MR. GOWANS: I understand that Mr. Hardy has a reference to give Your Honour in connection with certain evidence the other day. I think it might be convenient to deal with that at this stage.

MR. HARDY: The reference is in reply to an inquiry made by Your Honour when I was giving evidence relative to gas in forest areas. I think Your Honour inquired as to whether there had been any previous or earlier reference to this subject.

THE COMMISSIONER: Yes.

MR. HARDY: Well, the earliest reference I can find to anything of
the sort is to be found in a publication, "New South Wales & Van Dieman's Land", by Count de Strzelecki, published in 1945, and dealing with his travels in 1841-42. There is just one paragraph here I should like to read. On page 176, he writes:

"Nor is the deleterious effect of the hot wind on human constitution a phenomenon more inaccessible to analysis than are the causes of its heat and dryness; for when we bear in mind the fine particles of dust floating in the air, we can readily explain, by their highly electric state, the causes of opthalmia, and its inflammatory character; and when we add to what has been said already, that, at the altitude in which the hot wind is at times seen moving, a proportionate increase of carbonic acid in the atmosphere is found (Saussure), and that, in the deflection of the wind to the surface which follows this amount is added to that which is left unconsumed by the crisped vegetation, the farther causes of the deleteriousness suggest themselves in the origin of the new and noxious gaseous compounds which a disturbed economy of nature has necessarily entailed upon the atmosphere."

(CONTINUED ON PAGE 2135.)
That is the earliest reference I can find to gas, and although he has not mentioned temperatures at this time, he refers to temperatures up to 117° in the shade. Your Honour will notice that no mention of bush fires is made in connection with this, but merely to gases accumulating in the atmosphere due to the intense heat of the vegetation.

ALFRED VERNON GALBRAITH: Sworn and Examined:

MR. BARBER: You are Chairman of the Forests Commission of Victoria?—Yes.

You have certain qualifications, have you not?—Yes.

What are they?—I hold a Diploma of Forestry, a Diploma of Commerce, and I am an Associate of the Commonwealth Institute of Accountants.

When were you appointed Chairman of the Forests Commission?—I was appointed Chairman of the Commission in 1929, as far as I can remember.

Prior to that, you were associated with the Commission?—Yes. I was appointed Secretary to the Commission in January, 1920.

That was your first association with it?—I became a Commissioner in 1924 and was appointed Chairman in 1929.

As to the evidence you propose to give, I understand it is your intention to approach the matter from three main points of view?—That is so.

As to the first part of your evidence, an historical review of what has been done in the way of developing a fire prevention policy, I should like you to state your views to the Commission in your own words?—Your Honour, as Counsel has stated, I desire to deal with this evidence under three headings:

1. Historical reviews of what has been done in the way of developing a fire prevention policy.

2. Particularly to define policy as it existed at the outbreak of the recent fires.

3. To make certain suggestions for a bolder and more extended policy for the future.
I feel that an historical survey is necessary to show not only that policy has been and is being deliberately developed, but also that the very important counterpart, namely the public attitude to any such policy, has been moulded by a scheme of education which will be elaborated later on.

Historical: The remarks of Mr. Ewen Jones, former Chairman of the Forests Commission, in the Empire Forestry Journal of 1926, indicate clearly the attitude of the community towards forest protection and conservation prior to that date. He said:

"The history of forestry in Victoria, as in so many countries under the control of the English-speaking peoples, has been one of vicissitude, of bitter, protracted and often unsuccessful struggles against ignorance, prejudice, greed and self-seeking. Our permanent and racial antipathy in regard to forest progress.... has in Victoria been intensified by the conditions prevalent in a new country, where much forest land must of necessity be cleared to permit of settlement and where in consequence the forest too frequently comes to be regarded as a hindrance and a foe. These hostile ideas, ingrained in the older people, have been handed down from generation to generation.......

In 1895 Ribbentrop, Inspector-General of Forests in India, who was invited by the Victorian Government to report on the forests in Victoria and their management, stated that the protection of the forests against fire had never been attempted. In 1897, a Royal Commission inquired into the general question of forestry management and control, its final report being published in 1901. One section of the report dated 18/7/1900, related to suggestions for fire protection, and I desire to place before Your Honour extracts from this report. To save the time of the Commission, perhaps I might hand in the official report of the Royal Commission.

THE COMMISSIONER: That Commission started in 1897 and the report was published in 1901?---Yes.
We have a long way to go yet then?—That is so. The report deals very effectively with these matters, and is very interesting inasmuch as it has had a great influence upon forestry legislation of subsequent dates.

EXHIBIT "LL". Printed report of Royal Commission 1901 handed in.
The appropriate extracts of the eleventh progress report of the Royal Commission on State Forests and Timber Reserves, 18/7/1900, dealing with fire protection in country districts, are as follows:

"The main provisions of the law at present in force in Victoria for the prevention of the careless use of fire, for so many years applied to the whole of the Colony, and still apply to the greater part of it, special provision having been made in 1896 for the north-western territory known as the Mallee and Mallee border. They consist of two sections of the Police Offences Statute of 1865, which were embodied in the Consolidated Act of 1890, (54 Vict. 1126), as amended by Section 6, of Act No. 1241.

Section 22 of Act 1126 forbids the igniting, using or carrying when ignited, of any inflammable material whereby the property of any other persons is injured, destroyed, or endangered, or the leaving of a fire kindled in the open air, without the same being properly extinguished, under a maximum penalty of £100 or six month's imprisonment with or without hard labour. Power is given to any occupier of land to burn straw, stubble, grass, or herbage or to kindle any wood or inflammable material on such land, after he has cleared of inflammable substance a space around the matter to be burnt not less than fifteen feet in breadth, and also after he has given to adjoining occupiers notice in writing at least twenty-four hours before the burning is to take place. Occupiers are also given power to burn off any grass or herbage on land held by them, between two and nine o'clock p.m. after giving the like notice in writing to adjoining occupiers and after having drawn plough-furrows to a width of three feet on either side of the tract to be burnt.

Section 23 provides that persons camping and halting on any land, and lighting or using a fire there,
shall have the owner's name and place of abode legibly painted on their vehicle under a penalty not exceeding twenty pounds. A proviso is added that nothing in Sections 22 or 23 shall take away or interfere with the common law right of any person to sue for and recover compensation for any damage caused by the reckless or negligent use of fire.

In Section 8 of the Vermin Destruction Act 1890 (54 Vict. 1153), power is given to owners and occupiers of land during the month of May to September, inclusive, to burn without giving notice to any authority or persons, straw, stubble, grass, herbage, wood or other inflammable material, after clearing around the matter to be burnt a space of not less than fifteen feet in breadth.

In the Mallee Lands Act of 1896 (59 Vict. 1428), a number of the most useful provisions of the South Australian Bush Fires Act of 1885 (Sections 3 to 8, and 10 to 14) were incorporated and made to apply to the Mallee country and mallee border. The latter measure is dealt with under the heading of South Australia.

Such is the brief synopsis of the present meagre and inadequate legislation for this important subject."

The above extract indicates the very meagre fire protection legislation in existence at that time. The final section of the report recommends new legislation in the following terms:

V. New Legislation Recommended.

After careful investigation we have come to the conclusion that early legislation is imperatively necessary, and we therefore recommend the submission to Parliament next session of a Bill which, inter alia, shall contain the following provisions:

Supervision - That the Chief Commissioner of Police, for the time being, be constituted Chief Fire Warden in
and for Victoria.

That all members of the Police Force stationed in country districts, all forest officers and Crown lands bailiffs be constituted fire wardens in and for Victoria.

That in localities where no police constable, forest officer, or Crown lands bailiff is stationed, such other fit or proper persons as may be selected for the work by the Chief Fire Warden be appointed fire wardens in and for Victoria.

That it shall be the duty of such Chief Fire Warden and fire wardens to prevent as far as possible, the commission of offences against the Act; to take prompt steps for the extinction of all forest, scrub, or grass fires; to bring offenders against the Act to justice; to conduct all necessary prosecutions and generally to carry out and enforce the provision of the Act.

Precautions against Fire: That during the months of November, December, January, February, and March the following precautions shall be taken:

The making and maintaining of effective fire-breaks not less than half-a-chain in width:

(a) by all owners or occupiers of grass land within and along the boundary fences of such land in their respective holdings, except owners or occupiers of such land situated in forest scrub districts. This provision to apply to all grass land having an area of 50 acres and upwards, and also to grass land having a less area than 50 acres when, in the opinion of the local fire warden, the making of such breaks is necessary for the protection of adjacent land from danger of fire;

(b) By the Commissioner of Railways between each railway line and the boundary fences of the railway
right-of-way on either side of such lines;
(c) by the Commissioner of Crown Lands and Survey in thickly settled districts along the boundaries of State Forest, Timber, or other Crown Reserves, or large areas of Crown land not occupied under licence or lease wherever, owing to the open character of the forest or woodland there is a growth of inflammable grass, herbage, or scrub along the boundaries of adjacent lands.

The use, fixture, and maintenance in an efficient condition in all locomotive engines running on the Victorian railways of -

(a) such arresters as experience and comparison with the latest pattern of arresters in use on the principal railway systems of North America and Europe, show to be most effective in preventing the escape of dangerous sparks from such engines;
(b) such appliances are most effective in preventing the escape of live coals or hot ashes from the ash-pan of the said engines.

The use and maintenance in an efficient condition of all threshing and other portable engines of effective spark arresters and the complete quenching or extinguishing of all live coals or hot ashes taken from such engines by the persons in charge of them.

The selection by the local fire wardens on the principal public roads or water reserves of the colony of suitable camping places for travellers. The spot for lighting fires at such camping places to be where practicable in the dry bed or channel of some creek, or on the edge of some creek, or on the edge of some running stream, lake, lagoon, dam or other body of water, and no fire to be kindled thereat at any standing tree, stump, fallen trunk of a tree, limb, or large log, but to be kindled and fed with small wood only, and to be completely
quenched or extinguished by such travellers before leaving such camping places. Where no such camping place is set aside and indicated by public notices posted in the immediate neighbourhood thereof, every traveller in choosing a place to camp to select a clear space, having a radius of at least 10 feet, or to make a clear space having such radius, to kindle and feed a fire thereon, when such is required by him, with small wood only, and before leaving such camping place to completely quench or extinguish the fire thereon.

That the following acts be forbidden during the months of November, December, January, February, and March:—

The use of any ignitable or combustible wads or wadding in any gun, rifle, pistol, or other firearms.

The blasting of trees, wood, or timber with any explosives, unless at least two persons are present to prevent the spread of any fire arising therefrom.

The burning of trees, live or dead timber, scrub or undergrowth, for the purpose of clearing land, except in such districts as may be proclaimed by the Governor-in-Council as forest scrub districts.

The burning of stubble, dry grass, or other herbage, except for the sole purpose of making such fire breaks as are provided for by law.

The lighting or smoking of any pipe, cigar, or cigarette in the open air within 20 yards of any standing crop or field of hay, corn, straw, stubble, or other inflammable vegetable production.

The throwing down or dropping of any lighted or unlighted match, or lighted tobacco, pipe-ash, cigar, cigarette, or other burning substance, unless the fire of such be at once extinguished on the spot.

The preparation or use, for the destruction of vermin, by owners or occupiers of land, their servants,
employees or agents, of any material of which phosphorous is an ingredient, except such material be chemically manufactured with some non-combustible material, and certified by the Government Analytical Chemist or by an analyst appointed under the provision of the Health Act 1890 to be without free or lumpy phosphorous and safe for use on grass or other lands during the summer season.

That the following acts be forbidden:

The lighting or smoking of a pipe, cigar, or cigarette in or within 20 yards of any stable, or within the same distance of any rick, or stack of hay, corn, straw, or other inflammable vegetable material.

The placing, throwing, or dropping of any inflammable combustible, explosive, lighted or burning matter or substance, for the purpose of causing a fire with intent to damage person or property.

The burning of grass, stubble, herbage, timber, scrub on a Sunday for the purpose of clearing the same.

That the Governor in Council have power to proclaim certain districts as Forest Scrub Districts, and to repeal, alter, or amend such proclamation when, owing to the clear and open character of the land in any such district, or any portion thereof, it ceases to be properly classed as such.

That no district be proclaimed a forest scrub district unless:

1. The land occupied therein by settlers is covered or partly covered with live or dead timber and thick scrub or forest undergrowth; and

2. Unless owing to the lateness of the rainy season or general humidity of the climate in such district, the grass and other herbage is green and succulent during the months of November, December, January, February, and March, and the timber, scrub, or undergrowth can be effectively burnt by settlers in the course of clearing their land only during such months.

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That no person during the months of November, December, January, February, and March, set fire to any timber, scrub, or other inflammable matter on any private land or land held under licence or lease from the Crown in a forest scrub district for the purpose of clearing the same:

(a) while a hot northerly wind is blowing.

(b) between the hours of 4 o'clock in the forenoon and six o'clock in the afternoon.

(c) unless there shall have been cleared around the inside of the boundaries of such land of scrub, grass, or other inflammable herbage, a space of not less than half a chain in width.

(d) unless he shall have given to the local fire warden and also to the owners and occupiers of all lands adjacent to the land on which he intends to burn timber, scrub, or other inflammable matter, at least 48 hour's notice.

Should the burning of such timber, scrub, or other inflammable matter be regarded by the local fire warden as dangerous, owing to its situation with respect to inflammable matter on adjacent public or private lands, or owing to the state of the weather, the warden to have power to order the postponement of such burning until such time as in his opinion it can be undertaken with safety.

Should there be any tract of dry and or inflammable grass or herbage within a forest district which in the opinion of the local fire warden is a source of danger to adjacent private or public lands, the warden to, have power to call upon the owner or occupier thereof to make an effective fire break around the boundaries of such tract in the same way as if it were outside the limits of a forest scrub district.

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Protection of Forests:

That in order to secure as far as possible the protection of forests from the ravages of fire, the following acts be forbidden during the months of November, December, January, February, and March:

(a) Lighting or kindling, or assisting to light or kindle, or aiding or abetting another in lighting or kindling, any fire in the open air within a State Forest or Timber Reserve, or on any area of Crown land, withheld from alienation for forest purposes, except such fire be required for camping or cooking purposes, when it shall be kindled and fed with small wood only in a clear space having a radius of at least 10 feet, and be completely quenched or extinguished by the person who lit or kindled it before he leaves the spot. Nothing in this provision to prevent a fire from being lit at any saw-mill for the burning of saw-dust, waste timber, or bark stripped from mill logs, or for any other purpose deemed by the local fire warden to be necessary for the proper working of such mill, provided that due precaution be taken against any such fire spreading and causing damage.

(b) Lighting or kindling, or assisting to light or kindle, or aiding or abetting another in lighting or kindling, any fire in the open air within 50 yards of any State Forest, timber reserve, or area of Crown and withheld from alienation for forest purposes. Nothing in this provision to prevent the making of any fire break required by law, or the burning of timber, scrub or other inflammable matter authorised by law in any forest scrub district, provided that the precautions required to be taken in all such cases by the Fire Protection Act be made and the regulations thereunder to duly observed.

Power to wardens to call assistance, fines and cost of

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That fire wardens in emergencies, on the outbreak of any dangerous fire, have power to call upon any able-bodied male person over eighteen years of age who may be in the part of the district where such fire is burning to assist in extinguishing it. Should such person refuse without reasonable justification or excuse to render the required assistance, his refusal to be deemed a misdemeanor, and to be punishable, on conviction, by such fine as may be fixed for the offence.

That any fines or penalties recovered from offenders convicted by any breach of the provisions of the Fire Protection Act be apportioned, one half to the Treasurer of the Colony, and the remaining half to the municipality in which the offence may have been committed.

That the cost of extinguishing fires, including the payment of any remuneration or allowance to such fire wardens as are not regularly employed in the service of the State, and also to such persons as are called upon by wardens to give aid in extinguishing fires, be borne in equal shares by the Treasurer of the Colony and the municipality in which any such fire warden resides and any such fires may occur. Where a fire spread to two or more municipalities, one-half of the cost of suppressing it to be borne in equal proportions by such municipalities and the remaining half by the Treasurer. In order to secure prompt payment of all just claims by the wardens for necessary expenses in properly carrying out their duties, such claims to be defrayed in the first instance by the Treasurer upon accounts being furnished by the wardens in due form, but one-half of such expenses to be repaid to the Treasurer by the municipal council or councils concerned within 30 days of the claim for refund being rendered.
Application of the Act:

That the Fire Protection Act shall apply to:

(a) All territory which is not within the limits of the fire districts under the control of the Metropolitan Fire Brigades Board or the Country Fire Brigades Board.

(b) Any territory now farming part of a Country Fire District under the provisions of the Fire Brigades Act 1890, which may hereafter be excised from such district by the Governor in Council in pursuance of the provisions of section 5 of the said Act.

I would like to exercise one section of the report just read, dealing with the power of wardens to call assistance.

THE COMMISSIONER: What are you reading from?---This is from the 1900 report. I wish to refer to a suggestion by the Commission of that day that power be given to call on males over 18 years of age to give assistance during bush fires.

Do you think that the conscripting of youths of 18 years of age is going to be of any help in fighting fires - are they not going to be a nuisance?---I think a conscripted youth of 18 years of age would be of some assistance, even if he were only to carry water.

Do you think you could conscript Australian youth to do things they do not want to do - admittedly you could conscript them, but do you think you could make them do the work properly?---I agree, Your Honour, that it is not possible altogether, but at the same time I think some power should be given to call upon people to assist, power with the backing of the law, particularly to carry out services in the interests of the community.

I am not talking about military service. The severe discipline in military service is sufficient to force men to obey, because the matter is so serious, but when you conscript men for what is mere social service by comparison, do you think

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they will be of any use to you at all?—I think they would. A lot has been said about volunteer bush fire movements. Volunteers, if properly led, can be of much assistance in fighting fires. We have proved that beyond doubt.

Volunteers would be of assistance, of course?—There is no reason to believe that any man who is pressed into service, knowing that he has to do the work, will not assist. Normally some men hang back in the collar, but if the law is there and they know they have to assist, even the lackadaisical Australian youth will, I am sure, come forward with the others. I say that with all due humility.

MR. BARBER: Do you happen to know whether there is a similar provision to that in some of the other States' Acts? Perhaps you can deal with that at a later stage?—Yes. There is a somewhat similar provision in the Western Australian legislation, and in legislation in operation in the United States of America.

THE COMMISSIONER: It might be a good idea in certain circumstances; I am not contesting it with you, but at first the suggestion made me recoil, because I had not thought over it?—I believe that.

The first Forests Act 1907 was based to an extent on this Royal Commission findings. Of the recommended fire protection legislation, the following sections were adopted by Parliament:

Section 34 relating to restrictions on the lighting of fires, etc. in reserved forest.
Section 35 relating to enforcement of burning off near reserved forests.

It will be noted that the recommendation of the Royal Commission was for the protection of State Forests generally, including reserved and protected forests, whilst the recommendation adopted applied only to reserved forests. With slight modifications, this legislation was re-enacted
in the Forests Act 1910 and 1915. It was not until 1918 that Section 34 of the 1907 Act was replaced by the more comprehensive provisions of Section 59 of the Forests Act 1918, which, amended in Section 6 of the Forests Act 1927, now appears as Section 68 of the Forests Act 1928.

Section 59 of the 1918 Act extended restrictions on the lighting of fires during the period November - March to reserved forest, portions of protected forest specified by Order of the Governor-in-Council, and within ½ mile of the boundary of such reserved or such protected forest. Similarly powers of enforcement of burning off within 50 yards of a forest boundary were extended to such protected forests. It should be noted that the protected forest mentioned comprises areas set out in the first schedule of the proclamation in the Victorian Gazette of 30/12/21, page 4285, which in effect represented practically the whole of the unoccupied timbered Crown lands in the State.

These provisions were further strengthened by Section 6 of the Forests Act 1927, which re-enacted the previous, and included additional, fire legislation. Sub-sections 4 and 5 gave authority to forest and police officers to require the owner or occupier of land within 2 miles of a State forest to extinguish fire on such land. Section 7 gave power to declare "proclaimed periods" and "proclaimed areas" and to prohibit the lighting of fires therein.

These legislative provisions constitute the existing fire protection legislation as found in Forests Act 1928. It will be noted that the Forests Act 1918 constituted the Forests Commission, and it is to the policy of the Commission that my remarks are confined.

My own association with the Commission dates from January, 1920, when I was appointed Secretary to the Commission which then comprised Mr. Owen Jones, Chairman; and Messrs H. R. Mackay and W. J. Code as Commissioners. From my own experience, from what I was informed by my predecessors,
and from records of the Department, there is not the slightest doubt that any attempt at control of burning by landholders was extremely difficult and was stoutly resisted. This attitude has been induced by the long period during which unrestricted or "free" burning for the clearing of debris was permitted.

Immediately on its appointment, the Forests Commission, after analysing the causes of forest fires, set out on a vigorous campaign of forest protection propaganda. It quickly realised that without whole-hearted co-operation on the part of the community at large any measures which could be taken towards the institution of effective fire prevention measures would be of little avail. This viewpoint is stressed very forcibly in the earlier Annual Reports issued by the Forests Commission. I shall hand in a further report:


(continued on page 2150).
"A sinister feature is the fact that in all these fires the evidence points to the suspicion that they were wilfully caused......

............ This method of using fire to prevent fire is proving very successful, and its use will probably be widely extended".

I wish to stress that the very important statement that it is not claimed that the fire breaks can prevent fires, or that they can stop a fire well alight, especially if it is being driven by a strong wind; they are, however, invaluable in checking a small fire and in forming a basis of attack upon larger outbreaks, and they frequently serve usefully as roads or tracks along which fire guards or forest officers can move rapidly and easily from point to point.

The extract to which I desire to refer is the fire protection aspect mentioned in the First Annual Report of the Forests Commission, and I desire now to read a further extract from the Annual Report of 1924-25. (Witness reads extract from Annual Report 1924-25,"The Commission has repeatedly endeavoured....... wider powers for their prevention.

I shall now proceed with my own evidence. Necessity for public education: In view of the state of affairs which was revealed the Commission realised that its first endeavour should be in the direction of educating public opinion to a realization of the value of the forests and for exercising extreme care with fire to safeguard them.

Summary of Educational Campaign: At this stage, I propose to give a brief summary of the main lines of attack adopted by the Commission for educating the public in the direction indicated. It was felt that an effort should be made to create a forest conscience and it was, therefore, decided to institute various forms of propaganda.
ments were inserted in the press and magazines, whilst lectures on forestry were given at every available opportunity. Forest products were displayed at various agricultural shows and exhibitions in order to encourage the general public to appreciate the beauty and utility of our timbers and to induce them to exercise care for their protection. Large roadside signs which have been displayed through the State serve as a striking reminder to the travelling public to be careful with the use of fire, and posters have been regularly exhibited on railway stations. During the last ten years the whole of the publicity resources available to the Commission have been concentrated in Bush Fire Prevention Week, which is held each year just prior to the most dangerous period of the summer. During this "Week" pictorial posters are displayed in over 700 country towns, in each of which an organizer is appointed to attend to local publicity. These posters are also exhibited on railway stations, factories and stores. Arrangements are made with the Postmaster-General's Department for the printing of a fire warning slogan by the stamp-cancelling machine at the G.P.O., whilst numerous private firms give similar publicity on their envelopes by means of stamp franking machines. Topical lantern slides are displayed in the city, suburban and country picture theatres, whilst a vigorous campaign is conducted through the city and provincial radio stations. The local organizers, in addition to displaying the posters, also arrange for press publicity and for the co-operation of the clergy in the various churches. Wind-shield stickers for motor-cars and printed slogans on match boxes have also proved of great benefit.

Stopping there for a moment, all that propaganda is controlled and put out by the Forests Commission?—Solely by the Forests Commission?

THE COMMISSIONER: How can you say it has proved of great benefit;

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how can you know that?—By the results which we have noticed, generally speaking, throughout the State. I am not speaking of the holocaust which occurred recently, over which I should say we did not have much control, due solely to climatic and other influences. There has been a distinct improvement noticed as one moves through the country and speaks with his neighbour, of the value of the forests to the community.

When you have 200 fires in one district in about a month, do you think the conscience has become fairly tender?—In certain respects I appreciate what you say.

I do not see how you can know it has proved to be of great benefit or, in view of the facts, how you can think so?—We think it has proved of great benefit. For example, in the State Schools throughout the country children are being educated from the point of view of assessing the value of the forests. We find, too, that the child takes home the lessons to its parents. Of course, there are certain sections of the public who will never be converted.

No, that is so; I think the work in the State Schools is probably the most valuable you can perform.

MR. BARBER: I should think that in most of the country communities at any rate the only hope is to educate the rising generation.

THE COMMISSIONER: I think you should also concentrate on the townspeople who go out to boil the billy and then leave the fire?—If I might interpose there, there has been great improvement in that regard amongst tourists and campers especially. Because there are some criminal types in the community it should not deter any of us from trying to educate them?—That is so.

MR. GOWANS: You were referring to the low cost of the Bush Fire Prevention League?—One of the most pleasing features of this campaign is its particularly low cost to the Commission, as practically all services, including the radio, lantern
slides and so on are provided without cost to the Commission. That in itself illustrates a desire on the part of certain members of the community to co-operate with the Forests Commission. We find that on approaching business firms and individuals they are only too glad to help us, and without cost to the Commission. That really is a community spirit, and that is why I said what I did in the first place, that there has been a distinct improvement. During the Bush Fire Prevention Week many forest officers are kept busy in giving lectures to various organizations and luncheon clubs. I may say that the Governor of the day, Lord Somers, and the then Lord Mayor, launched the Bush Fire Prevention Week, I think in 1927 or 1928.

Education in schools: The Commission appreciates the desirability of installing a forest conscience into the minds of the school children and the introduction of the school plantation scheme has built up in the children love for the growing tree. The Commission's representation to the League of Youth, the distribution of timber samples, pamphlets, posters, blotters, etc. to the various schools has further helped it in its activities with the children, whilst articles in the School Paper and lectures in the schools aim at instilling in the younger generation the value of the forests and the great need for preserving them.

Publication of Proclamation: The Commission has endeavoured to give wide publicity to the fire lighting restrictions of the proclamation, and items concerning this legislation have been published in news items of the Melbourne and Provincial press and also through the radio stations. This season 5,100 copies of the proclamation were dispatched for display in country districts to forest officers, bush fire brigades, police, shire secretaries, railway stations, and post offices. One thousand of these were printed in
brief form in a distinctive colour and type, whilst some were printed in Italian for the guidance of the Italian communities. The Commission supplied 20,000 slips directing attention to the fire lighting restrictions to the Vermin and Noxious Weeds Destruction Branch for dispatch to land owners with the notice requiring them to eradicate noxious weeds.

Expenditure on Publicity: Actual expenditure by the Commission on general publicity and advertising during the last ten years amounted to £8,000.

Fires of 1926: The disastrous fires of 1926 stimulated the move in the direction of more effective fire prevention measures and impressed on the public mind the necessity for the measures that were then being taken by the Commission.

Growth of favourable Public Opinion: I would like to retrace my steps to earlier phases of the work which developed along the years following the incorporation of the Commission. The growth of a more favourable public opinion is crystallized particularly in two pieces of legislation, viz:--

(1) The Forests Act 1927 which gave extended powers in fire control and prevention.

(2) The creation and development of a bush fire brigades organization culminating in the passing of the Bush Fire Brigades Act 1933.

Rejection of Previous Legislation: With reference to the former it may be pointed out that earlier attempts were made to secure added powers when Bills were prepared and submitted to Parliament on three occasions during 1924 and 1925, but these measures were rejected. The Bill of the 15th of October, 1924, included inter alia the following section based on West Australian legislation:--

"(1) If a fire occur in or adjacent to any State forest a forest officer may call upon any person residing or working within a radius of five miles of the outbreak or
any person being on any road or in the State Forest within the said radius of the outbreak to assist in extinguishing the fire.

(2) Any such person failing, neglecting or refusing, without reasonable excuse, to assist to the best of his ability to extinguish the fire shall be liable to a penalty of not more than Twenty-five Pounds.

(3) All persons who in response to such call render the assistance required shall be remunerated at the rate prescribed."

Similar clauses were also included in the Bill of the 8th of July, 1926. Legislation in this direction has not yet been enacted. A proposal to amend that section of previous enactments relating to restrictions on the lighting of fires adjacent to the boundary of State Forests was rejected in the 1927 Act. This proposal was to extend the limit to which these restrictions applied from ½ mile to 2 miles.

Bush Fire Brigade Movement: With reference to the Bush Fire Brigade movement I should state that following the fires of 1926 the Forests Commission arranged for the organization of those brigades attached to the Bush Fire Brigade movement, and since that time the movement has developed to such an extent that it now embraces 397 brigades, with a total membership of approximately 18,000 members. As this subject has already been dealt with in extenso by representatives of the Bush Fire Brigades Association, and will be elaborated by Mr. Carver, an officer of the Commission who has carried out the secretarial duties of the Association since it has been in existence, I do not propose to deal further with that subject at this stage, but I shall submit a statement dealing with the salient features of the Bush Fire Brigades Act of 1933. That statement will be submitted later. There are two statements I should like to read out of the
Report of the Association relative to the movement in 1927. I should like to emphasise the difficulties we had in launching such a proposal in certain quarters of the State, and to show that in other parts of the State the proposal was received with open arms. The first organized effort to improve the Bush Fire Brigade Movement was made during the early part of 1927 when the Commission arranged for a delegation consisting of two of its representatives and one each from the Country Fire Brigades Board and the Police Department to visit eastern and southern Gippsland to form brigades in those areas. During a ten day tour 31 brigades were formed, although opposition to the movement was met with in some quarters. In September, 1928, the Minister of Forests, through the Commission, called a conference of brigades to discuss the best methods by which the work of the brigades might be co-ordinated and encouraged in the best interests of the community. At this conference it was decided to form the Bush Fire Brigades Association, of which the Commission provided the secretariat and delegated an officer to visit country centres to organise the district councils of the Association. This officer has acted as Secretary since the inception of the Association and still holds this office.

It will be noted that this Act relies essentially on the civic sense of local committees and provides what is essentially a volunteer service. Whilst brigades have frequently rendered sterling service in fire suppression, there are obvious weaknesses in a system dependent on voluntary service. I intend to defer consideration of this aspect until dealing with future policy.

Fire Protection in State Forests: Up to this stage I have been concerned to show what has been done by the Commission in relation to the public. It is now desires to direct Your Honour's attention to what has been

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done in the matter of fire prevention by the Commission within its own immediate domain. Until 1907 there was very little internal management of forests definitely directed towards fire prevention. With the introduction of the 1907 Act making the Forests Department a separate entity, there was a small increase in staff and the nucleus of a field force was created, which did a limited amount of work in the construction of fire breaks. These breaks were for the greater part from 1 to 2 chains in width and occasionally 3 chains. About 1912 a system of ground patrols was started and a limited number of fireguards appointed. These were mounted and their work was to patrol the mountain areas of the State in their districts. They were employed from about the 1st of November to the 31st of March in each year. Apart from these limited operations, however, little was done towards fire prevention in the forests and this can be contributed very largely to the lack of necessary finance.

Fire Protection Works under the Forests Commission:

With the advent of the Commission and the still further establishment of the forestry administration by virtue of extended powers, increased staff and especially stabilised funds which enabled a definite expansion within limits and assured continuity of management of control, an intensification of the then existing methods of fire prevention and the introduction of new methods was undertaken. It must be strongly emphasised, however, that the scope of the work which represented the application of the well considered policy of the Commission and its predecessors was still hamstrung by insufficient finance. The bush fires of 1926 which, although disastrous chiefly because of the loss of human life, were not comparable with the recent fires, taught further lessons. In the first place it was realised that there must be more intensive protection work in the mountain areas.
by the provision of fire breaks, roads for rapid transport of
men and equipment and other facilities for detection and
suppression of outbreaks. Instead of wide fire breaks, the
Commission decided to restrict fire breaks in mountain forest
country to a maximum width of 16' cleared; these subsequently
being rendered more effective by the operation of living or green
breaks to a width of 2 chains on either side.

The breaks 16' wide constitute a clearance which is burnt
at the right time of the year to the extent of 2 chains, or more,
according to the fire hazard. At a departmental conference
held on the 19th of June, 1929, at which senior officers of the
Commission's field staff were present, the following resolution
was agreed to unanimously:

"That this Conference is of the opinion that it is desirable
to establish breaks on main ridges in mountain country. That
in the meantime a break of 16' in width be clean out and that
each succeeding year and if funds are available and if necessary
the break be cleaned and widened till a maximum width of one
chain is obtained. Also that fire lines 12' in width be cut
and maintained on lateral ridges to connect with the main break."

I should like to interpose on that statement that the
Commission, through its widespread work, cannot necessarily
have close contact with each operation, therefore a system of
conferences has been developed between the various officers
throughout the State from time to time, and their views are
openly expressed at those conferences. The Commission thereby
is advised in carrying out all its particular policy.

Following further discussion along these lines,
circulars were issued on the 2nd of November, 1931, and the
4th of December, 1931, to Officers in Charge of Districts, setting out instructions to the following effect regarding the standardization of firebreaks in indigenous forests:—

(1) The width of clear felling shall not exceed 16'.

(2) Mature trees, unless they are of a particularly dangerous nature, shall not be felled.

(3) Irrespective of the present width, firebreaks shall not be maintained beyond 16'.

(4) On main firebreaks especially along the ridges, heavy undergrowth and bracken will be slashed and burnt to a width of 2 chains, and even more according to fire hazard, (as I have already indicated).

A note in the circular states that one reason for this direction is the decline in the money available.

Controlled Burning: It might here be stated that controlled burning, including patch burning and marginal burning, was restricted to the stringybark and gum type of forests on the lower foothills and, of course, was not carried out in the mountain ash forests. A forest roading system was commenced and 1492 miles have been constructed to date. After the fires of 1932, the Commission realized that through the comparative inaccessibility of forest areas and the loss of life therein, some provision must be made in the absence of forest roads and other means of shelter for the safety of forest mill employees and others.

Dugouts: The Commission introduced its scheme of dugout construction at forest sawmills notwithstanding the obscurity of the law as regards powers of compulsion. The efficacy of the dugout was challenged by forest licensees and employees alike, but the Commission insisted on the installation of the dugouts and only in certain instances where other means of escape existed did the Commission relax its efforts in this direction. This matter will be
further dealt with when recommendations for future policy are being submitted.

THE COMMISSIONER: The point is, as far as we have been able to find, that the Commission insisted on putting it in the letters of allotment but did not insist upon the construction of the dugouts in many cases. I do not want to interrupt your statement, but it occurred to me, as you read that passage, that that is not so?---There were certain difficulties in the way, and we realise that there are difficulties. The Forests Commission believes in the system of dugouts, but there were very cogent arguments against the efficacy of the dugouts. Furthermore, we had various conferences and we felt that morally pressure should be and must be brought to bear on the Hardwood Millers' Association, and they agreed to institute dugouts, but the Association did not have full control over its members.

(CONTINUED ON PAGE 2161).
WITNESS (Continued): At the same time, I should like to mention this fact. I am not going to swear that we did not listen to the evidence on this question, and I am not going to swear that the Crown Solicitor was spoken to in this regard, but I have an idea that we did have discussions with him. We asked him to give us his opinion on the liability of the State if any person suffered in the dugouts, and I heard Mr. Gowans make mention of the fact that the Crown Solicitor had given us an opinion to the effect that we were not liable. I would like Mr. Gowans to read the whole of that opinion, and I will ask him to do so later. I think it is unwise at this stage to go further along that line. I would also like to emphasise the fact that we were in a very difficult position.

THE COMMISSIONER: The point I was putting was this: having resolved your difficulty one way or the other, you decided to include as a condition in the Letter of Allotment a provision which makes the installation of a dugout mandatory, and, having done that, you do not then insist on it being performed in many cases. How has that happened? It seems to me that in one or two cases at least it happened in defiance of the Commission by a subordinate officer - I am doubtful about that, but it was the best explanation that could be given? Shall I deal with that later? It will be better to deal with it when my mind is focussed on it.

THE COMMISSIONER: Very well.

THE WITNESS: Aerial Patrol: In view of the inaccessibility of the bulk of the mountain forests and the difficulties associated with patrolling these areas from the ground, the possibilities of aerial patrols were thoroughly investigated in conjunction with the Royal Australian Air Force. The first actual patrol flight of this nature was carried out in February, 1930, and since then the system has been gradually developed with the ready co-operation of the Royal Australian Air...
Force to such an extent that a highly efficient technique has been reached in this direction. I should like at this stage to pay a very special tribute to the Royal Australian Air Force for their assistance to the Commission in this direction.

THE COMMISSIONER: I do not think this is the place to do that.

THE WITNESS: I thought I would like to put it on record.

THE COMMISSIONER: I do not think this is the place to pass encomiums on other people. You must keep to bush fires as far as you are concerned and what you have done about them.

THE WITNESS: Radio: The use of radio for the reception of messages from patrolling aeroplanes was instituted during 1933 and eventually a special wave length of 1,680 K.C.'s. was allotted for fire patrol messages. These sets were suitable for reception only, and the Commission has for some time been collecting information relative to the possibility of installing transmission and receiving sets not only for use in conjunction with the aerial fire patrol, but also to establish ready means of communication between fire guards, lookouts and forest officers. The co-operation of the Officer in Charge of Radio at the Melbourne Technical College has been obtained, and, on his recommendation, two sets were ordered from America during December last. It is proposed to thoroughly test these, and, if found satisfactory for Victorian conditions, local manufacturers will be given an opportunity of supplying apparatus similar to some of somewhat similar type.

Weather Reports: The services of the Commonwealth Meteorological Bureau were enlisted to assist in the way of promulgating information regarding the approach of dangerous fire weather.

Motor Transport: To provide greater facilities for more intensive fire patrol and for the transport of fire fighters and equipment, the Commission commenced a system
of providing motor utility trucks in forest districts. This scheme was inaugurated in 1927, and last year forty such vehicles were in commission. The objective is a minimum of one utility truck in each forest district.

Water Reticulation at Saw Mills: In the 1932 fires, loss of life was confined to one saw mill in the Saw Baws, and was due to the cutting off of the water supply by the destruction of the wooden fluming. The Commission immediately insisted that the water supply to all forest saw mills must be conveyed by a system which was not dependent on the use of wooden supports or fluming. More recently the system has been tightened up by insistence on the installation of underground water reticulation through metal pipes.

Clearing Around Saw Mills: The Commission further insisted upon protective burning and clearing around all saw mills to the extent of not less than two chains.

Honorary Forest Officers: A system of appointment of honorary forest officers from responsible members of the general public has been developed and extended in accordance with powers conferred by Section 22, sub-section (4) of the Forests Act 1918, and now in Section 27, sub-section (3) of the Forests Act 1928. The first appointments in this capacity were made in 1924, and numerous organizations actively interested in forestry have been invited to nominate suitable persons for appointment. Individuals nominated and approved are issued with a distinguishing badge and authority to act, and are requested to co-operate with District Forest Officers in the protection of the State forests. The movement at present embraces approximately three hundred and fifty honorary forest officers.

Fire Protection Officer: In 1927, a senior officer of the Commission was appointed as fire protection
Officer, with duties on the following lines:—

(a) the planning, in conjunction with Divisional and District Forest Officers, of measures and works for fire protection.
(b) Uniformity and co-ordination in fire protection measures between forest Divisions.
(c) Advising the Commission as to carrying out of approved programmes of works for fire protection.
(d) Improvement of equipment for fire protection.
(e) Investigation of up-to-date protection developments in other States and overseas, their introduction where desirable with any modifications necessary to suit Victorian conditions.

THE COMMISSIONER: That is Mr. Torbet's appointment?—That is so.

THE WITNESS: Departmental Fire Conferences: In order to enable the Commission to get into clear contact with the field work of its officers, frequent fire conferences are held in each of the field divisions and at headquarters in Melbourne.

MR. BARBER: Those conferences have been going on for some time?—For many years.

They are not a development since 1937?—Decidedly not.

They have been there for all time?—I can with certainty say that they started on my appointment as Chairman. The conferences comprise Divisional Inspectors and Officers in Charge of Districts. In addition, at the annual Melbourne conference, various Departments co-operating with the Commission in fire protection are represented, including officers of the Royal Australian Air Force, the Postmaster-General's Department, the Meteorological Bureau, the Lands Department, and the Vermin and Noxious Weeds Branch. Visits of forests officers have also been arranged to the Royal Air Force headquarters at Laverton, and air pilots and other interested persons are conducted through forest districts by our forest officers.

That is part of the fire protection policy?—Yes, and it is for the development of the officers, to bring them into contact with other departmental representatives, including representatives of the Commonwealth and of the bodies outside the Departments.

Safety of Communities: Notwithstanding the fact that no legal obligation exists on the Commission so to do, nevertheless it has concerned itself from the moral standpoint with the safety of communities adjacent to the State forests. Forest officers have endeavoured to organise these residents with a view...
to establishing safeguards, such as firebreaks, at dangerous points for their own protection. The apathy often encountered was very discouraging, the general attitude being for the Government to do the work. In certain instances, however, co-operation was forthcoming and works of a protective nature were carried out by the Commission and the residents. As instance of places where apathy has been existing, I would mention Erica, Noojee, and Healesville. Places where the people have done something for themselves, and assisted the Commission to assist them, are Lorne and Powelltown.

THE COMMISSIONER: I think the local inhabitants of Lorne take a different view. I do not want to see you falling into the mistake of wrongly thinking you have the confidence of certain sections of the community. I do not like to dash your hopes?---There may be instances to the contrary, but we have had assistance from certain sections of the community. I qualify my previous statement by saying "certain sections". We certainly did not agree with one or two people who desired to light fires on a very dangerous day. The officer reported that to the Commission, and the Commission would back him up in what he did. Generally, I should say, several sections of the community have co-operated with him and assisted him.

As a matter of fact they do work well together down there.

MR. BARBER: (To witness): You are putting it that Lorne is a place where the Commission has done something in the way of protection with the co-operation of the local community?---And in a desire to protect the community. Sir Herbert Gepp, in his evidence, mentioned that his company, the Australian Paper Manufacturers Limited, had interested themselves in fire suppression by the use of certain chemicals, particularly bitterns, which is the waste
product from the manufacture of salt. We have carried out various tests in that direction, but up to now we have not come to a decision that bitterns is more efficacious than water. We have not dropped the idea, but are carrying on with the experiments.

The Commissioner: Is that Company interested in the production of bitterns?—No. They purchase wood for wood pulp from us. They are ostensibly interested in protecting the forests?—Yes, to keep their product secure. Research has been conducted regarding the suppression of fires with various chemicals. In this connection attention is drawn to the reference made to the use of bitterns by Sir Herbert Gepp, who originated this project. Tests with this material have been made, and it is intended to carry out further investigations.

Do you know how much bulk of bitterns you would have to use compared with bulk of water?—In our tests, we had to use almost bitterns as water.

And you would have to carry it many miles?—I will qualify my statement by saying that we would have to use perhaps not so much as of water. We did not use as much as we would have used of water, but it would appear that we would have to use considerably more than we did use to make the tests effective.

It might be all right if you could get it in tabloid form, but to carry it in bulk from one end of the State to the other seems to border on the fantastic, especially if you have a water supply handy.

Mr. Barber: And water is also extremely useful for refreshing the fire fighters?—Yes. The idea at first was to have the bitterns contained in cartons thrown from an aeroplane, so that they would burst on the fire. It is a question of whether that would prove efficacious.

Would the chemical be in powder form?—No, liquified.

The Commissioner: Do you think the idea practicable?—At this stage,
I should say no, but we never throw anything like that aside until we have developed it as far as we can. At present, it is not very promising.

Not if you have to use the same volume as of water? If we had to do that, it would not be worth while.

MR. BARBER: Sir Herbert Gepp has the idea of using bitterns in presuppression - coating the trees to render them immune to fire.

THE COMMISSIONER: How many millions of trees would have to be coated?

MR. BARBER: It would be necessary to anticipate where a fire was going to occur.

THE WITNESS: We have also been experimenting with a project brought forward by an engineer, who is a Russian citizen, and I think naturalised, and is associated with the University. He will not disclose the composition of his chemicals. We have been carrying out certain experiments, but up to date not successfully. The idea is on all-fours with Sir Herbert Gepp's suggestion. The object is to get at the fires in the early stages.

THE COMMISSIONER: Not to treat the forest at the beginning of the summer to make it fire-proof? No.

MR. BARBER: I think the idea was to put a ring of bitterns around the fire.

THE COMMISSIONER: I think you are wise to test these things, and to test them carefully.

THE WITNESS: This brings me to the stage of considering the fire protection policy of the Commission immediately prior to the recent outbreaks. For the convenience of the Royal Commission, I have presented a statement in the form of a summary grouped under various headings. I do not propose to reiterate the Commission's policy with regard to publicity and propaganda, but have confined my summary to measures taken in the field for the prevention, detection, and suppression of outbreaks of fire.
I understand that His Honour has been handed a copy of the statement by Counsel. It is entitled "Fire Protection Policy in Respect to Field Activities Prior to the Incidence of the 1939 Fires". I would emphasise that I would like this not to be regarded as a manual of instructions for forest officers, but for their guidance. It represents a crystallised statement of what the policy was prior to the fires. The Commission's fire protection policy cannot be termed static, but is revised and developed in accordance with time and circumstance.

MR. BARBER: That document did not come into existence as a document until it was prepared for the purposes of this Commission?—Certainly not. I should now like to deal with the Commission's recommendations for a State Fire Protection Organization, largely based upon our existing organization. It shows what the Commission aims at and how the policy has been affected by lessons learned from the disastrous fires.

As to Crown lands: (a) In addition to the Commission's present control, it should be clothed with full powers relating to fire control over all unalienated Crown lands and all timbered lands occupied by public bodies for public purposes, and, in addition to the foregoing, alienated lands for a distance not exceeding three miles from the boundaries of the same, - I should like Your Honour to take particular notice of that - the Commission to define from time to time the boundaries of the areas over which it shall exercise control.

(b) Within the areas over which the Commission should exercise fire control, it should be competent for the Commission, to delegate authority in regard to fires to any responsible body within such area which proves to the satisfaction of the Commission that it has the necessary finance and internal organization to successfully implement the same and where the fire plans proposed by such body are fully co-ordinated with and accessory to the general scheme of fire protection for
As to land in private ownership outside the area controlled by the Commission: With reference to the protection of property outside Crown lands, it is recommended that the Bush Fire Brigades Act 1933 be amended to give the following powers and authorities:—The creation of a Bush Fire Board or a Rural Fires Board constituted of two representatives nominated by the Forests Commission, three representatives elected by the bush fire brigades as provided in the Bush Fire Brigades Act 1933, one representative nominated by the Country Fire Brigades Board, and one representative elected by the Shire Councils and such Borough Councils as are not within a Fire District of the Country Fire Brigades Board; the Act to be administered through the Minister of Forests; the Board should be authorised to take whatever action it considers necessary for the prevention and suppression of fires within its areas. It may supply equipment to bush fire brigades, and take such preventive measures as it considers necessary within its area. Funds needed for the activities of the Board should be provided by annual Parliamentary vote. The Board shall appoint a rural or bush fires officer to organise and advise bush fire brigades, and to recommend the measures necessary for the prevention of bush fires. He shall also report upon and suggest the equipment which should be supplied to the respective brigades. In the event of outbreaks of fire, this officer shall be authorised to take whatever action he considers necessary for their suppression and shall exercise the powers of an approved captain of a registered brigade as now provided in the Bush Fire Brigades Act 1933. The Board may register Bush Fire Brigades and delegate the powers and authorities of the Bush Fire Brigades Act 1933 to approved captains and lieutenants. Approved captains and

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lieutenants may recommend to the rural fires officer the measure considered necessary or desirable for the prevention of fires. The Board may require any landowner to take such action as it may direct to minimise the fire hazard, and, if the landowner fails to take such action, the Board may have the same carried out at the expense of the property owner. Approved captains and lieutenants, with members of their brigades and volunteers who place themselves under their control, may take such action as is approved of by the Board to reduce the fire hazard within the brigade's area.

Buffer areas at vulnerable locations adjacent to or in the Forest, whether held by private owners or under ordinary Crown land tenure: Under the Forests Act, power is given to the Forests Commission to create forest townships or small settlements. If the necessary funds were provided for the purpose, it is considered that lands should be acquired at points where fires have been known to enter the forests. These lands should be subdivided into areas of from 20 to 30 acres each, upon which forest employees could be established, and the working of such areas should be under the direct control of the Forests Commission. This system is in vogue in the United Kingdom, and has proved successful. "The advantages of permanent employment of a resident body of workers are stressed for the following valid reasons", says Pritchard, of the British Forestry Commission, in a paper delivered to the British Empire Forestry Conference in 1928. "Workers whose livelihood depends on the forest are bound to take a greater interest in its protection from fire and other destructive agencies. Permanent employment leads to greater skill in all operations in the forests."

In our case, however, it need not be necessary to employ these workers for the whole year. Seasonal
employment could be given with a guarantee of at least half a year's work. The remaining half could be spent in the cultivation of their small areas. The tenure to be granted on such areas would be for a long term lease, say, up to twenty-one years, and the leases to be undisturbed, provided he, or a member of his family, renders to the forest the necessary service required, and provided also that the lands immediately adjacent to the forest are kept in such a manner as would constitute a definite fire break against the spread of forest fires from outside.

THE COMMISSIONER: What do you do when a small settler wants to do burning off? He would be allowed to burn off under control, and he would also assimilate the effect of the forest protection code, as it were, by the very fact that he is employed in the forest.

MR. BARBER: The suggestion you make is, first of all, the control in your own forests by your own officers, and, as to other areas of the State, the constitution of this Rural Fire Board? Yes. You are now giving specific details of the methods you propose to adopt in your own areas? Yes.

(CONTINUED ON PAGE 2170).
THE WITNESS (CONTINUING): As to future fire protection in the areas for which the Commission considers it should be responsible, certain new features are projected to supplement the well-tried and proven methods which have already been developed. In part, these proposals represent measures which the Commission has consistently advocated over a number of years past as being essential to adequate fire protection and in part also are developments resulting from experience gained from the exceptional conditions of the summer of 1939. To implement them increased financial provisions will be requisite and also in a number of cases new legislation will need to be enacted.

To make clear the application of future fire protection proposals, it is desirable that the various fire zones recognised by the Commission be defined and the basis of their determination be explained. The following are the zones described according to the forest districts included in each. A map is submitted:

Fire Zone No.1. - Forests of the Boradford, Dandenongs, Upper Yarra, Niagaroon, Erica, Neerim, Otway East and Otway West Districts.


Fire Zone No.3. - Forests of Barmah, Dimboola, Maryborough, Ouyen, St.Arnaud, Shepparton, Swan Hill, Yarrawonga, Besilia, Dunolly, Tarnagulla, Mildura, Bendigo, Gunbower, Heathcote, Rushworth, and Kerang Districts.

THE COMMISSIONER: I did not know there were forests at Swan Hill and Kerang.

MR. BARBER: There are red gum forests at Kerang.
MR. BARBER: They would be included in Mr. Hayden's Division.

THE WITNESS: The divisions are marked. It must be understood that this classification serves as a general guide to the type of fire protection to be accorded rather than as any indication of proportional expenditure and that it may be subject to periodical alteration. In the allotment of districts to fire zones for determination of type and intensity of fire protection measures to be accorded, the following factors have been taken into consideration:

1. The degree to which local population is endangered by forest fires. This factor focuses attention upon the forest of the central mountain zone, in which past experience has shown the degree of fire danger and the loss of life to have been greatest.

2. The degree of fire hazard, as affected by vegetational, climatic and topographic factors.

For instance, the hazard varies greatly between the iron-bark-box forests of the middle north, the messmate forests of the Central Divide, and the Mountain forests of the Latrobe and Yarra Valleys.

3. The degree of resistance to fire of the forest species.

Regrowth stands, in all cases, are more fire tender than mature stands. Conifer and mountain ash stands, being fire tender, necessarily require a greater degree of protection than stringybark and or silvertop forest.

4. The productivity of the forest sites. Protection measures should be intensified in those areas which have proved capable of great wood volume production. In this regard, mountain ash areas occupy a prominent position.

5. Financial factors as affected by -

   (a) Marketability of product.

   (b) Closeness to market.

In other words, those forests which, because of their position or the timber they produce, are the most profitable to operate, warrant the greatest protection. These 2171. A.V.GALBRAITH.
factors give expression to the economic aspect.

6. Forest value in relation to the preservation of natural conditions, i.e., prevention of erosion and regulation of stream flow.

I shall now deal with the amplification of administrative organization. So that organization for protection may be intensified, the creation of smaller unit charges for forest officers is proposed. This applies particularly to:

(a) Foremen's charges - These represent the ultimate subdivision of the forest for unit control. Their number will be increased and their area lessened. Of course, that is subject to financial provisions.

(b) Forest districts - To intensify administrative control, in the interests of fire protection particularly, revision of forest district boundaries in mountain areas is necessary to decrease the size of existing districts, creating new districts or sub-districts as required.

Co-ordination in fire protection between forest districts and divisions will be further developed by the Forest Fire Protection Officer.

We now come to forest margin protective measures. It is proposed that the Forests Commission shall carry out, with the collaboration of the landholder, if possible, necessary clearing of scrub and other inflammable material and/or controlled burning along and inside the boundaries of the areas for which it is responsible. When property, adjoining the forest, is considered by the Commission to constitute a fire menace to the forest, such property owner when called upon shall carry out similar protective measures along a strip of such property adjoining the forest, such strip not to exceed 10 chains in width. If the owner fails to carry out such measures, the same shall be executed by the Commission at the expense of the property owner.

Notwithstanding the foregoing, the Commission may,
if deemed necessary, give assistance to an adjoining owner in order to achieve the clearing and keeping clear of the 10 chain strip. This provision shall be given effect to only when an adjoining owner, through circumstances over which he has no control, is unable to fulfil his obligations or when a co-operative clearing effort along forest boundaries is deemed to be desirable. It may also apply in areas of particularly high fire hazard where intensive fire precautions are considered necessary.

In comment upon the foregoing, it is a fact that fires by settlers on forest margins constitute a major fire prevention problem. Such fires are lit to assist in the clearing of land, for protection, to provide rough feed for grazing, both legal and illegal, and for the suppression of noxious weeds and vermin. The use of fire on these marginal holdings may be considered a practical necessity and the objective is to allow that use and, at the same time, to provide for safety from fire of the adjoining forest from the landholder, and conversely of the landholder from the forest.

Absentee owner lands near, within or adjoining forest areas, have always constituted a serious fire menace to both forests and adjoining property owners. Legislative power is required so that steps may be taken by the Commission, when other means have failed, to enter such blocks to carry out clearing and/or burning and other fire preventive measures at the owner's expense. I will go further and say that I consider that if the Government is to carry out this work, it should be done not only at the expense of the owner, but the cost should remain a charge against the land, the same as municipal rates.

MR. BARBER: That last remark of yours was directed at absentee owners, was it not?

THE WITNESS: Yes. We now come to grazing control. It is proposed that:

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1. All mountain Crown lands situated either over a specified contour or in counties or parishes to be determined shall be dedicated as "protection" forest and placed under the control of the Fire Authority in all respects so that such protective measures as are necessary may be given in order that protection forests may function to the fullest possible extent in the preservation of natural conditions.

I should like to say to Your Honour that wherever I use the words "fire authority", it is the Forests Commission.

As regards grazing, this will necessitate:

(a) The transference of control from the Lands Department to the Forests Commission.

(b) The classification of the land to define sectors on which no grazing will be allowed, on which grazing but no burning will be permitted and on which burning as an adjunct to protection and grazing shall be permissible.

2. All Crown lands situated at the lower levels, from which fire may menace permanent timberlands or otherwise interfere with the stability of natural conditions, should, in so far as control of grazing is concerned, be placed under the Fire Authority.

THE COMMISSIONER: Have you any power to prevent graziers from making fires?---No, it is a difficult matter.

Have you any power that the human mind can devise, apart from going with them, to stop them from making fires?---You cannot.

MR. BARBER: I suppose you will agree that there are some graziers whose interests would lie in the suppression of fires.

THE WITNESS: The definition of such lands should be a matter for the Fire Authority so that this body may function satisfactorily from the standpoint of affording adequate protection.

It is an established fact that grazing interests are responsible for a proportion of the outbreaks of fire.
and this is admitted by graziers - which occur annually on unalienated Crown areas leased or licensed for the purpose of grazing. Except in the case of reserved forests, grazing on such lands is controlled by the Lands Department, whereas, for timber utilization, management is in the hands of the Forests Commission. In much of this higher country, both grazing and timber production should be objectives of secondary importance. The primary need is for the effective management of the areas as protected forest so that natural conditions may be stabilised and, as a result, regular stream flow maintained, flooding prevented, and erosion and subsequent siltation controlled. Fire is the greatest menace to the effective functioning of these mountain Crown lands as stabilisers of natural conditions, and, for this reason, it is vital that the management of such lands should be vested in the Fire Authority.

We now come to the question of the control of tourists. Fire records show that campers, and particularly fishermen, cause many fires in forest areas which, in recent years, with the advent of the motor-car and the opening of forest areas to the public, have become increasingly popular as community recreational grounds. In the interests both of the forests and of the people themselves, a greater measure of control is necessary. It is proposed as follows:--

1. In suitable and convenient localities within the fire areas controlled by the Commission, areas shall be provided as camping grounds or tourist resorts. These shall be administered by the Forests Commission or such other constituted body approved by the Commission for the purpose.

2. The administering body shall be empowered to make the necessary clearings for camps and provide the necessary facilities for the safe use of camp fires and the protection of the camps from fire, pollution, etc., and to
make a charge on persons using such camps.

3. A permit to camp on any forest camping ground shall be obtained from the person in charge of such camp or from some forest officer or police officer authorised to issue such permits.

4. During the prohibited fire period, it shall be unlawful for any person to camp on any Crown areas within the fire area controlled by the Commission, except in such places as are provided as camping grounds.

5. Where persons desire to camp in areas in which no camping facilities have been provided, a special permit may be obtained from the Forests Commission or an authorised forest officer or police officer.

6. No person shall light any fire for camping purposes within any protected areas during any period of fire danger, except in accordance with the conditions set out in the camping permit which he must hold.

7. In periods of acute fire danger the Commission may, by proclamation or otherwise, prohibit any traffic or camping in any area within its control where such danger exists.

Now we come to mining. In auriferous areas, particularly in heavy scrub country, severe fire damage to forests has been attributed to the lighting of fires in dangerous weather by prospectors in order to clear the scrub to facilitate loaming or other prospecting operations. It is proposed that --

1. During the period of the 1st of November - 31st of March, every person entering or within the protected area for the purpose of prospecting shall notify the district forest officer in writing of his intention to enter and shall state the locality in which he intends to carry on his operations. He shall also subsequently notify the forest officer of any change in the locality of his operations.
2. There should be inserted by the Mines Department in all mining leases and miners' rights issued by that Department a clause directing attention to the requirements and the responsibilities of the lessee concerning the use of fire on his leaseholds and the protection of such leasehold from fire.

THE COMMISSIONER: Do you not think that this could be summed up by saying, "We intend to control campers and we intend to control prospectors."

MR. BARBER: I think that might be said. I was about to make a remark about those two matters.

THE COMMISSIONER: If you prefer to put it in this way I don't mind.

MR. BARBER: I was about to speak to Mr. Galbraith in regard to the actual subdivision intended to control tourists, but he got on to something more important.

THE COMMISSIONER: Probably his suggestions are good, but you are getting to domestic details.

MR. BARBER: I appreciate that, Your Honour has some other arrangements and so at this stage we might adjourn.

THE COMMISSIONER: We have to keep an appointment at 12 o'clock, and I am prepared to adjourn now.

AT 11.50 A.M. THE COMMISSION ADJOURNED UNTIL 2.15 P.M.

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UPON RESUMING AT 2.15 P.M. -

MR. BARBER: Before the luncheon adjournment you were about to deal with heading No. 6 in the outline of projected development in the future fire protection policy for areas over which the Forests Commission is responsible for protection. The heading No. 6 deals with "Licensed Forest Operations - Top Disposal"—Yes. In regard to licensed forest operations, top disposal, after clear fellings on mountain ash areas, i.e. areas on which bulk burning of tops is the rule, the sawmiller shall be responsible for preparing for safe burning the cut-over portion of his area containing dry tops and debris by constructing such trails or carrying out such other precautionary measures as the forest officer may direct. On a day to be decided, the forest officer or his deputy, with such forest employees as he deems necessary, shall attend the area to carry out top disposal by burning in co-operation with the sawmiller and such of the sawmiller's employees as the forest officer may require. Extension is proposed of the system of imposing a surcharge on royalty to cover burning of tops by Commission employees. I may say that that is the custom in certain parts of the State at the present time.

MR. BARBER: We had some evidence of that system having been started.

THE COMMISSIONER: Yes.

THE WITNESS: In regard to water supply at mills, the recent bush fires demonstrated the efficacy of using water as a refuge for the saving of life during bad bush fires. In addition to the provision of dugouts and the ordinary mill water supply, and as a measure to aid in the preservation of life and property at bush sawmills in the No. 1 Fire Zone area, it is proposed that sawmill licensees shall, where deemed practicable by the Commission, construct—adjacent to their mill—and keep permanently filled with water a dam or other efficient storage of adequate capacity.
for the desired purpose. In deciding the necessary capacity and type of such storage, there shall be taken into account the effectiveness of the ordinary water supply to the mill and the economic life of the mill. Where mills are located sufficiently near to permanent water supplies, these may be regarded as constituting adequate water storage.

My eighth point deals with clearing around mills. It is proposed by the Commission that forest sawmill licensees be required to clear all scrub and inflammable debris and fell all dangerous trees for a distance of not less than 2 chains and, if required by the Commission, up to 5 chains distant from the mill and mill buildings. This will apply in Fire Zone No.1 and such portions of Fire Zone No. 2 as the Commission may decide. In addition to the 2 chain clearing, there shall be carried out in safe weather control burning for a further distance up to 10 chains.

My ninth point deals with the location of mills. At present on Crown lands, the Forests Commission issues cutting rights to millers and the Lands Department the mill site licence. In order to ensure that such mills are located on suitable sites and observe all proper precautions, it is proposed that the Fire Authority should issue the mill site licenses in such areas.

My tenth point deals with sawmills on private property. All sawmills operating on private property within the fire area controlled by the Forests Commission shall carry out such protective measures as the Forests Commission may prescribe. Such sawmills shall be registered by the Forests Commission. I would go further and say that all sawmills throughout the State should be registered by the Forests Commission, which should ensure that all precautionary measures are taken so far as fires
are concerned.

My eleventh point deals with centralization of mills. While it is generally considered that, under present conditions, the establishment of sawmills in locations other than adjacent to their log supply must be uneconomic and not conducive to the best utilization, it is also considered that location of mills outside the forest has definite advantages from the standpoint of fire protection. In the future, to the degree to which it can be considered to be both economic and practicable from a milling and forest standpoint, the policy in connection with mill establishment should be towards centralization outside the forest.

Speaking for myself, I am all for the location of mills outside the dangerous areas.

My twelfth point deals with roads, tracks and trails. For adequate fire protection, an efficient roading system is essential. The Commission proposes to extend ultimately and complete the roading of all forest reserves. In numerous cases, lack of roading and transport facilities has resulted in failure to cope with outbreaks of fire. It is a peculiar commentary that, while the policy of the State has been to provide complete road facilities through municipal authorities and the Country Roads Board for the two forms of primary production represented by agriculture and pasturage, there has been a complete lack of any attempt to adequately road forest lands (and timber production represents a third very essential form of primary production) for either production or protection. The Commission has endeavoured to proceed with this very necessary development by expenditure from its own limited funds; however, these are totally inadequate for the purpose and it would appear that a new alignment of State policy is necessary in this regard. It is considered that, to make satisfactory progress, not less than £100,000 a year.
should be devoted to this work for a considerable period.

A forest roading system should consist of:

1. Main thoroughfares.
2. Secondary routes.
3. Connecting tracks.

Such a reticulation serves the ends of both protection and marketing. Some formations will be conceived almost wholly from the protection standpoint, but utilization roads will integrate closely with the protection system as a whole. Purely protection roads generally follow the ridge-tops; utilization roads generally the valleys and contours. The latter should be of a high standard of construction. Auxiliary roads and vehicular tracks junctioning with these will be built to less stringent specifications. Auxiliary to the primary vehicular roading system, the network should be continued by a series of foot trails at suitable intervals for the purpose of further sub-dividing the protected area facilitating access for fire fighting purposes.

In many districts, particularly in Fire Zone No. 3 and parts of Fire Zone No. 2, roading systems will be developed by the improvement of existing tracks. This work is relatively cheap and may be carried out expeditiously. In Fire Zone No. 1 and part of Fire Zone No. 2, which as yet are practically unroaded and in which the need for adequate roading is greatest from the fire protection standpoint, construction costs will be many times greater and trafficable routes will often cost up to £10 per chain.

No. 13 deals with controlled burning. Given added funds, an increased programme of controlled burning is proposed. This will be for both marginal protection and for internal control. The operation will also continue to be carried out in those portions of Fire Zone No. 1 which comprise mixed forest and in Fire Zone No. 2. Adjacent to forest roads and trails for a distance
of from 1 to 5 chains on either side, an extension of controlled strip burning in alternate years is projected. While an increased expenditure is contemplated on this operation, it is to be noted that there are many difficulties and risks attendant upon the carrying out of such burning operations in forest country in Fire Zone No. 1, and attention is also directed to the many objectionable features from a forest and community point of view associated with such burning. There must be a limit to such operations and widespread burning is not contemplated. To ensure effective results in control burning operations, a considerable augmented staff of men will be needed in each district to carry out the necessary safety measures and to conduct the actual burning.

My 14th point deals with emergency measures for saving life.

(1) At frequent intervals along forest roads, there must be provided sections of sufficient width to permit of easy turning of motor vehicles. The creation of safety zones by either periodic cleaning and/or burning adjacent to such turning points should be effected.

(2) In order to ensure safe exits from forest areas subsequent to or during forest fires, all dry or dangerous trees along the edges of forest roads should be felled.

(3) At all present or future sawmills in Fire Zone No. 1 and at such mills in Fire Zone No. 2 as the Commission shall direct, it shall be made compulsory within a given period for the sawmill licensee to construct a dugout for the protection of life from fire. Dugouts shall also be constructed where danger of life from fire is considered by the Commission to exist at bush winches or other depots within the forest and at dangerous camping sites along roads. Dugouts shall be constructed in accordance
with an approved design by the Mines Department, and shall be of sufficient size to safely house all persons normally living or stationed in the vicinity of such dugouts. Water should be provided at each dugout and adequate provision made for clearing and the removal of dangerous trees or timber.

(4) Where forest townships or other settlements or camps are created within forests as prescribed under the provisions of the Forests Act, it shall be the responsibility of the Forests Commission to see that the necessary facilities for protecting lives from fire, such as dugouts, water supply, clearings, are provided.

(5) With regard to other settlements circumscribed by the area over which the Commission acts as Fire Authority, it shall be the responsibility of the people concerned to protect themselves or their property from fire and to form such organizations as are necessary for the purpose, always provided that all reasonable co-operation would be forthcoming from the Fire Authority for that locality, as well as from other bodies organized to give co-operation, such as municipalities and the Country Fire Brigades Board and Bush Fire Brigades Association, or, should legislative power be obtained to form a Board, a rural fire board or a bush fire board, - they should be a responsible body as well.

My fifth point deals with weather forecasts.

Experience in the recent fires demonstrated the value of accurate and more frequent weather forecasts on hazardous days. The matter will be further investigated with the Meteorological Bureau and aerial services. In view of the reported success obtained in Western Australia and in other parts of the world where the fire hazard is high, through the use of forest weather stations specialising in the forecasting of the forest fire hazard and the enforcement on such forecasts of fire
precautionary measures, it is considered that thorough investigation should be made to determine the degree to which the system of forest fire forecasting through forest weather stations may be introduced to help meet the Victorian forest fire problem.

No. 16 is in regard to fire lookouts. Fire lookout systems have proved their effectiveness, for the quick detection of outbreaks of fire. The extension of the existing lookout system so that the whole of the forest domain is under view will be vigorously proceeded with.

The 17th point deals with forest patrols. Ground patrols have proved their value in forest fire protection and suppression, and the policy of their employment should be developed and extended. In this regard, the following points should be emphasised:—

1. A greater number of such patrols should be employed, each patrol being restricted to a smaller area of forest.

2. In mountain districts, horse patrols are most effective; where good roads exist, motor bike patrols furnish a valuable adjunct.

3. Responsible officers should be enabled to readily engage extra men for patrol when conditions are such as to necessitate it.

4. In rougher forest areas, more patrol huts should be established.

5. There should be close co-operation between patrols and lookouts.

6. Patrols should pay particular attention to areas of major hazard such as forest margins.

7. Police patrols should be arranged during dangerous periods along forest margins and such areas of severe fire hazard where the necessary roads exist for the carrying out of such patrols.
My 18th point deals with aerial spotting. Aerial patrol for the location of forest fires in mountain country is a very useful auxiliary to other methods employed. The policy of utilising aerial patrol on dangerous fire days has had beneficial results, but attention is directed to the necessity for regular air patrols during the early period of each fire season when small fires may be in existence and can most easily be dealt with.

No. 19 deals with communications. Speedy communication of news of outbreaks of fires to forest district headquarters is most essential.
(1) The extended use of motor cycle patrols is projected.
(2) The possibility of effective use of radio by forest patrols will be a matter for continued investigation.
(3) Forest telephone communications are to be extended.
(4) Greater use will be made of portable telephones by patrols.
(5) Endeavour will be continued to perfect two-way communication between aerial patrols and district forest headquarters.
(6) Negotiations will be put in hand to provide that precedence in telephone calls shall be extended to cover all messages dealing with actual fire fighting operations or the organization or control of the same.

My 20th point deals with equipment and transport.
(1) The introduction of power pumps is strongly advocated. Prior to introduction on an extensive scale, the most suitable type of pump will have to be determined. In this respect, important factors to be considered are:
(a) Size and weight.
(b) Economy and use in places of limited water supply.

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(c) Mobility.

This will have a very important effect on the safety of small townships.

(2) It is essential that each forest district be supplied with at least one motor vehicle, for preference a light utility truck. The present powerful units will always be necessary in heavy mountain country; a cheaper, lighter and less powerful truck should be adopted for use whenever conditions permit.

(3) There shall be supplied at least one specially designed and fully equipped motor truck of suitable capacity to each division containing extensive areas of Fire Zone No. 1 and Fire Zone No. 2 forest. Enquiries as to design should be made in New South Wales and the western States of the United States of America. Immediate investigation is necessary in order that there may be procured mechanical units suitable for maintaining forest fire lines, breaks and roads, so that efficiency and maintenance may be increased and costs reduced. Attention is being given to power-driven graders now giving satisfactory results in the Queensland Forestry Service.

(4) The distribution of equipment should be so arranged that adequate supplies are located at accessible and advantageous points throughout the districts such as:

District Headquarters; Lookouts; Patrol Huts; Forest Camps; and Sawmills. Tool storage cabinets or boxes should be installed at these points, so that equipment, when not in use, can be securely locked up.

(5) To equip volunteer labour, suitable depots should be created in convenient centres.

(6) Prior to dangerous fire weather, steps shall be taken for the organization of sufficient auxiliary transport for estimated fire fighting requirements.

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Point No. 21 is concerned with labour for fire fighting. The suppression of fires in their early stages is of vital importance as the difficulties involved in putting out large fires are frequently insurmountable. It is essential that an adequate supply of experienced labour be available for use in efficient fire suppression. Prior to each fire season, the provision and organization of such labour forces must be a matter of primary importance.

In regard to permanent labour, the basis of the forest fire fighting organisation is the permanent labour employed by the Forests Commission. In Fire Zones No. 1 and 2, the strength of these labour gangs must in the future be materially greater than in the past. Particularly must the strength of the permanent gangs be increased in the fire danger period.

Permanent employment must be provided for men engaged on fire patrol. Mobile forces of selected fire-fighters will be made available at specified points of communication during hazardous fire weather, for early suppression of fires.

Regarding other State employees, at the commencement of each fire season, in each district a list shall be prepared of all State employees engaged in other works. Inter-departmental arrangements will be made so that, in the event of such labour being required for fire-fighting, the forest officer shall have power to take over such employees and transport and to utilise their services for fire-fighting. During such time, the labour so engaged will be responsible to and paid by the Forests Commission. The employees would be paid by the Forests Commission, provided that the other State Department or organization was not vitally concerned in the protection of the property.

In regard to licensed forest labour, the Fire Authority shall have power to compulsorily take and utilise the services of any or all licensed forest labour.
engaged in any district for fire-fighting purposes under conditions as to remuneration which shall be decided upon from time to time. I should like to enlarge on that and to say that the licensed labour referred to here represents the licensee who might be a timber getter in the forest, such as a sawmiller, a sleeper getter, and his offsider, and other licensees in the same category.

(CONTINUED ON PAGE 2188).
WITNESS (Continuing): Volunteer Labour: In cities and in country districts, a register should be made each year of the names and addresses of suitable men willing to offer their services in a voluntary capacity for fire fighting. As an auxiliary to the above, a register of volunteer transport shall also be compiled.

Assistance of Military Forces: It is intended to confer with the military authorities on the important question of co-operation in times of emergency. I should like to say that I will deal with this question of the experiences of the very bad fire weather during the particular week of January when we found it necessary to bring into the militia for the purpose of quelling the bush fires.

Publicity and Propaganda: The Forests Commission has always made extensive use of publicity and propaganda for public education as to forest fire prevention. In the past, attention has been given to educational publicity through the schools, and this policy is worthy of further development.

(1) Bush Fire Educational Publicity for Children:
(a) Within schools - A special committee consisting of representatives of educational authorities and the Forests Commission should be formed to discuss the implementing of a bush fire prevention campaign within the schools.
(b) General Publicity for Children - References to bush fire prevention should be made during children's radio sessions. Publication of suitable articles in the children's pages of newspapers, periodicals, etceteras.

(2) General Fire Prevention Publicity: The campaign carried out in recent years should be continued and extended. Greater publicity should be given to the
fire lighting restrictions in force from time to time; these should be as brief as possible and couched in simple language. That is profiting by Your Honour's remarks in the country.

Financial Estimates: Estimates of expenditure necessary to implement a future fire protection programme based on past and projected future policy have been prepared. These estimates are for a six-year period and embrace both capital and recurring or maintenance expenditure. The total of funds required is £996,000, or a proposed annual expenditure of £166,000. The annual charges are:— Capital Outlay — £105,000; Maintenance Expenditure — £61,000. In connection with the foregoing, the following commentary is submitted:—

(1) It is essential that not only shall the sums indicated be made available over the period prescribed, but also that assurance of regularity of supply be given. Only under such circumstances can a continuous protection policy be planned and executed, and the work performed at a minimum cost. In this regard, it appeared that a review of the method whereby funds are allotted the Commission is a necessary corollary to adoption of the proposals. Attention is directed to the inadequacy of the present sources of regular forest funds and to the intermittent manner in which additional moneys have been made available in the past.

(2) Money for the fire protection programme should be specifically set aside from forestry funds and provision made whereby any portion of such money not spent in one financial year should be carried forward for expenditure in the next year. I should like to explain that position by saying that forestry, of necessity, must be carried out subject to a very wide range policy, covering a long period of future years. Continuity of management is an absolute essential. For example, if the Commission received £100,000 this year
to carry out its forest works, and then found that the fund was cut off in the next year, and the following year, in the three years you might just as well have thrown that £100,000 away. Continuity of finance really means continuity of management and control. That is the prime essential in forest management.

I should like to emphasise that point by a graph which I have had drawn up, calculated to show the incidence of the money which has been made available from unemployment relief funds. You will see the valleys which are created, coming to a peak in one year, dropping decisively in another year, running to another peak, and finally the drop until, in the last few years, there has been a definite slide. I suggest that it is almost impossible to keep to forest management on matters of that kind.

You will also see illustrated the regular funds which are available to the Forests Commission from various sources. There is shown a regularity which assists in forest management, but you will also see that the regular funds are very limited in extent. I should again emphasise this fact with regard to finance, and I shall do so by producing a graph showing the total number of men employed with the money from the Unemployment Relief Fund, at the end of each month. That graph will tend to show the incidence and availability of labour at any given month. It shows how the seasonal labour flow occurs. The very time in the year when we want labour, it is unavailable to us. I submit these graphs as an exhibit.

EXHIBIT "NN" - Two Graphs.

Legislation: Legislation, either new or amending, is necessary as follows:

1) Powers to be given to the fire authority, (that is, the Forests Commission) to enter without notice at any time of day or night, private land within the fire

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protection area, in order to carry out clearing and/or burning and other fire preventive measures, at the owner's expense. This refers particularly to absentee owners.

(2) Amendment of Section 70 of the Forests Act 1928 to provide for increased complementary fire protection measures by adjoining property owners, to clean their property of inflammable material to a maximum width of ten chains along forest margins, with power of the fire authority to assist with carrying out certain measures outside the forest, when desirable.

With regard to No. 1, we are rather restricted in that matter by section 92 of the Forests Act, which precludes entry at any time other than during the day. It is restrictive in its operations.

MR. GOWANS: The Act says "at all reasonable hours in the day time"?—-

Yes, we tried to obtain the necessary amending legislation, but it was cut about during the debate in Parliament. Relative to No. 2, the Commission hopes that by obtaining that authority it will have a quarter of a mile break at vulnerable parts of the forest, or between the forest and private property.

(3) The compulsory reporting by the owner or occupier of any land within the area controlled by the fire authority of any fire which occurs on such land during a proclaimed period (see the Western Australian Bush Fires Act).

(4) Amending Section 69 of the Victorian Forests Act 1928 to provide for the compulsory suppression of any fire in the open air by the owner or occupier of the land on which such fire occurs during a proclaimed period, when such land is within the area controlled by the fire authority and whether such owner or occupier is responsible for the lighting of the fire or not, and without having to be notified so to do (see the Western Australian Bush Fire Act).
(5) Authorization of the fire authority to enter any land in the fire area controlled by such authority in order to take steps to extinguish fires and, under certain conditions, to make charges for so doing (see the Western Australian Bush Fires Act).

Note: This would amend Section 68 and Section 69 of the Victorian Forests Act 1928.

(6) Legislation is required to authorise the Forests Commission as the fire authority, to take over from the Lands Department the control of grazing on certain Crown lands to be determined.

(7) Any additional legislation required to enable the Commission to create, within forests, camping grounds, to charge rental for same and to make rules for the management of the same.

(8) Legislation to compel all prospectors to notify the fire authority of their movements in forest areas during the summer months.

(9) Power is required: (a) To make regulations for the prevention, control and extinguishment of bush fires and the protection of life and property, prescribing, where necessary, different conditions in respect of different localities;
(b) To amend existing regulations under the Forests Act to provide for any approved new conditions attaching to sawmill leases and licenses, and other timber licenses and permits, in regard to fire protection, protection of life from fire, etc..

(10) Legislation to authorise the compulsory taking and utilization for fire fighting purposes of any or all licensed forest labour engaged in any district under conditions and remuneration which shall be decided upon.

(11) Legislation to compel the imposition of maximum penalties.

(12) Legislation to provide for the hearing of all fire cases at a Court presided over by a police
The operation of the Fire Proclamation forced the Forests Commission into appearing to act as Fire Warden for the whole State, with neither the legislative nor financial power for a responsibility of such magnitude. It is considered that, in future:

1. The Proclamation should be regarded as a drastic measure to be brought into force only in limited periods of acute fire danger.

2. The application of the Proclamation should be by districts rather than on a wholesale basis for the State.

3. After informing itself of the fire hazard prevailing locally in any part or parts of the State, through local authorities and its forest officers, the Forests Commission may recommend to the Minister of Forests the issue or revocation of the Proclamation.

4. There should be as complete black-out of fires during the proclaimed period as is possible.

That completes the main part of my statement, but I should like to submit a short statement in regard to the experience of the Commission during that very dangerous and very bad week ending the 14th of January, 1939, when the fires were so disastrous. This brief statement shows how the Commission was looked on as the fire authority for the whole State during that bad period.

During the very bad fire days of the 8th, 10th and 13th of January last, insistent appeals for assistance to save homes and private property in country districts were received by the Commission. These requests came from centres such as Healesville, Warburton, Yarra Glen, Warrandyte, Eltham, Hurstbridge, Kinglake, Christmas Hills, Panton Hills, and as far afield as Omeo, Cudgewa, Corryong and Bright. Whilst the Commission appreciated that it
was not its responsibility nor had it the authority to deal with fires on private property. It realised that there was no other existing organization to undertake the task, and it was thus placed in the position of being regarded as the fire warden for the State. Realising that, unless some authority took control of the abnormal situation, further tragedies were likely to occur, the Commission consequently took the initiative and accepted the task of organizing assistance for the distressed districts. Verification of calls for help was made by communication with the local police or other responsible officials. The broadcasting stations were then advised and requested to broadcast an appeal for experienced volunteer fire fighters to assemble at a central designated place where they were drafted into units of convenient size. As far as possible a forest official was sent with each batch of volunteers, and, where this was not practicable, a competent leader was appointed and the volunteers instructed to report to the local police officer.

Before being sent out, each volunteer chosen was given a numbered card and a record kept of the name of each individual and the designation to which he was sent. The Railway Department, the Tramways Board, and private firms supplied the necessary transport for men, equipment and food. Other private transport was offered, but the use of small cars was discouraged as far as possible to minimize congestion on roads. The Commission organized supplies of the necessary tools and other equipment for units of twenty men.

As regards far distant centres, such as Corryong and Cudgewa, appeals were received from the local postmasters at about midnight of the 13th of January. The Commission arranged with the Railway Department to place a special train at its disposal to pick up volunteers from Benalla, Wangaratta and Wodonga. As far as Bright was concerned,
the aid of the Defence Department was enlisted and the Commission arranged for the transport of two hundred and fifty volunteers from the militia in camp at Seymour. Food supplies for the fire fighters were at first arranged by the Commission, but later the Red Cross Society undertook in conjunction with local residents to feed the men.

I shall not read the rest of my statement, but shall hand it in to Your Honour. I should like to read the last paragraph: It must be pointed out that the organization outlines above had to be suddenly superimposed on the existing administration of the Commission, and demonstrated the absolute necessity of some control co-ordinating authority in times of emergency.

Further expanding the grazing question, which I dealt with a while ago, Your Honour mentioned something about graziers and fires in your questioning, and you inferred that it was extremely difficult to stop graziers lighting fires in certain parts of the country. The Commission is entirely in agreement with that. Some years ago, in 1931-32, the Commission carried out experiments in the Woonongatta-Dalatite forest district. Fires were frequently being experienced in that district - as a matter of fact, they were an annual occurrence - and the Commission was very worried about what it should do. We then hit upon the plan of agistment. We appointed an experienced man as a herdsman, and stopped all grazing licences on that particular area. For that action, we were very severely criticised, and we had to suffer a barrage of trouble for some time. I shall explain the experience of the Commission on that agistment principle, because it might lead towards the solving to some extent of the grazing problem. The number of grazing licences in force prior to the introduction of the agistment system was four. It is an extensive area, and the number of
agistment permits issued subsequent to the introduction of the system was sixteen. The number of persons agisted was thirteen. The rates for agistment were five pence per head per half year for sheep, and 2/6d. per head per half year for cattle. That system commenced operation on the 1st of July, 1932. A comparison of revenue received by the Forests Commission from the two systems is of interest. From the annual grazing licenses issued in 1931-32, the Commission received £89/16/8; under the agistment scheme, in 1932-33, the revenue received was £146/7/6. The average increase in revenue during the first three years as a result of that change was 68 per cent. I should add that this was an experiment which has proved to be more or less successful, inasmuch as, over a period of about seven years, we had no fires at all. The area was fired to some extent during the bad week in January last, but until that time, from 1932, we had experienced no fires at all. The herdsman is an experienced officer, and he assisted in controlled firing in certain parts, which more or less acted as a protection and helped the grazier so far as fodder was concerned. We had the complete co-operation of the Lands Department in this connection, by reason of the fact that that Department allotted certain areas adjacent to that particular area to which I refer for grazing to be carried on under the same system. I submit those figures for the information of Your Honour, together with a map of the area.

2196.

A.V. GALBRIATH.
In conclusion, let me briefly survey the whole matter of fire protection from the broad, national standpoint. Our national economy and safety demand that we shall fill this continent with sufficient population to hold it against any challenge. At present we effectively occupy only a narrow strip of land along our eastern and southern coasts. We have, however, large stretches of land which are at present unsuitable for settlement - not through lack of fertility, for we know that they include some of the most productive soils in Australia - but entirely through lack of water. Barkley, formerly of the Meteorological Bureau, when dealing with "Climatic factors affecting the distribution and limits of the population of Australia", says:— "There is a very definite upper limit to the density (of population) set by the greatest arbiter in the natural world - the supply of water". Water then is the key to our future national development, by setting a limit to the population this country can support, but in turn the preservation of adequate forest cover represents the only controlling influence on water conservation. This, then, is what the Forests Commission believes is the long view in this matter - a view which goes far beyond merely holding and defending what we have left of our forests and watersheds, but visualises the complete restoration of catchment areas in order to provide the maximum possible storage for water.

I consider that it is imperative that complete regional surveys should be carried out to determine in every case the correct form of utilization that should be practised on all our State lands, and, following this survey, a steady policy should be adopted to secure the necessary balanced use of the land. Actually these proposals in their effect will go far beyond the matter of fire protection, but they would have a definite beneficial influence in this respect.

The implementing of the policy outlined here will
necessitates the annual expenditure of a considerable sum of money. Victoria has expended something like fifty million pounds in water storage and distribution. In addition, vast sums have been invested by private individuals in the development of land under irrigation, so that we have a huge capital investment which must be protected. Any moneys spent on the forests must be regarded as insurance premiums paid to ensure the safety of at least this capital outlay, and who shall say that £250,000, representing approximately one half per cent. of the capital involved in water conservation works alone, is too great an annual premium to pay for this security? That rounds off my remarks, and I shall conclude by saying that the forests are the very life's blood of this community.

THE COMMISSIONER: You seem to have lost a lot of life's blood recently?—Yes.

THE COMMISSION ADJOURNED UNTIL
10 A.M. ON THURSDAY, MARCH 30, 1939.
Author/s:
Victoria. Parliament

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