosecute those people?—That is a by-

law matter.

Has it ever been enforced?—Not to my knowledge. Perhaps that answer
should be checked as my actual knowledge does not go back very
far on the question of prosecutions. I am informed unofficially
there have been prosecutions. I have not dealt at all with the
question of pollution in the watershed area but I am sure the
Commission will appreciate that is also involved in the question
of timber industry. That is to say, the bacterial danger to
water is almost wholly due to bacteria that are introduced by
man, such as typhoid, cholera, diarrhoea, and intestinal troubles
in general. Infection by persons whether settlers or men
following the timber industry is a danger and quite a distinct
danger. There has been a recent case at Croydon, in England,
where there was an outbreak 18 months ago which involved 200
deaths. After an inquiry by a Royal Commission the source was
traced to one single typhoid carrier, who did not know he had
ever had typhoid. There can be no doubt that is also a very
important reason why these areas should not be settled and should
not be used industrially and why entry to them should be only
allowed under the strictest supervision. However, that does
not have a great bearing on forest watershed policy.

THE COMMISSIONER: I think this has a fairly important bearing, can you tell
the Commission shortly what is the result on the water supply,
the quality of the water, of a bush fire in your watershed?—
You mean the immediate result? Yes.
After a bush fire of the type that the Harwood watershed suffered, if we had a very heavy downfall of rain the water would become discolored. I mean it would become discolored from the burnt debris as well as from the soil debris. There would be a black discoloration, and such a discoloration was actually noticeable in the Upper Yarra, although for some reason our streams did not suffer to anything like the same extent. That was not due to the rainfall, but to the streams themselves becoming discolored. If there was a heavy downpour of rain that would happen, there would be discoloration of the water and there would be debris carried down. To some extent both of these troubles could be overcome by the use of storage. That is, the water could be held and mixed, and the debris got out. If the water was going into consumption it would probably be necessary to discard it for some time.

Would it be harmful?---I do not think so. There is a possibility of the chemical content of the water being increased slightly by things such as potash, but it would not be harmful. There is no reason to believe that any serious damage from the point of view of purity would arise at all. However, naturally that position is watched very carefully and there will be very careful testing under those conditions. That will be done as soon as we get rain, which I hope will not be long. The long range damage is the important damage, that is, the gradual deterioration of the area as a water area, due to the removal of this forest cover. In this Wallaby Creek area it has been damaged in that way and although the rainfall there is not far from being equal to the rainfall in the O'Shamnessy area and the Watt's area, which are not very different in size, in the Wallaby Creek area there is perhaps 20,000 acres; in the O'Shamnessy area 30,000 acres and in the Watt's area 25,000; the actual flow in this season on that Wallaby Creek watershed has been under 10,000,000.
gallons a day, while on the other two it has been over 12,000,000 gallons a day. I do not ascribe that wholly to the condition in the past in that watershed, but there is no doubt it could be partly attributed to that; the watershed has lost some of its ability to retain moisture over long periods. It has just come to my notice that the plantation that actually did catch on the Narcoondah area was a plantation on which the floor was absolutely clean, there was not a speck of anything there. It had been cleaned up before that and this question of ignition does not depend very much on the floor of the forest, where a fire of that sort starts; but the reason the Board is so concerned on this occasion is that until now, with very few exceptions, we have been able to protect our areas from inside. However, this fire makes it obvious to us we must have an interest in what goes on outside. Unless we do that, we are on occasion going to be liable to this damage from outside. We are very concerned about it. Our fundamental purpose is being affected by conditions. I do not say who is at fault; it may be that there is no direct fault; but the community will be at fault if we cannot organise ourselves in such a way as to save not only the water areas, but these forest areas.

THE COMMISSIONER: Would you suggest that wide breaks around the boundary of each of your reserves would be of any real value?---I have said that the Wallaby Creek Reserve, which is the most vulnerable one, has a double break.

I thought you suggested it would be a good thing if you could burn into the outlying territory for some little distance?---The owners of those properties would have something to say about that. If the necessary powers were granted for co-operation between the Board and the Forests Commission or whatever authority is found on our
areas, it would be a good move to do that kind of thing wherever it was possible, and there are places where it would be quite suitable to do it. In this I am not suggesting there is any failure on the part of particular forest officers in this matter. Where we have had contact with them they have co-operated with us and we have worked with them in an effective and friendly manner; but it does remain a fact that many fires have approached our area substantially untended. By untended I mean in the ordinary way, that there has been no one there. My own opinion is there are not enough men tackling this job.

MR. GOWANS: In the case of the Wallaby Creek forest I think you told us some of your people went outside the area and tackled these fires. Did they have the assistance of anybody else?—

There have been occasions where they have worked with the Forestry Commission officials.

I am referring to this occasion?—That is a matter of recollection of something that happened some years ago. If you want the actual details of what occurred, it would have to be searched for.

I can only answer in a general way that there have been occasions when we have had assistance. There have been many occasions when we have not had assistance.

I thought you referred to a specific occasion this year?—No, not this year.

Have you finished what you want to say?—Yes, substantially.

Can you tell the Commission what the total area is that comprises the Board of Works watershed area?—Including the Upper Yarra it comprises about 150,000 acres. Excluding the Upper Yarra it comprises about 110,000 acres.

Are those acreages marked on the map?—Yes, the whole of the acreages are shown.

MR. SLATER: You said just a moment ago that your experience in relation to those fires is that there has been a very keen and effective
co-operation between your employees and the forestry officers?---Yes.

You have found occasions when that effective co-operation has not been there?---I made the generalisation that I do not know on certain occasions we have had a difficulty; but those occasions are not important enough to affect my general statement that in general the Forests Commission officials have co-operated with our men quite effectively.

In point of fact, on occasions they have come into your areas to aid your men in the extinction of fires, have they not?---Particular forest officers have. I cannot say "No" or "Yes" as to whether they have brought men in to work.

I am not speaking so much of men brought into work, as I am of the officials themselves?---On one occasion, in 1926, I was very anxious as to whether I should burn back at a particular place and I asked the Forestry officer to come and discuss the matter with me. We had a discussion and made a certain decision. That kind of co-operation has been given.

Do I take it that on almost every occasion that co-operation and that effective work has been demonstrated by them?---I say in general; "almost" is a little further than I have gone. In general it is correct.

I take it there are no incidental occasions when there has been any departure from that, that serious fires have occurred as the result of no co-operation?---I would not say they have.

Referring to the fire on the 9th December, of which you have spoken, did not that fire come from the Plenty Ranges district?---What do you describe as the Plenty Ranges?---I said it came from the Bruce Creek area, which I suggest you would describe as west of the Plenty Ranges.

Do you know whether that fire originated in private property and subsequently spread through forest country?---No, I have no knowledge. I think it is extremely difficult after a fire
has got well away to, say, where it originated.

In relation to the fire on the 25th December, you said that came from the State Forest to the Yea road?---I did not say it originated there. I said we attacked it in the State Forest.

I understood you to say it came from that direction?---I would like that to be clear. I did not imply it started there, or anywhere. We attacked it there.

You do not know where the origin of that fire was, either?---No.

I take it you know that country pretty well?---

Is there private land north of the State Forest?---No, the Board's reservation lies in one place, the forest area lies to the east and there is private property east of that again.

Do you know the extent of the northern forest?---I do not know.

Would it be helpful if I showed it on the particular plan.

THE COMMISSIONER: I do not know what importance Mr. Slater is attaching to it.

MR. SLATER: I do not attach great importance to it.

(Continued on page 123.)
Your organisation deals with the fire problems in your own area. Would you say that you have a very compact area?---
We are scattered in comparison with the 4½ million acres of forest lands.

Appropos of that, the questions dealing with wide breaks are entirely different when viewed with the forest position generally, or even in some individual cases. It might not be practicable to have the width of break?---The burden of my suggestion in that matter is that in such an emergency as this we cannot stop because it would not be easy. We are faced with the possible extinction of our forests. We must consider certain things that may be possible. They may be matters of very great difficulty but if we baulk at them, we have a very terrible ---

I am rather in agreement with what you say, but it is very difficult?---
I have not given that opinion wholly on what I have seen but I do know something of the State Forests in general.

You agree that in very many respects, conditions are dissimilar?---
And the suggestion I made would be very difficult to apply in some cases.

Have you any Bush Fire Brigade work within your boundaries?---
I am not in a position to answer that very definitely.
I know there are Bush Fire Brigades but I am not in a position to know where they are and the actual details.

Have you called upon them for assistance at any time?---I should say that we have not definitely called on a Bush Fire Brigade. We have not called on help from outside very often for actual fire-fighting. We have co-operated with the Forests Commission in fighting fires outside our area. I would not say that we have never sought help; I think that in one case in 1929 we did seek help, but we did not get it. That was not from the Bush Fire Brigades. I do not think they were formed then.
No, they were not organised then. From what you have said previously I take it that you would strongly support a proposal for the provisions of a Central Organisation instead of having all small units as exists at the present time, except in cases where they have organised amongst themselves, as in the Dandenongs. You would support their being placed under a Board similar to the Country Fire Brigades Board with their own officers?--I am not prepared to say any Board, or "similar to any thing". I have been very general in my remarks. If we were invaded every five or six years by an enemy who destroyed a million pounds worth of property and 63 lives we would organise on a war basis which would give us general headquarters directing all operations, and an intelligence service to say where the danger point lay minute by minute. There would be means of shifting the men and the equipment at every time and place where they were needed. The headquarters staff would direct operations continually with expert control. I won't go any further than that to say who should be or that it should be.

At the present time they are organised under the Bush Fire Prevention Committee which has the power to recognise and register the Brigades but no power to take preventive measures?--The organisation would be valueless unless it was given the power to do what is necessary. They must be able to go to any part of the State and they must tackle the fire to put it out, not to watch it.

There should be some central organisation?--I put it forward as a suggestion based on a very wide experience of this particular business and an appreciation of the extreme difficulty.

THE COMMISSIONER: Have you considered what has been done abroad in that respect, that is, by organised observation?--I have.
Have you any learning or literature on the subject?—I have had actual experience. I examined the conditions in the Western Australian forests and carefully considered the methods that they used there with considerable success. Their method is really to use the wide firebreak with a subdivision of the whole of the forest into sections. I believe those sections are one mile square. They use the fire breaks as access roads, for burning back, and for the interruption of small fires which may start and not be attacked immediately. The conditions here are different and that is why you cannot apply those methods in Victoria. The Karri and Jarrah areas are forest country suitable for the making of those roads and for their use. Their country has nothing like the fire breaks in those areas that we have in ours. The reasons are hard to find, but they can be found. The Victoria eucalypt forests are probably more inflammable than any— it is a matter of reading as far as my remarks concerning forests outside Australia are concerned. You would expect that eucalypt forests in Queensland would be more inflammable but they are not. In Victoria we have a cool wet growing season which stimulates the growth of the undergrowth in the forests and makes for a big production of material which later becomes inflammable. We get extremely high temperatures and sometimes there are prolonged drying periods. That combination may apply to some other countries but in Victoria we have also the fact that the type of trees, the eucalypt, is extremely inflammable. This creates a combination in Victoria which I do not think will be found in many other cases, if any. We must find our own way out of this problem. I have no doubt that some forests can be burned regularly without doing them any harm; maybe some of ours can be. I believe that perhaps mesquite forests on
rocky ridges - and they often do grow on rocky ridges - could with some degrees of safety be burnt providing the burning did not produce a fierce growth. It may be so. That is not a matter of experience on my part. With conifer forests it may be so. I feel that we will not go very far in arriving at a solution of the problem if we consider only what has been successful in forests in other parts.

MR. GOWANS: There are such areas of mesmate in your territory?---Yes, I know of some. There is a rocky ridge without deep soil along the Black's Spur road going up to Fernshaw. There may be an objection to burning off in regard to water productivity, perhaps not the only objection. I am not certain, but I am certain that the mountain ash would be destroyed.

In the course of your reading have you come across any mention of the Forsyte plan?---I have heard of it but I am not competent to talk on it. I would not like to do so from reading only; I feel that one should see that sort of thing. I understand that it has some relation to West Australian conditions. I know those conditions and I have taken the trouble to examine them. We have copied them in some of our Mallaby Creek areas where we have used fire breaks, especially having in mind the use of the motor vehicle.

Do you know of any cases during the recent fires where there was a lack of co-operation between employees of the Board and employees of the Commission?---Not personally.

Have you heard of any?---No, I would not say that I have even heard of that. The only statement I would make is that the men available do not come up to my idea of what is necessary to attack fires. I think that should be a matter of evidence. I am only summarising in this case. I was not in the fire areas for more than about two days.
You cannot, even with the assistance of the Commission, indicate any cases where you thought the lack of co-operation between the employees of the Board and the Forests Commission was an influence?---If it is desired by this Commission I will make inquiries through those areas in order that the actual evidence can be produced subject to cross-examination.

May I ask Your Honor to direct that that be done.

THE COMMISSIONER: Yes, I will ask that it be done. Mr. Kelse has offered to do it and we will accept the offer.

THE WITNESS: I am not suggesting that there is any such thing.

THE COMMISSIONER: No, but you will make inquiries and if you find any such cases will you please let the Secretary know.

MR. SLATER: You referred to the men available. Do you mean by that the Forest Officers or the other employees of the Commission?---Referred to it when?---What was the reference?

THE COMMISSIONER: Something to the effect that the men did not come up to what you would like?---The number of the men, not the men personally. I did not mean that.

MR. SLATER: I assumed that you meant the quality?---No, the quantity of the men.

THE COMMISSIONER: I thought the same as Mr. Slater?---The impression that I have got - and I have got it from fire fighting that I have conducted myself in association with the Forests Commission - is that the attack cannot be made strongly enough because of lack of men; perhaps also, that the fire is in an area where it does not seem to be endangering things that are considered to be of value. I think that can be found in something that was said this morning.

What was that?---The actual evidence concerning a fire - - -

......because it was not in valuable timber?---I say that unless you tackle a fire, even if it is in the most valueless property,
it will destroy the property.

MR. SLATER: He might have been in danger in doing it?—I am not in a position to discuss what he said or did not say.

That was the reason he gave?—I think we will leave that at that point.

THE COMMISSIONER: I think we can drop it safely enough.

MR. HARDY: The terms "conservation" and "preservation" have been used which accounts for a little confusion. I take it that the Forests Commission conserves the forests and the Metropolitan Board of Works conserves the water. Neither preserves them?—Did you say that neither preserves them.

You conserve it?—I am finding it hard to hear exactly what you say.

Conservation is understood as a sort of exploitation and continuity, but without keeping the thing intact in itself forever?—I would not accept that.

The terms are often confused. You are saying that the Metropolitan Board is preserving the forests in order to conserve the water; is that so?—Yes, without any distinction as to what the Forests Commission says or does, we do aim at conserving the water and we do in fact endeavour to preserve the forests for that purpose.

Yes, preserve the forests to conserve the water. The other point I wish to mention is a matter dealing with the botanical side perhaps. I have heard the sawmillers call eucalypts by a name that means something that is not of value. Could some term such as "lower forests" or something like that be used?—Since my attention was drawn to it I have endeavoured to describe it instead of using the word. In other words, so that it could not be mistaken.

Several speakers have referred to scrub as rubbish where really debris may have been mentioned, and it is hard to know what has
been intended.

THE COMMISSIONER: I think that Mr. Kelso at least rejects the term "rubbish" for anything that is growing. He refers to litter, the ordinary sense of rubbish, as the rubbish of the forest.

MR. HARDY: And the tree heads?---Once they are down and cut, they become forest rubbish. Perhaps we should use the term inflammable debris.

THE WITNESS WITHDRAW:

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THE COMMISSIONER: Mr. Gowans, what is the next proceeding of the Commission?

MR. GOWANS: I understand there are no witnesses available tomorrow.

THE COMMISSIONER: The next public sitting of this Commission will be on Monday at 2 p.m. at Healesville, presumably in the local police court. Prior to that sitting the Commission and its officers intend to proceed to Toolangi early on Monday morning and spend some hours there.

MR. KELSO: Do you wish to be accompanied while making the inspection? Are we at liberty to see what you inspect so that we will be able to follow whatever the Commission refers to later?

THE COMMISSIONER: I will welcome the presence of watchers and I hope they will act as advisers. I wish to learn all I can about this subject, and if I have some informed people to guide me and to direct my attention to what is important, I will be very grateful.

(Further discussion ensued in regard to arrangements for representatives of interested parties to meet the Commission at Healesville.)
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