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FORESTS COMMISSION OF VICTORIA

1939

VICTORIA

REPORT

OF THE

ROYAL COMMISSION

TO INQUIRE INTO

The Causes of and Measures Taken to Prevent the Bush Fires of January, 1939, and to Protect Life and Property

AND

The Measures to be Taken to Prevent Bush Fires in Victoria and to Protect Life and Property in the Event of Future Bush Fires

PRESENTED TO BOTH HOUSES OF PARLIAMENT BY HIS EXCELLENCY'S COMMAND

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FORESTS COMMISSION OF VICTORIA

To His Excellency The Right Honorable FREDERICK WOLLASTON MANN, *K.C.M.G., Lieutenant-Governor of the State of Victoria and its Dependencies in the Commonwealth of Australia, &c., &c., &c.*

MAY IT PLEASE YOUR EXCELLENCY :

INTRODUCTION.—PART I.

In the State of Victoria, the month of January of the year 1939 came towards the end of a long drought which had been aggravated by a severe hot, dry summer season. For more than twenty years the State of Victoria had not seen its countryside and forests in such travail. Creeks and springs ceased to run. Water storages were depleted. Provincial towns were facing the probability of cessation of water supply. In Melbourne, more than a million inhabitants were subjected to restrictions upon the use of water. Throughout the countryside, the farmers were carting water, if such was available, for their stock and themselves. The rich plains, denied their beneficient rains, lay bare and baking ; and the forests, from the foothills to the alpine heights, were tinder. The soft carpet of the forest floor was gone ; the bone-dry litter crackled underfoot ; dry heat and hot dry winds worked upon a land already dry, to suck from it the last, least drop of moisture. Men who had lived their lives in the bush went their ways in the shadow of dread expectancy. But though they felt the imminence of danger they could not tell that it was to be far greater than they could imagine. They had not lived long enough. The experience of the past could not guide them to an understanding of what might, and did, happen. And so it was that, when millions of acres of the forest were invaded by bushfires which were almost State-wide, there happened, because of great loss of life and property, the most disastrous forest calamity the State of Victoria has known.

These fires were lit by the hand of man.

Seventy-one lives were lost. Sixty-nine mills were burned. Millions of acres of fine forest, of almost incalculable value, were destroyed or badly damaged. Townships were obliterated in a few minutes. Mills, houses, bridges, tramways, machinery, were burned to the ground ; men, cattle, horses, sheep, were devoured by the fires or asphyxiated by the scorching debilitated air. Generally, the numerous fires which during December, in many parts of Victoria, had been burning separately, as they do in any summer, either " under control " as it is falsely and dangerously called, or entirely untended, reached the climax of their intensity and joined forces in a devastating confluence of flame on Friday, the 13th of January.

On that day it appeared that the whole State was alight. At midday, in many places, it was dark as night. Men carrying hurricane lamps, worked to make safe their families and belongings. Travellers on the highways were trapped by fires or blazing fallen trees, and perished. Throughout the land there was daytime darkness. At one mill, desperate but futile efforts were made to clear of inflammable scrub the borders of the mill and mill settlement. All but one person, at that mill, were burned to death, many of them while trying to burrow to imagined safety in the sawdust heap. Horses were found, still harnessed, in their stalls, dead, their limbs fantastically contorted. The full story of the killing of this small community is one of unpreparedness, because of apathy and ignorance and perhaps of something worse.

Steel girders and machinery were twisted by heat as if they had been of fine wire. Sleepers of heavy durable timber, set in the soil, their upper surfaces flush with the ground, were burnt through. Other heavy wood work disappeared, leaving no trace. Where the fire was most intense the soil was burnt and destroyed to such a depth that it may be many years before it shall have been restored by the slow chemistry of Nature. Acres upon acres of the soil itself can be retained only by the effort of man in a fight against natural erosive forces.

The speed of the fires was appalling. They leaped from mountain peak to mountain peak, or far out into the lower country, lighting the forests 6 or 7 miles in advance of the main fires. Blown by a wind of great force, they roared as they travelled. Balls of crackling fire sped at a great pace in advance of the fires, consuming with a roaring, explosive noise, all that they touched. Houses of brick were seen and heard to leap into a roar of flame before the fires had reached them. Some men of science hold the view that the fires generated and were preceded by inflammable gases which became alight. Great pieces of burning bark were carried by the wind to set in raging flame regions not yet reached by the fires. Such was the force of the wind that, in many places, hundreds of trees of great size were blown clear of the earth, tons of soil, with embedded masses of rock, still adhering to the roots ; for mile upon mile the former forest monarchs were laid in confusion, burnt, torn from the earth, and piled one upon another as matches strewn by a giant hand.

There had been no fires to equal these in destructiveness or intensity in the history of settlement in this State, except perhaps the fires of 1851, which, too, came at summer culmination of a long drought.

Some impression, then, of the unusual antecedents of the fires and of their extreme and unexpected severity may be gained. It will, it is hoped, be apparent that the experience of men in Victoria was such as to leave them unprepared for disaster on such a scale. It is with such facts in mind and with the belief that the facile wisdom which comes after an event is not wisdom, but foolishness, that your Commissioner proceeds to report upon the matters into which, to his great honour, he has been appointed by Royal Commission to inquire.

INTRODUCTION.—PART II.

On the 27th day of January, 1939, a Royal Commission was issued and entered in the Register of Patents. Its terms required your Commissioner, thereby appointed, to inquire into and report upon :—

1. The causes and origins of the serious bush fires which burned in various parts of Victoria during the month of January, 1939.
2. The measures taken to prevent the outbreak and spread of such fires and the measures taken to protect life and private and public property.
3. The measures which are necessary or desirable to be taken by any and what persons, corporations, or bodies to prevent the outbreak of bush fires in Victoria, or to prevent the spreading of such fires ; and
4. The measures which are necessary or desirable to be taken by any and what persons, corporations, or bodies to protect life and private and public property in the event of bush fires burning in Victoria.

The first sitting of the Commission so constituted was held at Melbourne on the 31st day of January, 1939. The last public sitting was held on the 17th day of April, 1939. Between those dates the Commission sat daily, continuously, except for one or two short intermissions which were granted to meet the convenience of parties. Sittings were held in the country, also, at many places which were thought to be most easily accessible to witnesses from the surrounding district. The Commission did not attempt to sit in every place affected by the fires. It chose for its sittings places which it considered were centres of country which, because of its physical features, its experience of the fires and other circumstances, was likely to be typical of much larger areas. The Commission is satisfied that by this method it has heard classes of evidence which are representative in principle of every class of evidence which could have been given. The Commission, further, inspected areas thought to be typical of all the classes of forest country in the State, widely diverse as they are. It was found that although different kinds of country have problems of fire prevention and suppression which differ to some degree, one from the other, nevertheless the general principles which are thought by informed people to govern these matters are of almost universal application and readily admit of modification according to the exigencies of local peculiarities.

It will be found that this Report, in the main, is concerned with generalizations. In few cases will it be found to particularize. For instance, under paragraph I. of the terms of the Commission (*supra*) no attempt was made to discover whether Mr. "A" lit a fire which burnt his district, nor was it regarded as of paramount importance whether, in another district, the lighting was deliberate or accidental. It was left to the detectives and the coroner to elicit, in their own spheres, such evidence of this sort as they could.

Again, it will be noticed that there does not appear in this Report under, for instance, paragraph 4 of the Commission, any suggestion as to the manner in which, for example, Noojee may be best protected or Omeo made safe. Rather will it appear that the Report suggests methods of control and organization of fire-fighting forces, of awakening public appreciation of the danger of the misuse of fire, of deciding upon, effectuating and enforcing fire prevention schemes, of amendment of the law by repeal or alteration where at present it stands in the way of the safeguarding of our property and our people.

The principal parties who appeared before the Commission were :—Those classes of the rural population whose work or interests lie in or near forest areas and who consisted chiefly of farmers, graziers, timber-workers, and saw-millers ; the Forests Commission ; The Victorian Foresters' Association ; The Melbourne and Metropolitan Board of Works ; The Country Bush Fire Brigades Association ; the Lands Department ; the Hardwood Millers' Association ; the Forests League ; expert witnesses from within and without the Public Service ; and various persons who desired to express their views upon the matters for inquiry.

The truth was hard to find. Accordingly, your Commissioner sometimes sought it (as he was entitled to do) in places other than the witness box. Much of the evidence was coloured by self interest. Much of it was quite false. Little of it was wholly truthful. The timber-workers were afraid that if they gave evidence they would not be given future employment in the mills. It is difficult to imagine a sufficient reason for the absence of representation of these men before the Commission of Inquiry. Some of them, disregarding advice, gave evidence which was clearly truthful. The Forest Officers were, in the main, youngish men of very good character. Mostly, they were afraid that if they were too outspoken their future advancement in the Forests Commission's employ would be endangered. Some of them had become too friendly with the millers whose activities they were set to direct and check. It was regrettable that some of the saw-millers and some of the Forestry Officers were loud in praise of one another, when, to the knowledge of both, each had neglected many obligations in the matter of fire prevention and suppression.

Of the Forests Commission, the Chairman, Mr. Alfred Vernon Galbraith, alone was called to speak for the Commission. He found himself in the embarrassing position of being the truthful sponsor of what he thought was a bad case. He is a man of moral integrity. If he were freed from the preoccupations attendant upon a life of enforced mendicancy on behalf of his Department and if his Commission were placed beyond the reach of the sort of political authority to which he and his Department have for some time past been subjected, he would be of greater value to the State and would be enabled to devote his attention more closely to (*inter alia*) what should be the first consideration of every forester, the problems of fire prevention and suppression.

Reference has been made to certain of the foregoing matters for the purpose of showing some of the difficulties with which the Commission was confronted and to explain why methods a little unorthodox, but sound, were employed in the search for truth. Some of what has already been set down will, when later expanded, serve to explain, if not to excuse extirely, what appears to have been the mistakes and the failures of persons whose past conduct will be later discussed.

This Report will be somewhat inconclusive as to many matters which might have been appropriately examined but which, while being technically relevant, upon a consideration of realities fell, for practical purposes, outside the ambit of the Inquiry. The several classes of people who gave evidence pressed for the preferment of their personal or departmental interests.

To enable a report of full effect to be made, it would be necessary to inquire into and resolve the preliminary problem of the co-ordination of control of forest lands by, and recognition and preservation of the rights of, the various persons and departments whose interests are rooted in the soil of the forests; to inquire into the constitution and administration of some of these departments; to expose and scotch the foolish enmities which mar the management of the forests by public departments who, being our servants, have become so much our masters that in some respects they lose sight of our interests in the promotion of their mutual animosities. Nevertheless what will be suggested, should it be thought to be of value, can without insuperable difficulty be later fitted to any change of forest lands control.

There is one fundamental policy of fire prevention and of protection against fire. There is only one basis upon which that policy can safely rest, namely, the full recognition by each person or department who has dominion over the right to enter the forests of the paramount duty to safeguard the property and rights of others. It would be found in the forests, as it is in all places outside the forests, that such a policy is the surest safeguard of the rights and property of each one concerned. No person or department can be allowed to use the forest in such a way as to create a state of danger to others. If conformity with this rule cannot be brought about, the offender must be put out of the forest, or, in the case of a public department, its authority curtailed or enlarged, so that the rule may be enforced or voluntarily observed as the case may require. Education of children and adults in this matter is vitally necessary. As no scheme of prevention or safeguards can be brought to a state of effectiveness in this State without education, goodwill, and the expenditure of money and patient labour, the day is yet distant when we may be able to say that we have, not a condition of perfect safety, but at least a working plan and the knowledge that the plan has earned the approval of the rural populace. Without their approval and goodwill, there can be no real plan, because it is man who causes the fires in all years, as he caused the fires of 1939. A law which is not acceptable to the many is made to be broken. It is therefore with some misgivings as to immediate betterment that the recommendations of this Report are made. For much that will be suggested will rest, for its effectuation, upon the voluntary co-operation of those whom it is designed to protect. A little of it will rely upon the stern and swift punishment of the few who, failing to be convinced, cannot be cajoled. That punishment, it is suggested, should take the form of deprivation of rights, rather than, but not to the exclusion of, fine or imprisonment.

CHAPTER I.

CONTROL OF THE FORESTS.

1. *Unalienated Lands.*—There are in Victoria approximately 23,500,000 acres of unalienated land.

2. *State Forests Department.*—Of these lands, about 16,000,000 acres, being State forests, have been placed under the control of the State Forests Department, a department of the Public Service having under the direction of the Minister of Forests certain powers and duties. The *Forests Act* 1928 confers on the Department, subject to the provisions of the Act, the exclusive control and management of—

(*a*) all matters of forest policy;

(*b*) the granting and enforcing of leases, licences, &c., under the Act;

(*c*) the collection and recovery of all rents under the Act.

3. *The Forests Commission.*—The Act provides that there shall be a Forests Commission consisting of three commissioners and declares it to have been first constituted under the *Forests Act* 1918.

Further provisions make the Commission a body corporate capable of suing and being sued and of dealing generally in and with real and personal property (i.e., broadly speaking, chattels and the several estates in land) for the purposes only of the Act. No person may be appointed a commissioner for a term exceeding five years.

The Act further states that subject to the Act the Commission shall have the control and management of—

(*a*) State forests and plantation nurseries forest schools and industrial undertakings carried on under the Act and the forest produce of other Crown lands as provided in the Act; and

(*b*) the establishment, maintenance, improvement and renewal of forests, plantations and tree-nurseries and the distribution of trees therefrom and all tree-planting—

(i) on Crown lands not vested in any corporation or trustees or not under the control or management of any council or committee of management; or

(ii) on public roads (other than main roads within the meaning of the *Country Roads Act* 1928),

when such tree-planting is subsidized by grants from the consolidated revenue or the Forestry Fund or by gifts of trees by the Government or the Commission.

The Act does not specifically lay upon the Commission any duty of fire prevention or suppression, but does so by implication, in that the Commission is required under Section 40:—

(1) (*a*) (iv) to report to Parliament annually its proceedings with respect to the protection of State forests from (*inter alia*) fire.

The Act provides that notwithstanding anything contained in the *Land Act* 1928, it shall not be lawful for the Governor-in-Council by virtue of the said Act at any time to increase or diminish the area of any State forest reserve or timber reserve or to grant a lease or licence of or in respect of any Crown land within a reserved forest.

"State Forest" includes reserved forests and protected forests.

"Reserved forest" includes:—

(*a*) all areas of Crown land set out as permanent forests in the Second Schedule to the *Forests Act* 1928 or dedicated as permanent forests pursuant to such Act or any corresponding previous enactment; and

(*b*) all areas of Crown land set out as timber reserves in the Third Schedule to the *Forests Act* 1928 or dedicated as timber reserves pursuant to such Act or any corresponding previous enactment.

"Protected forest" includes all unoccupied Crown land proclaimed as a protected forest pursuant to the *Forests Act* 1928 or corresponding previous enactment and every unused road and every water frontage as defined in Part XLII. of the *Local Government Act* 1928.

A reserved forest or any part thereof may not be alienated either wholly or in part and no lease or licence (other than for mining purposes) may be granted except under the *Forests Act* 1928. Wide powers of granting leases and licences of the right to enjoy and take forest produce and to graze cattle are conferred upon the Commission.

In the result, it may be said that, subject to the immediate control of the Minister (the scope of which control unfortunately is not defined) and the more remote control of Parliament, the Forests Commission has virtually complete control, for nearly all purposes, of the reserved forests and the whole of their vegetable produce, and enjoys a security of tenure of the land, it being inalienable, which may well encourage it to expend effort and money on the protection, cultivation and regeneration of the forest produce and upon the supervision and direction of the several activities of the lessees and licensees within the reserved forest boundaries.

In the case of the protected forest, different incidents attach to the Commission's enjoyment and user. The forest, or part or parts of it, is alienable. The Minister may at any time proclaim any unoccupied Crown land to be a protected forest, and may at any time alter or revoke such proclamation. The power of making regulations for the care and management of the forest is limited. There is no power in the Commission to grant leases or licences for grazing. All forest produce is stated to be under the control of the Commission, but grass is, by definition, excluded and is subject to the control of the Minister of Lands. The position thus created is that the Commission has but little security of tenure of the protected forest, and is averse to expending money on land which may be alienated. Because many of the operations in silviculture, particularly in fire prevention, are necessarily destructive of some portion of the ground growth, such as grass, which may not be destroyed by the Commission, there is a legal bar to the prosecution of fire prevention, unless, it is suggested, with the consent of the Minister of Lands. The Lands Department has taken and acted upon the view that it has no right to carry out any fire prevention policy in protected forests because the produce, with the exception of certain ground growth, is under the control of the Forests Department. It confesses that it has no policy of fire prevention, and that if it had it would have no staff therewith to implement such policy.

4. *Lands Department.*—For the purpose of this Inquiry, the Lands Department comes under notice for two reasons only—

(*a*) it grants leases and licences for grazing and other purposes in protected forests ;
(*b*) it has no policy of fire prevention or suppression, and says that it has always held the view that the duty of providing for fire prevention in all Crown lands in Victoria rests upon the Forests Commission.

The Forests Department has no control over the granting of such leases and licences, nor has it any authority to veto a grant by the Lands Department to any person, however bad may be his reputation for the illegal and dangerous use of fire. Although the grazing licences and leases issued by the Lands Department contain a condition to the effect that the licensee shall protect the leased area from fire and extinguish any fire which may break out, and that breach of this condition may lead to forfeiture of the lease or licence, the condition is a nullity, in reality, as there is no supervision of his conduct in this respect.

No prosecution, with the exception of two at present pending, for the illegal use of fire has been instituted by or at the instigation of the Lands Department for at least five years past, to the certain knowledge of the Secretary of the Department. The attitude of the Department is revealed in the following questions and the answers made by the Secretary in evidence, which throw such a light upon the matters of prevention and co-operation that it is sufficient to quote the evidence and to refrain from comment :—

Question.—" There have been fires on your territory ? "

Answer.—" I dare say. The trouble is to get proof of them."

Question.—" Have you ever cancelled a licence under clause 17 ? " (i.e. the condition which prescribes fire prevention, and forfeiture of licence for breach of the condition).

Answer.—" Not since I have been there."

. . . . . .

Question.—" Do you think that divided control is undesirable ? "

Answer.—" I would not say it was undesirable."

. . . . . .

Question.—" I am putting to you that from the Forests Commission's point of view the divided control of these protected forests is very undesirable and awkward ? "

Answer.—" I cannot agree with that : *you might say we have the same trouble because the Forests Commission has control of the forest product.*"

Question.—" Do you see any objection to the control of grazing being transferred to the Forests Commission in these protected areas ? "

Answer.—" No great objection. *I think things could be worse.*"

5. *Water Supply Authorities.*—Throughout the State, areas of forest land have been placed under the control of authorities for the purpose of being used as water catchment and reservoir areas. Most of these areas are the subject of some kind of policy of fire prevention and suppression; but, as the education of the water conservator (like that of the forester) leads him to adopt measures which are considered by many persons, whose interests do not lie in water conservation (or forestry), to create a state of danger to nearby public and private property, further conflict arises between water authorities, on the one hand, and foresters and owners of private rights on the other. Thus there is a long standing feud between forestry officers and officers of the Melbourne and Metropolitan Board of Works, and between officers of these bodies and those of other water authorities, on the one hand, and farmers and settlers, on the other, who consider that their properties are endangered by the state of nature which the water conservator and the forester consider to be the best attainable state in the forest areas under their controls.

6. *Committees of Management of Park Areas.*—As far as your Commissioner is informed, it is improbable that these committees have any satisfactory plan of fire prevention. One at least has none. Your Commissioner has not delved deeply into their stewardship and therefore refrains from speaking with certainty. They and their areas will fall within the recommendations which appear later in this Report.

7. The several bodies which have been mentioned hold between them almost the whole of our forests and between them bear the responsibility for the prevention and suppression of fire in their several domains. Unfortunately, the policy (if any) of prevention and suppression of fire has in each case been determined by and subjugated to what each has considered to be its major interest or has, as in the case of the Lands Department, been non-existent. Thus the water supply authority has, in many instances, in furtherance of its desire to give full supply of uncontaminated water, allowed its area to become a menace to the rest of the forest. Similarly the forester, in his desire to preserve every tree and to refrain from destroying even a negligible portion of his estate has ranked himself, in point of creating danger, with the water supply authority. Each, curiously enough, is so narrow in his view, that he looks at the other as a creator of danger and an enemy. Each excuses the unsafe condition of his own territory by protesting that his own undertaking is of vast importance, and that he must aim at the perfection of production or supply, as the case may be. Each is in the position of the trustee who, being charged with the management of a business, diverts to the purchase of a little more stock the money which might have been used to pay a fire insurance premium. Both have ignored the advice and supplications, however well informed, of the private landholder whose interests have for years past been placed in jeopardy by the refusal of these bodies to protect him against the danger which they have brought to his door. Both have, in turn, been exposed to the danger which the landholder has caused by the illegal measures of self-help which have been forced upon him by the inflexibility of the law.

There has been no paramount fire authority in this State to interest itself in these matters. It is suggested that such authority ought to be constituted without delay.

CHAPTER II.

THE CAUSES AND ORIGINS OF THE SERIOUS BUSH FIRES WHICH BURNED IN VARIOUS PARTS OF VICTORIA DURING THE MONTH OF JANUARY, 1939.

The first paragraph of the Commission of Inquiry has been used as the title to this Chapter. It is not intended that what follows under this head should be thoroughly exhaustive. The matter is best restricted to those things which have been found to be of practical and real importance.

Except that the summer of 1938–39 was unusually dry and that it followed what already had been a period of drought, the causes of the 1939 bushfires were no different from those of any other summer. There were, as there always have been, immediate and remote causes. Upon examination, which is not now undertaken, it will appear that no one cause may properly be said to have been the sole cause. The major, over-riding cause, which comprises all others, is the indifference with which forest fires, as a menace to the interests of us all, have been regarded. They have been considered to be matters of individual interest, for treatment by individuals.

As a great deal of what might be said under this heading will be said expressly or by implication later in this Report, it is thought that this chapter may well be compressed.

FORESTS COMMISSION OF VICTORIA

The causes of the fires under discussion are set out as follows :—

(*a*) *Dry Season and Dry Forests.*—Further elaboration is unnecessary.

(*b*) *The Condition of the Forests.*—When the early settlers came to what is now this State, they found for the greater part a clean forest. Apparently, for many years before their arrival, the forest had not been scourged by fire. They were in their natural state. Their canopies had prevented the growth of scrub and bracken to any wide extent. They were open and traversible by men, beasts and wagons. Compared with their present condition, they were safe. But the white men introduced fire to the forests. They burned the floor to promote the growth of grass and to clear it of scrub which had grown where, for whatever reason, the balance of nature had broken down. The fire stimulated grass growth ; but it encouraged scrub growth far more. Thus was begun the cycle of destruction which can not be arrested in our day. The scrub grew and flourished, fire was used to clear it, the scrub grew faster and thicker, bush fires, caused by the careless or designing hand of man, ravaged the forests ; the canopy was impaired, more scrub grew and prospered, and again the cleansing agent, fire, was used. And so to-day in places where our forefathers rode, driving their herds and flocks before them, the wombat and the wallaby are hard put to it to find passage through the bush.

(*c*) *Various Interests.*—It is in these forests which are in the condition described, that various people have followed their various interests and have been permitted to adopt various and conflicting methods or no methods of fire protection.

(*d*) *Land Utilization Control.*—It has already been shown by example that the absence of any method of co-ordinating the interests and duties of public departments and other forest users has been a contributory cause.

(*e*) *Permanent Fire Authority.*—There has been none.

(*f*) *Immediate Causes.*—Almost all fires are caused by man. The experience of the past shows that the persons who caused the 1939 fires are to be found among the following classes which are set forth in a descending scale of frequency of responsibility for fire ; the manner in and reason for which they cause fire is shortly indicated :—

(i) *Settlers.*—Burning off for growth, clearing or protection.
Graziers.—Burning to promote grass growth.
Miners and Prospectors.—Clearing to facilitate operations.

(ii) *Sportsmen.*—Neglect of camp-fires, billy fires.
Tourists.—Lighted matches for smoking.
Campers.—Burning to facilitate passage through the bush.

(iii) *Forest Workers.*—Misuse of fire used for mill operations and for domestic purposes.

(iv) *Persons using Roads.*—Neglect of billyfires ; lighted matches ; and burning obstructing logs on roadway.

(v) *Road and Railway Work Gangs.*—Billy and camp fires ; careless burning off on railway property.

(vi) *Locomotives.*—Defective spark arresters.

(vii) *Lightning.*—Infrequent, as generally followed by rain.

Of these classes, settlers, miners and graziers are the most prolific fire causing agents. The percentage of fires caused by them far exceeds that of any other class. Their firing is generally deliberate. All other firing is, generally, due to carelessness.

(*g*) *Laws Relating to Fire Prevention in Reserved and Protected Forests.*—The relevant provisions of law which govern the matters of prevention are not here set out. They are to be found in Section 20, *Police Offences Act* 1928, and Sections 68, 69 and 70 of the *Forests Act* 1928.

It is a strange fact that the law designed for the prevention of fires has by the unsuitability of its specific terms and the ill-considered use of the power of proclamation conferred by it been a fruitful cause of bushfires. The reasons for the failure of the law are to be found within the law.

(i) It imposes penalties in respect of the lighting of fires (unless by the authority of a Forest Officer) during November, December, January, February, and March *within any reserved forest or half a mile of its boundary or within any portions of protected forests* specified by Order of the Governor-in-Council. (No areas of protected forests have been so specified.)

(ii) When the Commission reports to the Minister that there is serious danger of fire *in any part or parts of Victoria* the Governor-in-Council may declare, by proclamation, any specified period to be a "proclaimed period" and any specified area to be a "proclaimed area."

(iii) A proclaimed area may include any *Crown or private land* not situate in a city, town or township of more than one thousand inhabitants. The lighting or permitting of the lighting of any fire in the open air in a proclaimed area and during a proclaimed period is, except under the conditions specified in the proclamation, punishable by fine or imprisonment or both. One of the conditions generally specified in the proclamation is that a permit to light such a fire must be obtained from a Forest Officer.

(iv) It has been the practice to make one proclamation covering one period for all parts of Victoria which it has been desired to make "proclaimed areas." This manner of exercising the power of proclamation has also proved to be unacceptable to the rural populace partly because it is quite inappropriate.

(*h*) *Reasons for the Failure of the Law.*—It is trite to say that no flat rule can be applied with justice to the activities of all mankind or any large class of people. The law relating to the prevention of fires has failed because it is not fitting for the widely diverse conditions and circumstances which obtain in Victoria. Furthermore, it has failed because the people have neither understood nor been instructed in it.

(i) In the reserved and protected forests exists a wide range of topographical and climatic conditions. In many years, in places of high altitude, it may be impossible throughout the whole of a summer or for the greater part of summer to promote fire. In other and lower altitudes the rainfall may be so heavy that the same difficulty of burning may be encountered. Settlers and others find it necessary to burn scrub to keep their land clear that their property may be protected from fire, to promote growth or to clear their land for agricultural and pastoral purposes generally.

In many cases, fire being the cheapest agent to hand, they must use it. Both under the Section and the Proclamation it is found impracticable to burn in the permitted periods.

(ii) Many settlers have not known that the permission of the Forest Officer may be sought.

(iii) Many have found that the permission will not be granted as the Forests Officer frequently shuns the responsibility of granting permission or refuses permission at times when experienced people feel that it is safe to burn.

(iv) Acting in this state of ignorance or discouragement the settler decides to burn in defiance of the law and, not wishing to be detected in the act, leaves the fire untended, either to die out or to rage across the countryside.

(v) The law is so notoriously unpopular, because it is unreasonable and inflexible, that there is no public opinion to check an intending law-breaker.

(vi) There has been no effective system of policing the law.

(vii) People have learned from their childhood to treat it with contempt.

(viii) Many persons charged with the enforcement of the law are country bred and feel no special zeal for the task of upholding a law which they feel to be unjust.

(*i*) *General Apathy.*—Throughout the State there is an attitude of apathy towards fire prevention. With the exception of the volunteers of the Bush Fire Brigades and the Country Fire Brigades whose services to the State have been of very great value, few people have had any interest in the subject. Townships have been allowed to be encroached upon by scrub. No attempt, in many such places, has been made to render safe the township or its environs by clearing or conservation of available water. Efforts towards the establishment of brigades have failed. Generally the Forests Commission has been regarded, wrongly, as the fire warden of the State. This misconception has probably arisen because of the fact that the permission of a forest officer is required for the lighting of a fire during a proclaimed period even in places outside reserved or protected forests. (Section 69 and form of proclamation.)

(*j*) *Extermination of Noxious Weeds and Vermin.*—The cheapest method of extermination and therefore the one most frequently used, is burning. Burning for these purposes causes bushfires by :—

(i) voluntary burning, illegally, at a dangerous period ;

(ii) burning, innocently but illegally, pursuant to notice from the Inspector, the notice being served at a time when burning is both illegal and dangerous.

(The notice does not require the landholder "to burn" but "to destroy." But the Lands Department is aware that burning is widely employed for purposes of destruction.)

Phosphorous Baits laid for vermin, if not properly prepared, can and do cause fire. They have been long recognized as being dangerous when used in hot weather.

(*k*) *Failure to Enforce Safety Conditions of User of Forests.*—This matter has already been mentioned. The public departments in whose areas persons are allowed to pursue their fortunes only by licence or lease do not enforce the safety conditions imposed. It would seem to be obvious that the expulsion from the forest of one who disregards the conditions designed to preserve the forests from fire is desirable.

CHAPTER III.

THE MEASURES TAKEN TO PREVENT THE OUTBREAK AND SPREAD OF SUCH FIRES AND THE MEASURES TAKEN TO PROTECT LIFE AND PRIVATE AND PUBLIC PROPERTY.

The second paragraph of the Commission of Inquiry forms the title of this chapter. It is to be remembered that it is the 1939 fires to which the paragraph refers.

As fire is one of the necessary concomitants of living, it is suggested that it is impossible to prevent the outbreak of bush-fires as long as mankind pursues his manifold interests in the bush. To forbid the forests to all men would be absurd, unjust and impossible of enforcement. That such measures as were being used to prevent the outbreak of bush fires were shown in January, 1939, to have failed, is insufficient of itself to lay blame upon anybody whose duty it was to devise and operate those measures. The season was exceptional. There were no means of policing a policy of prevention. Lack of men, of money and of education constituted a dead weight against which the available puny forces of prevention were powerless.

The regular forces of prevention of the outbreak and spread of fires consisted in the main of the Bush Fire Brigades, the Country Fire Brigades and the staffs of the Forests Commission and the Melbourne and Metropolitan Board of Works. Other forces, if they may be so termed, consisted of individual persons whose measures were largely illegal and dangerous. The Bush Fire Brigades and the Country Fire Brigades, which are the most valuable fire fighting forces in the State, are not empowered to take preventive measures. Their powers arise only when a fire has begun, whereupon they may seek to check its spread. For any practical purpose, no duty of prevention of the outbreak of fires, other than the rather negative duty created by the law as it exists, is cast upon any private person or local government body, although it would

appear that permissive powers in this behalf are conferred upon municipalities under the *Local Government Act* 1928. With the exception of the limited class of case contemplated by Section 70 of the Forests Act which empowers the Forests Commission to compel an owner of land within 50 yards of any reserved forest to clear his property, no provision for compulsory preventive measures exists.

It was this state of affairs which the Forests Commission and the Board of Works were facing in the summer of 1938–39. The law was inadequate, ineffective and flouted. The people were hostile to these authorities. The Forests Commission was hampered in its intended preventive and safeguarding operations by lack of money. Nevertheless, that lack of money cannot excuse some of its failures to protect life and private and public property.

It is not suggested that the fires of 1939 could have been prevented, but much could have been done to prevent their spread and their attaining such destructive force and magnitude.

The heading of this chapter is considered in two parts :

(*a*) *Measures taken to Prevent the Outbreak and Spread of Bush Fires.*

The Board of Works and the Forests Commission were virtually the only preventive agents in the State—

(i) *The Board of Works.*—The Board has permitted a condition of great danger to exist in its areas. Being apparently well supplied with money, it has for preventive purposes an adequate staff and good organization. The area which it controls is comparatively small and manageable. For the greater part its methods accord with those which have been practised, but on too smale a scale, by the Forests Commission. The difference in substance between the methods of these two bodies is that the Board refuses to use burning as a general preventive method. It is long established by foresters in other parts of the world that in conditions such as exist in many parts of the Board's areas—burning is the only effective safeguard.

The Board has practised burning for marginal protection of its areas. But where the areas abut on or are adjacent to other forest or settlement the precaution taken has proved in some cases to be insufficient to arrest the spread of fires from the Board's territories, whatever the place of origin of such fires may have been.

As a method of compartmenting its areas or of making protective breaks, burning is not employed by the Board. It argues that fire in its area is harmful to water supply. It relies upon the growth of forest canopy to suppress inflammable scrub. It admits that in large tracts of its territory the canopy is impaired and cannot be restored until many years have passed and that, while the restoration is proceeding, we may expect at least two abnormal seasons which will bring with them abnormal bush fires. So it would appear, by the argument advanced by the Board, that, having regard to the certain recurrence of major bush fires in the known cycle of abnormal seasons, the Board's property must always remain dangerously inflammable. It appears that a large part of the Board's policy of prevention of outbreak and spread of fires is to be left to Nature. Nature, however, in another department of its working, sends the abnormal season which encourages the major fire which consumes the forest.

The methods of prevention of spread and outbreak otherwise employed by the Board are adequate and in conformity with good forestry practice.

Reverting to the title of this chapter, it is found that the condition of the Board's areas assisted the spread of fires which occurred in January, 1939 ; that destruction of private property resulted, and that had preventive burning been employed within the areas and more widely employed on the margins of those areas, such spread would have been retarded and such destruction would have been avoided. It is added that the Board's officers could not reasonably be expected to have foreseen that the fires would have been of such severity.

Dealing with a further aspect of the inquiry which is not discussed under its general head until later in this Report it may be said here, for convenience, that a recurrence of spread of fire and destruction of property may well occur in a normal bush fire season if the areas of the Board are not compartmented by strip-burning and if more effective marginal burning is not carried out.

(ii) *The Forests Commission.*—The Forests Commission, being the managers of an immense and valuable public property, have had placed upon them a heavy responsibility. That responsibility is two-fold. It consists in the Commission's stewardship of a valuable estate; and in a duty to persons whose interests and property might be affected by the manner in which that stewardship is conducted. The latter responsibility has not been recognized by the Commission. It is certain that the question of fire prevention was, until recently, not given its proper constituent place in the former responsibility. It is stated later in this Report that practically no measures of prevention were taken by the Forests Commission or any other body in the vast areas of protected forests.

The Commission protests that it has never had sufficient money for its general purposes. That, one thinks, is the truth. But the insufficiency of money cannot alone excuse the happening of certain matters in which the Commission appears to have failed in its duty.

It is also true that the field staff of the Commission is ludicrously inadequate. When one compares the number of field officers employed in forests overseas, where, because of different conditions of topography, access to all parts of the forest, provision of equipment, and other relevant matters, the task of management has been made comparatively easy both by natural conditions and money; when one then considers our forests whose vastness and, in many parts, inaccessibility alone would render their management a problem to the most skilled foresters of the world; and when one considers the small amount of staff, equipment, and money available for the management of the Victorian forests, it becomes apparent that the achievements of the Forests Commission must not be judged by comparison with the normal achievements of foresters working with more money and in better country. Add to this the fact that in recent years more than one half of the moneys available to the Commission for expenditure on forestry operations generally have been taken from the control of the Commission and placed under the unfettered control of the Minister of Forests*; add further the fact that forestry is a science understandable only by the technician and an art to be practised under the direction of technicians; and it would appear, as is the fact, that your Commissioner cannot be satisfied without further inquiry, which is not open to him under his Commission, that censure, if any, must rest wholly upon the Forests Commission.

It must be stated as an objective fact that the Forests Commission has failed in its policy of fire prevention and suppression. Part of its failure is due to the matter referred to in the preceding paragraph. The rest can be set down to its failure to recognize until recently a truth which is universal, namely, that fire prevention must be the paramount consideration of the forester.

It has had the benefit of the history of bush fires in this State which occurred before the Commission existed. Since its institution, it has had the experience afforded by the severe fires of 1926 and 1932. Until about the year 1935, it had no general and co-ordinated fire policy. Nor did it have any real supervision of such policy as did exist up to 1935, or thereabouts. The rule or practice which was observed was peculiar to each district and the district officer in charge of that district. Each officer carried out his own preventive work according to a plan which may or may not have been recorded in permanent form. When a district officer was moved to another district, his successor was free to carry out his predecessor's plan or to institute his own. It was not until about 1935 that certain officers began to formulate and record prevention and suppression plans. In December, 1937, a Chief Fire Officer was appointed, eleven years after the 1926 fires, to devise comprehensive and permanent plans of fire prevention works.

It is necessary to interpolate at this point, that many of the ordinary processes of silviculture are of value for prevention of fire. But they are, of themselves alone, insufficient.

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* This refers to transfer of control of certain moneys from the Forests Commission to the Minister of Forests. *Vide Unemployment Relief Moneys*, Chapter V., page 32.

Shortly before the 1939 fires, the Forests Commission had accepted and were putting into practice to some extent most of the approved methods of prevention of outbreak and spread of fires. Many of these methods had been used before 1935; but the large areas of its forests and shortage of staff and its own tardy recognition of the supreme importance of preventive and protective measures had prevented the effectuation of the safeguarding of the forests or other property. Of the effective methods of prevention, the Commission had used the following, to the extent indicated :—

Controlled Burning.—This consists of strip and patch burning. The amount of this burning which was done was ridiculously inadequate. The Commission's officers regard the forest as a producer of revenue and for this reason and because their education appears to lead them to demand that no tree or seedling be destroyed except in the course of silviculture, they are averse to burning of any sort. In one instruction to officers to pile and burn thinnings they were directed not to do so if damage to seedlings would result. The Commission has control of 16,000,000 acres of forests or produce of forests. It will not, without great reluctance, even in its own domain of 5,000,000 acres, sacrifice a small portion for the protection of the remainder or of the private landholder. It now agrees that burning is necessary and desirable. It had carried out some burning operations.

Marginal Protection.—Wherever marginal protection works (i.e., protective works on fringes of forest) have been carried out, they have been done for the protection of the forest. Where it has been necessary to protect only settlement from spread of fire from the forest, practically no marginal work has been done. It was apparent during the course of the Inquiry that the Commission's officers had not considered the question of their duty to protect the adjacent landholder.

Firelines and Trails.—As much of this work as could have been done by the Commission has been done.

Roads and Tracks.—The importance of these means of access for men and equipment has for many years past been recognized by the Commission and by foresters of other countries. The Commission has carried out, in recent years, as much of this work as it has been able and permitted to do. For its achievement in this department of prevention and suppression, in the face of serious discouragement, it deserves praise.

Water Conservation.—This is one of the most difficult problems which the Commission has to face. Since the invention of the fire-fighting water spray, it has, belatedly, made a survey of the possibility of conserving water for prevention methods and is proceeding with the construction of dams. Where roads and means of transport are lacking, the conservation of water is practically of no use.

Tops Disposal : Disposal of Mill Waste.—The necessity for the disposal of tops (i.e., tree tops) and mill waste has been recognized by the Commission, but seldom have sawmillers been forced to destroy them. Their destruction means expense and inconvenience to the miller. The fact that any preventive or protective operation would cause the miller inconvenience has been generally regarded by the Commission's officers as a sufficient reason for non-compliance by the miller with the Commission's instructions in that behalf. There have been exceptions constituted by the millers' voluntary destruction of tops and waste and by the occasional and infrequent insistence by forestry officers upon their destruction. The officers are not to be blamed for their attitude, which has been induced by the failure of the Commission to force the millers' compliance with the Commission's own rules in these matters.

Burning by Graziers.—Conditions designed to prevent burning to promote grass growth are attached to licences. Burning occurs every summer in certain areas. Nothing has been done to enforce the conditions or to refuse renewal of licences. Probably shortage of staff has made it impossible to supervize or prevent this practice. The Commission maintains such patrols as it can afford, but the work of such patrols is incidental to other duties and not specialized.

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Detection of Fires.—The detection of fires immediately upon their outbreak is of great importance. The Commission's established policy of maintenance of aerial and ground patrols, observation towers, look-outs and telephones, and of compartmenting the forest is in accordance with good forestry practice. These means are as yet inadequate, but not because of any fault of the Commission.

Education and Propaganda.—The Commission has carried on a plan of education of school children and adults by means of lectures, broadcasts and written notices in various forms. Much of the plan appears to be unlikely to succeed. Against that statement it must be said that it is difficult to presage what sort of plan would succeed in breaking down the prevailing ignorance of and hostility towards the methods employed by informed people.

Of the different matter of suppression of fires, at their outbreak or at their later stages, it may be said that the Commission has done all in its power, having regard to the disabilities under which it labours, to suppress fires which break out on or near its areas. In an ordinary season the district skeleton staff, which is the only staff, together with such volunteers or others as it is able to enlist or engage, may in its district have to try to suppress or check a dozen fires in one day, some of them at a distance of many miles from the others, all scattered through mountainous country and many difficult of access.

Conduct of the Commission and Forestry Officers in time of Emergency.—It is not inappropriate to record under this head the approval by the country people of the conduct of the forestry officers and field staff of the Commission during the month of January, during which many of them risked their lives in the performance of acts of courage in their attempts to stem the spread of the fires. Mention must also be made of the highly efficient and impromptu emergency measures taken by the Chairman and Senior Officers whereby more than one country town was saved during the height of the fires. It is to be regretted that there was then in existence no organized plan of the measures then used.

(iii) *The Bush Fire Brigades and Country Fire Brigades.*—Your Commissioner's estimate of the full extent of the value of the services of these brigades will appear from the part which they play in the recommendations which hereinafter appear. It is sufficient to say under this head that they, a body of volunteers, worked unsparingly and expended their utmost effort to prevent the spread of the fires of January, 1939.

Pursuant to the provisions of Section 3 of the *Bush Fire Brigades Act* 1933, the Bush Fire Brigades have been assisted by the Forests Commission by the establishment within the Commission of a secretarial department devoted to the business of the brigades. Gifts of equipment to brigades in districts close to the Commission's areas have been made by the Commission. The Country Fire Brigades are discussed later in this Report.

(*b*) *The Measures Taken to Protect Life and Private and Public Property.*

If one were confined to set forth in positive form the measures taken, prior to the fires of January, 1939, to protect life and public and private property, this section of this chapter would be, indeed, shortly written. The matter is bound up to some extent with the preceding section of this chapter, which deals with measures for prevention.

Some of what has already appeared in this Report indicates that virtually no measures had been taken for protection of life and property. The fact has been made apparent and requires no reiteration.

It has been shown that during the Inquiry, the Lands Department sought to explain its lack of any fire prevention policy by relying upon the technical, legal impediment, which does in law exist, to the taking by the Lands Department of any steps for prevention upon protected forest lands. Whether it was sincere in its explanation is not difficult to gauge. Knowing that a similar legal impediment technically prohibited the Forests Commission from applying any effective methods of prevention to protected forests, it stated that it had always regarded the Forests Commission as being responsible for fire prevention in those very forests. Neither the Lands Department nor the Forests Commission had ever sought to remove the impediment, which, by the mere consent of one or the other, could immediately have been removed. The truth, which was not primarily relied upon in this connexion by either the Department or the Commission, is that neither has had the staff wherewith to carry out preventive works in protected forests. This truth was stated as a secondary and incidental fact.

(The Lands Department was not represented before the Royal Commission, nor did it appear to give evidence, until late in the proceedings, and then only after published comment by your Commissioner concerning its absence and after a written invitation from your Commissioner to be present. This transparent "tactical" conduct by a public department, whose Government has set up a Commission of Inquiry into matters in which such department is interested is, it is suggested, to be deprecated.)

The Forests Commission had not considered itself bound to protect the general populace from the danger of escape of fire from its forests. The Lands Department evaded the entire question. But the Forests Commission did recognize a moral responsibility to persons engaged in the sawmilling industry within its territories. It was not a legal responsibility. For that recognition it must be commended. For the manner of its translation of that assumed duty into protective action it must, subject to the modification which appears later, be condemned.

Disposal of Tops and Mill-Waste.—This protection of life and property was recognized by the Commission, but not enforced (*vide supra*).

Firebreaks about Mills.—The Commission has recognized the necessity of keeping cleared firebreaks around mills. In his evidence the Chairman said, "The Commission further insisted upon protective burning and clearing around all sawmills to the extent of not less than two chains."

The Commission has control over mills in reserved forests. It says it has taken the view that where mills are situate in protected forests it has no control, as the Lands Department issues the mill site licence. This statement is considered by your Commissioner to be a lame explanation, in that it suggests as an excuse the existence of a barrier which could probably easily have been removed.

Where mills are situate on private land there has been no control. In the case of the mill placed in a reserved forest, the foregoing statement of the Chairman is applicable.

The application of the condition referred to was in practice absurd. The Commission interpreted the word "sawmills" to include only the mill-building. The houses and huts of the employees which are generally built in the vicinity of or grouped about the mill-building were not protected. In many cases the standing timber overshadowed the dwellings and the scrub grew against their walls. Had the condition been enforced in its wider sense, so that a break of two chains about all mill settlement had been insisted upon, the precaution would still have been inadequate even in a normal season. It is true that the mill-workers, for the greater part, did nothing to protect themselves. But that appears to be irrelevant to the question of the conduct of the Forests Commission in this matter.

Dug-Outs.—After the 1926 fires, the question of insisting upon the installation of dug-outs at mills for protection of the mill-workers was raised by the Commission. The Commission was divided in opinion and the matter lapsed. Again, after the 1932 fires, the question was revived. In May, 1932, an engineer's report upon the desirability of dug-outs and on their construction was submitted to the Commission. Further consideration was given the matter and on the 14th November, 1932, the following minute was placed on the file:—

"*Commission Decision.*

All sawmillers to constuuct effective dugouts in close vicinity of all sawmills, particulars of such to be forwarded to Commission.

14 Nov., 1932."

In all letters of allotment of mill-areas in what was considered to be dangerous country and issued since 1930, there appeared a requirement or condition that the millers should construct dug-outs for the safety of their employees.

The position, therefore, was that as far back as 1930, the limited installation of dug-outs had been adopted as part of the safety policy of the Commission. In 1932, after further consideration and acting upon expert advice, the Commission formally decided to impose this condition on all millers without exception.

Having made its considered decision, the Commission at no time thereafter took any steps to compel the observance of the condition. Instead, for several years, it wrote to millers "strongly advising" and "urging" that dug-outs be instituted. In many cases the advice was ignored and no dug-out was constructed. In no case was even a threat of coercion made against the recalcitrant miller.

Many of the millers objected strongly to the installation of dug-outs. The dug-outs were to have been constructed at the miller's expense.

The Commission explained at the hearing that it had believed in the efficacy of dug-outs as safeguards; that, in the words of the Chairman, their "belief had been intense"; that it continued to believe in them; but that it had feared it might be liable at law if people were

asphyxiated in them; that it had sought the advice of the Crown Solicitor on this point and had been advised that it would not be liable; that it had continued to "urge" the millers to install dug-outs; that its fear of causing asphyxiation had remained until the 1939 fires proved it to be groundless; that their doubt and the millers' concurrence had been related in this way—as some millers were reluctant to put in dug-outs, the doubt that existed in the Commission's mind affected the Commission when it came to the question of trying to enforce the installation of dug-outs. At this point it was put to the Chairman—"They (the Commission) would not back their judgment. If anything had happened, the mill-owners would have been able to say—'We told you so'. That is a strong line?" Counsel for the Forests Commission—"I think that was the position."

So far it is a sorry story. The conclusion is worse. At Yelland's mill near Matlock, a number of people was saved because they did not use the dug-out, which was constructed, above ground, of corrugated iron and which stood among standing timber.

Hard by Yelland's, at Fitzpatrick's mill, a number of people was burned to death because there was no dug-out.

Both Yelland's and Fitzpatrick's mills had been inspected by the district officer. He stated in evidence that he was not satisfied with Yelland's dug-out, but that nothing was done about it as he considered the Matlock country safe country, and did not think it would burn as it did burn. It was put to him that any condition which, to his mind, imposed unreasonable conditions (although imposed by the Commission which attached some importance to them) would be ignored by him. He replied, "Not necessarily by me; by officers generally".

This evidence was brought to the notice of the Chairman during the course of his evidence. It arose out of his evidence concerning the burning of tops, the relevant part being as follows:—

Question.—"On the question of tops the thing has been of such long standing that your officers know your policy and know that they are to use their discretion?"

Answer.—"Yes."

Question.—"The question of dug-outs being a new matter, they ought not to have made such an assumption without some authority from your Commission?"

Answer.—"That is so."

A matter instituted in 1930 hardly appears to be "new" in 1938. The course taken by the forestry officer was not discreditable. He used his discretion, as he had been accustomed and expected by the Commission to do, upon a matter over which he naturally assumed he had discretionary powers. Between the years 1930 and 1938, he had learned nothing to suggest that his assumption was wrong. This view was further encouraged by the Commission's "urging" of the millers to obey a decision of the Commission stated in mandatory terms. The fact that the officer made an error of judgment in the exceptional circumstances of the 1939 fires is excusable.

The incident has been stated as an example of what happened to one of the few attempts made in the State of Victoria to protect life, and the manner in which it happened. That the Commission was not legally bound to protect the lives of mill-workers appears to be irrelevant. It is possible that having occupied the field of provision of protection, it merely excluded from it some other person or authority who would, by the use of ordinarily efficient methods, have succeeded in forcing upon the millers the construction of real safeguards.

Relationship Existing between Commission and Sawmillers.—As a reflection of the true relationship which existed between the Forests Commission, by itself and its officers, and the sawmillers generally, the following extracts from a letter written in February, 1937, by an officer of the rank of Forester to the Secretary of the Forests Commission is quoted:—

"A mill dug-out is essential to complete the safety of the mill people but this firm does not appear to regard them as essential as advice from us in this direction has merely been overlooked . . ."

"No dug-out and Mr. X . . . . has definitely intimated that he will not construct one and will contest any effort to force him to do so . . . . . This mill is by far the dirtiest mill in the district and although Mr. X . . . . has the firm opinion that his mill is safe from fire, it is my belief that should even a small fire occur it will be a difficult task to save the mill. Unfortunately Mr. X . . . . is not open to reason in this direction . . . . . I believe a dug-out at this mill is absolutely essential . . . . . Generally speaking it is surprising the number of times we must approach millers to endeavour to have them clean around their mills, &c."

The contumacious conduct of some of the millers, in answer to the use by the Forests Commission of feeble persuasion instead of legal force, is what one would expect to flow naturally from the entire lack of the exercise of the Commission's authority. But your Commissioner suggests that there may be further reasons for the defiance exhibited by some of the millers towards the Forests Commission. Without making any further investigation, of a kind which would not fall within the scope of this Inquiry, and stating the proposition in general and

impersonal terms, it is suggested that where one finds curtailment of the authority of a public department in one major respect*, it is not unreasonable to fear that the ambit of such curtailment may be wider than one knows; and that one result of such wider sphere of lessened authority (if any) may be the lowering of prestige of the department in question and the weakening of its power to apply sanctions to those whom it wishes to discipline. If such a view is thought to be sound in its general application, the final judgment of the conduct of such a department in matters of discipline must be suspended.

CHAPTER IV.

THE MEASURES WHICH ARE NECESSARY OR DESIRABLE TO BE TAKEN BY ANY AND WHAT PERSONS, CORPORATIONS OR BODIES TO PREVENT THE OUTBREAK OF BUSH FIRES IN VICTORIA OR TO PREVENT THE SPREADING OF SUCH FIRES.

This and the next succeeding chapter should be read together.

The third paragraph of the Commission of Inquiry forms the title of this Chapter. Some of the matters to be discussed under this heading have to some extent already been examined and it will, therefore, be unnecessary to expand them further. It will be sought to make the relevant recommendations succinctly and without exhaustive argument. Those recommendations are as follows :—

Land Utilization Control.—A committee of experts chosen from the several public departments would do much by their advice to reconcile the conflicting claims and duties of various departments at present interested in forest lands. Such a body might awaken the several departments to the necessity and assist them in projects, for example, of adjustment of forest boundaries, the encouragement, curtailment or prevention of forest settlement by isolated settlers or by forest townships, incursions upon or excisions from or additions to water catchment areas, and the Forests Commission's areas, loss to property caused by erosion which results from bush fires, and the like. In short, there are few matters which relate to (*inter alia*) forest lands with which questions of fire prevention and protection of life and property are inextricably mingled, upon which their advice would not be valuable. It is stressed that unless the Committee were composed of experts in their several spheres the Committee would be of little worth. In the event of such committee being formed heads of departments would naturally wish to gain control in which event unless they should happen to be experts they would be unable to give any assistance of value. Such a committee would certainly deal with matters appropriate both to this chapter and the next. As it is later recommended that the public departments should in matters of fire prevention and suppression be allowed to order their own affairs the desirability of such a committee as far as this Report is concerned becomes more apparent.

Autonomy of Public Departments.—Subject to these recommendations generally it is recommended that each public department or body which may now or hereafter control forest areas be allowed to pursue its own policy of fire prevention and suppression. As each such body is responsible directly or indirectly to Parliament it must be allowed to carry its responsibility in its own manner. It is strongly recommended that no such department be given authority over any other body in matters relating to fire prevention or suppression. If it is ultimately shown that a department is unfit to discharge the duty involved other measures may be taken.

State Fire Authority and Local Fire Authorities.—The institution of a State Fire Authority is recommended. It is strongly recommended that no public department of possible combination of public departments interested in forests should be permitted to gain control of this authority. The reasons for this suggestion have been stated in other connexions in this Report. It is suggested that the State authority should consist of nominees of the Bush Fire Brigades, the Country Fire Brigades, the Forests Commission, and the municipalities to be affected by the recommendations which follow.

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* This refers to transfer of control of certain moneys from the Forests Commission to the Minister of Forests. *Vide* *Unemployment Relief Moneys*, Chapter V., page 32.

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It is recommended that the functions of this authority should be primarily those of defining a general policy of prevention and suppression of bush fires and protection of life and property; of organizing and recruiting local brigades; of maintaining discipline of local brigades and over local fire authorities; and of acting independently, with or without such advice as it may care to take. It is not recommended that its authority should embrace the internal policy of public bodies having control of forest areas.

Each local Fire Authority should consist of an authority having two separate functions; one of prevention; the other of suppression.

Bush Fire Brigades and Country Fire Brigades in Relation to Each Other and the State Fire Authority.—The position of the Bush Fire Brigades has been shortly put. That of the Country Fire Brigades is such as to fit the latter brigades to take at once an important part in the scheme now being recommended. The Country Fire Brigades are constituted under the *Fire Brigades Act* 1928; their powers as at present defined are subject to territorial limitations which confine their work to limited stated areas. In practice it has been their custom to go forth to fight bush fires, and, being like the Bush Fire Brigades largely manned by volunteers, they have done good service outside the restricted areas defined by their Statute. It is not suggested that they should in any way be placed, under this scheme, in a position superior to that of the Bush Fire Brigades. But it is suggested that their territorial boundaries be enlarged and that they and the Bush Fire Brigades should work in co-operation where possible, by the pooling of effort, the use of established depots, and by arrangements for their mutual convenience. The advantages of the inclusion of the Country Fire Brigades in the scheme are real. They are a recognized body, entitled to and receiving regular grants, possessed of equipment, trained by experienced fire officers, provided with stations for storage of equipment and as places of assembly, subject to control and organization by their statutory central authority, and willing to co-operate with the Bush Fire Brigades in a scheme designed to prevent and suppress fires and protect life and property. The provisions of their Act with slight modification appear to be to a great extent appropriate for the machinery purposes of the scheme now recommended.

It is realized that each may wish to be the foremost figure in any plan of co-operation which may be suggested. It is hoped that, being volunteers, their overriding interest will continue to be what it has been in the past—attention to the matters for the purposes of which they have been formed.

It is suggested that, where the statutory machinery and organized finance are to hand, it should not be sought to duplicate such existing resources, more especially as it is clear that such duplication would involve heavy and, as matters stand, unnecessary expense.

The Local Authority.—For preventive and protective measures, it is suggested that the municipal engineer, acting with the advice of the brigade should determine the local policy. Work necessary to carry out that policy should be performed by the local brigade, the municipal council employees, or relief workers. Where the brigade might be employed for such work, the members should be paid by the council.

Suppression of fires should be undertaken by the brigade, voluntarily as heretofore. Where there is in one municipality more than one brigade, one being a Country Fire Brigade, and one a Bush Fire Brigade, each might act independently in different localities or co-operate in the one locality.

Local Authority to Aid in Suppression in Protected and Reserved Forests.—The brigades should be placed under a duty of suppression of fires whether within or without protected or reserved forests.

State Authority and Local Policy.—The State Authority should have power to interfere with or override local policy, only when it is shown that such policy is inadequate, dangerous or otherwise objectionable.

Fire Zones.—The State should be zoned by the State Authority according to conditions of topography, climate, habitation and populace. Thus, one municipality might consist of one, two, or parts of several zones. The number of zones would not determine the number of local authorities; one authority might control several zones. The importance of zoning arises with the recommendation for the framing of local policy and for the power of proclamation hereinafter mentioned. Where one zone comprised parts of more than one municipality, the officer for prevention and protection could be appointed, by arrangement as to payment of part of his salary as engineer, by the councils concerned. For suppression such co-ordinated action might be taken as might be arranged between brigades if there were more than one in a zone.

Constitution of Local Authority.—

(i) The municipal engineer, for the purposes mentioned.
(ii) Representatives of the bush fire brigade and the country fire brigade for the purposes mentioned. It is suggested that the local forest officer and local police officer be, *ex officio*, members of the committee or committees of the brigade or brigades.

"*Municipality.*"—The word "municipality" is used wherever referred to in this scheme as meaning a territorial division under the *Local Government Act* 1928, however called in the Act, in respect of which a council exists.

Where no Brigade.—Where no brigade exists in a fire zone, or, if within a zone there is no brigade within a municipality included wholly or partly within that zone, a statutory duty should be cast on the president of the municipality, or where more than one municipality was concerned by such of the presidents thereof as might be nominated by the State Fire Authority to call, after sufficient notice thereof, a public meeting for the purpose of the forming of a brigade in the manner and subject to conditions to be prescribed by the State Fire Authority; unless such authority should decide that in the circumstances there existed no necessity for the forming of a brigade.

Should no brigade be formed as aforesaid the municipality, or failing which, the State Fire Authority should have power to engage such assistance as may be necessary to perform necessary works of prevention protection or suppression and charge the cost thereof to the municipality.

Duties of Local Authority.—The engineer should be placed under a statutory duty to formulate and carry out proper and adequate plans for prevention and protection.

Municipalities, railway bodies and all other bodies should be obliged by law to keep cleared all streets, roads and lands under their control, wherever such constitute a fire danger.

Land Occupiers should be obliged to keep cleared all lands occupied by them wherever they might be considered to constitute a fire danger. Provision to this effect should be included, by operation of law, in all leases of such lands.

Failure to clear Dangerous Areas.—The local authority should have power to give notice to any occupier of land, whether public department or body or otherwise, to clear such of his or its land as might be in a dangerous condition. In default of compliance with such notice the local authority should have power to enter upon and clear such land and charge the cost thereof to the occupier; and in default of recovery, in the case of lands held on lease, to the owner. In default of recovery the cost should be made a charge on the land. Failure to comply with notice to clear should be made an offence at law.

Absentee Owners.—The local authority should have power to enter on land which is unoccupied and whose owner is unknown to the authority, and to clear the same and charge the cost thereof to such owner, such cost, if not paid, to be a charge on the land. An owner of such land should be permitted to lodge with the authority notice of his name and address in which case he should be entitled to notice requiring him to clear such lands.

Lands of Forest Commission, Board of Works and other Public Authorities.—Such bodies should be obliged by law to clear margins of their lands wherever such margins are considered to be sources of fire danger to adjacent settlement. Their failure to do so should subject them to the same procedure and obligations as would apply in the case of other occupiers (*vide* "Failure to Clear Dangerous Areas," *supra*). The width of such margins should vary to accord with variations of conditions obtaining in different localities. An extreme limit of the width of such margin should be fixed by Statute. It may be found necessary to clear a width of a half-mile in some places. It is suggested that a half-mile limit would cover all cases. Within such limit, the extent and nature of clearing operations should be decided by the local authority. Except for the provision relating to forest margins, public bodies should be left in control of their internal policies.

The occupiers, or owners of unoccupied land contiguous with or adjacent to the areas of such public bodies, should similarly be obliged to clear land which might constitute a fire danger to such areas; in default of their so doing the procedure above suggested should be followed.

Impeding Local Authority.—The impeding or preventing or dissuading (directly or indirectly) of any local authority in or from the discharge of the duty of prevention, protection or suppression, by a member, officer or servant of a council or by any other person should be constituted an offence at law.

Power to Depose Officer of Local Authority.—Whenever a local preventive and protective officer should fail to perform or was prevented from performing his duty, the State Fire Authority should be empowered to depose such officer (i.e., in his character of preventive and protective officer only) and appoint some other suitable person in his stead; wherever the office of municipal engineer should not have been filled or should have become and remained vacant, power to make a similar appointment of a preventive and protective officer should be vested in the State Fire Authority. In any such case payment for the services of the officer so appointed should be made by the council or councils concerned.

Employees of Public Departments: Forest Workers.—Upon the outbreak of bush fire all employees of all public departments, and all such classes of forest workers as may by Statute be defined, who may be in the vicinity, should, at the request of a member of the local authority or an officer of a brigade, be obliged to engage, as directed, in suppression operations; provided that no such person should be obliged to subject himself to danger.

Equipment of Public Departments and Individuals.—Upon the outbreak of fire all such equipment, vehicles and appliances, of any department or individual as might reasonably be required by the local authority for use in suppression operations should immediately be made available. Insurance against loss or damage of such vehicles should be provided for by the inclusion by operation of law in any policy of insurance in respect of such vehicle of a provision for its insurance while being so used, or by insurance by the Government or otherwise.

Enlistment of Assistance.—Upon or after the outbreak of fire the local authority should have power to call upon all able-bodied men within age limits to be defined by Statute and who are then within 5 miles of the fire which it is desired to suppress to assist in suppression operations. Such men should be rewarded for their services by the council or the Government or both. Refusal to assist without reasonable cause should be made an offence at law. No such person should be obliged to subject himself to danger or to withdraw from the protection of his own property if such were at the time of his being called upon likely to be endangered.

Compensation for Injuries.—Members of brigades or persons whose assistance had been enlisted and their dependants should be entitled to compensation for injury arising out of their having engaged in suppression operations, as if they were covered by workers' compensation insurance.

Proclamation in Zones.—There should for each zone in the State be a "prohibited period" and a "permitted period."

The Prohibited Period ought not to be defined by Statute. It should be capable of being easily modified should experience show that modification is desirable. The prohibited period should be proclaimed by the State Fire Authority and should remain as such from year to year until altered. During this period the lighting of fires in the open should be absolutely prohibited. The word "absolutely" is used in its fullest sense. It should not be competent for any authority to grant permission to light any fire during such period. It would therefore be necessary to limit the period carefully to such short period as experience of the zone has shown to be positively unsafe. During that period there should be a "black out" throughout the zone. It would be of importance to ensure, in fixing the prohibited period for adjoining or adjacent zones, that one should not appear to have been treated noticeably more "leniently" than others; care should also be taken to avoid the fixing of an unreasonably long period; otherwise in either case the prohibition will be ignored.

The Permitted Period should embrace all other parts of the year, except such parts as are known to be outside the period of even slight danger. This period should be fixed and proclaimed by the local authority. The State Fire Authority should have power to alter the period so fixed if it should consider it to be insufficient or oppressive.

The lighting of any fire in the open during a permitted period without permission of the local authority should be made an offence at law.

The lighting of fires necessary for warmth or for the preparation of food, subject to safety conditions to be prescribed and the lighting of camp and billy fires in appointed places should be exempted from the prohibition relevant to both the permitted period and the prohibited period; otherwise the protection intended by the proclamations would fail.

The permit period, once proclaimed, could be allowed to remain as such from year to year.

Either period could be enlarged or abridged according to annual variations in the nature of the fire seasons in a zone.

Permission to burn could be granted subject to conditions such as that it be done under supervision or with the assistance of a stated number of men or that it be done during a certain time of the day.

Section 20 of the *Police Offences Act* 1928 is open to the following objections :—

(i) that its operation during proclaimed periods tends to confusion and consequent inducing of breaches of the law;

(ii) the necessity of giving certain notices thereunder is embarrassing and is therefore ignored.

It should be amended to limit its operation and its requirements. The section as amended should be included in any future legislation which may embody all or part of these recommendations.

Power and Permission in Emergency.—Power to grant permission to "burn back" in emergency should be granted to the brigades who should have also power to enter upon private land in time of emergency and there to take such preventive measures, including that of "burning off" or "burning back" as might be necessary. It is almost certain that it was for want of such power in any body during the fires of January, 1939, that the orchards of Pomonal were destroyed.

Season in Which to Burn.—Where Autumn burning is practicable it is preferable, on the score of safety, to Spring burning.

Compensation for Damage by Spread of Fire.—Where the spread of fire from any land, by whomsoever occupied, or if unoccupied, by whomsoever owned, is caused to adjoining or adjacent land or any property thereon, whether real or personal, by reason of the fact that such first-mentioned land was in a dangerous condition, the occupier or owner (as the case may be) of any such first-mentioned land should be liable to compensate the occupier or owner (as the case may be) of such last-mentioned land. Provided that where such last-mentioned land was in a dangerous condition, no such liability to compensate should arise.

Acute Danger Period.—The period contemplated occurs in cycles at intervals of from six to ten years. It is preceded by a long period of dry weather and is more immediately caused by hot winds and low humidity. Its duration is for about a week or ten days. The condition of the forests and of the weather combine to make almost certain the outbreak of bush fires. The month of January, 1939, was preceded by such a period.

It is suggested that the State Fire Authority should have power to proclaim that such a period exists, and later, that it has passed. During its currency, there should be a "black-out" in all zones; all milling operations should cease; all those mill employees who might have enrolled as persons willing to volunteer for fire duty in any such season should, agreeably to an existing plan, report immediately to the local authority or the district forest officer for prevention, protection, and suppression duties. They should, if their services were accepted, be paid their ordinary wage by the Government while thus engaged and should enjoy the benefit of workers compensation, while on such duty, as if employed by their employers. Being as a body skilled bushmen their services would be valuable.

Appeal Against Direction by Authority to Clear.—There should be, except in the case of emergency, a right of appeal to the State Fire Authority by any person directed by a local authority to clear private land. The institution of such an appeal should be deemed to be a refusal to obey the direction to clear. Unless the appeal were instituted forthwith and prosecuted with expedition the local authority should have the powers above-mentioned of entry on the land in question for the purpose of clearing.

Damage Caused by Authority by Unreasonable Exercise of Power.—The causing of such damage should entitle the person suffering such damage to compensation therefor recoverable by action in a civil court. Provided that where the official responsible acted in good faith he should be indemnified out of a fund to be constituted for such purpose.

Enrolment of Volunteers.—Selected volunteers willing to serve in time of emergency, but unwilling or unable to join a brigade, should be enrolled by the brigade for fire duty. The enrolment, although it would impose no legal obligation, would carry a moral duty. Its value would lie in the fact that it would afford an opportunity of organizing in advance, and that enrolled volunteers would be previously advised how to proceed in time of emergency. Much confusion and waste of "man-power" would thus be avoided.

Safety Precautions.—The State Fire Authority should have the duty of prescribing what preventive, protective, and general safety measures should be imposed upon and observed by all industrial and other undertakings carried on in the forests or on private property adjacent thereto. Breach of any such provisions should be an offence at law. Persistent and continued breach should *ipso facto* work a cancellation of the offender's lease, licence, or other authority to pursue his calling in the forest. The lease or licence should be cancelled by the appropriate department; should the department fail in its duty in this respect the cancellation should be

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at the direction of the State Fire Authority. There should be a right of appeal by the alleged offender to a court of law, which should have the right to substitute fine or imprisonment, or to cancel or vary the decision of the department or of the State Fire Authority for good cause shown by the appellant. The possibility of unemployment upon a cancellation would enlist the assistance of the employees in the enforcement of safeguards.

Inspectors of Safety Precautions.—Members of brigades, police, forest officers, wardens, and employees of public departments should be appointed inspectors.

Law Enforcement.—It is suggested that prosecutions and proceedings in respect of breaches of the law relating to fires should be heard by a Police Magistrate, and that the ordinary rights of review and appeal be preserved. Where fire occurs on private property or in other circumstances which lead to a reasonable suspicion attaching to any person a doctrine analogous to the doctrine of recent possession should be imported. This doctrine, contrary to common belief, does not place any onus on the accused, but enables, but does not oblige, the court to draw an inference of guilt in the absence of an account (of his possession of goods recently stolen) which may reasonably be true and consistent with innocence. If the account which the accused, in the case of prosecution for lighting a fire, might give in respect of his suspected connexion with such lighting were such that it might reasonably be true and were consistent with innocence he would be entitled to acquittal. The justification for the importation of such a doctrine would be, as it is in the case of stolen goods, that it is highly improbable that the commission of the offence can ever be proved by the evidence of eye-witnesses. In Victoria, the lighting of fire illegally is done furtively, and can seldom be proved except by proof of a confession of guilt made by the accused when interrogated before a prosecution is instituted. The necessity of obtaining a confession is, in all cases, highly undesirable and often leads to the employment of methods which, when revealed, destroy the value of the evidence alleged to have been obtained. It is well known that fires are lit, on the property of landholders, by others who are actuated by spite. A country magistrate would be well aware of this possibility and would consider it in any proceedings before him. The introduction of such a doctrine would be no departure from the recognition of the presumption of innocence of accused persons which is respectfully regarded by your Commissioner as one of the ornaments of British law and which he would not wish to disturb.

Honorary Wardens.—The local fire authority should have power to appoint persons of good character, and with no interests to be served by the illegal lighting of fires, as honorary wardens for all purposes of the law relating to fires. It is recommended that all members of the police force, members of brigades, municipal engineers and forest officers should be appointed as wardens.

Junior Wardens.—In other countries, school children and other young persons, of either sex, have been appointed as junior fire wardens. The appointment is of importance in the child's education upon fire, rather than in any other way. Senior boy scouts have, in other countries, done valuable patrol work on highways in holiday seasons.

Education.—Probably the best means of prevention and protection is that of education, both of adults and children. It is with the children of to-day that future forest safety lies. It is not the province of this Report to seek to occupy the field of pedagogics. But it is suggested that the dull lecture form of education will fail. In some States of America, where various attractive forms of visual and aural education have been employed and where an incessant course of education has been maintained, fire statistics over a course of years have shown a marked lessening of outbreaks. While the Brick Lane Ebenezer Tabernacle kind of testimony or statistics must always be regarded with suspicion, it is reasonably certain that in the States mentioned education of children has had its beneficial effect. It is suggested that in every school (the education of city children is as important as that of country children), fire prevention be made a real part of the curriculum and that the lessons in that behalf be given at the commencement of the summer season.

For adult education, much of the work now undertaken by the Forests Commission should be supplemented. Slides and pictures in picture theatres should be shown at the beginning of summer and on the eve of holiday seasons, together with instructions as to the penalties for lighting fires illegally and the fact that fire places are provided at roadsides for picnic fires. It is suggested that at such seasons the newspapers, whose proprietors have always been willing to further this sort of education, should inform the public of the law relating to fires and of the consequences of their breach and of the methods to be adopted to prevent spread of fire and should pictorially represent the scenes of disaster occasioned by the 1939 fires. If all fire news and notices were printed in arresting form, such as in red ink, in newspapers, during danger periods, the attention of readers would be more surely centred upon such news. In short, the education of adults, and perhaps of children, in such a matter, must be dramatised.

Fire Notices.—Notices of proclaimed periods should be distributed and displayed in each zone by placard, press and private communication. Penalties provided for breaches should be stated. The terms of the notice of proclamation heretofore in use have been obscure, complex, verbose and unintelligible. It is essential that such notices should be clear, concise and legibly printed. No more than the suggested example which follows would be necessary :—

FIRE.

Prohibited period—1*st May to* 31*st May.*

During this period lighting of fires in the open, except at public fire places or, where necessary for food or warmth, subject to the prescribed conditions is absolutely prohibited.

Penalty

Conditions to be observed in the lighting of fires necessary for food or warmth (*Here state conditions*).

Permitted Periods—1*st March to* 30*th April.*
1*st June to* 1*st August.*

During such periods, lighting of fires in the open except at public fire places, or, where necessary for food or warmth, subject to the prescribed conditions, or, except by permission of the local fire authority, is prohibited.

Penalty

Conditions to be observed in the lighting of fires necessary for food or warmth (*Here state conditions*).

Apply to at for permission.

The winter season has been used in the example, to avoid misapprehension that any particular period is being suggested.

Notification of Outbreak.—It should be the duty of every person who became aware of the outbreak of fire to notify the local authority as soon as might be practicable of such outbreak, unless such person should have good reason to believe that such authority has been made awarre of such outbreak.

Suppressing Fire on Private Lands.—Wherever fire might be burning on privately-owned land and it was considered by the local authority or an officer of a fire brigade that in the interest of safety it was necessary that such fire ought to be suppressed or necessary that the local authority ought to assist in suppressing such fire, the brigade should be empowered and obliged to enter upon such land and there to take all necessary steps to suppress such fire. The cost of such assistance ought to be paid by the landholder unless he could show that the outbreak occurred because of circumstances over which neither he nor any employee of his or member of his family had any control.

Where fire has broken out on or spread to private land it should be made the duty of the landholder, his employees and members of his household to take immediate steps to check and suppress such fire.

General Provisions.—The use of fire in any zone during any proclaimed period in such a way as might tend to create danger should be made an offence, whether such use were by permission of the local authority, in cases where such permission might be necessary, or whether by tourists, smokers, sportsmen, or the like.

Wax Matches and Wads.—To be found in a zone and during a proclaimed period in possession of wax matches or ammunition of which an inflammable wad is a constituent part should be made an offence. Power to seize such matches or ammunition should be conferred upon all members of brigades and wardens.

Spark Arresters.—All engines in connexion with the working of which fire is used should be fitted with spark arresters.

Sawdust Heaps.—All sawdust should be burned in retorts in which the material to be burned may be safely confined.

Adjustment of Forest Boundaries.—It is essential that a plan of forest boundary alignment be commenced. The plan ought to be drawn by such a body as a land utilization committee and implemented by the several Departments interested in the forests. Boundaries would be determined by considerations of topography, climate, economics and public and private interest. For example, the settler whose holding occupies a " pocket " of the boundary and creates a fire danger to the forest might with advantage to the safety of the forests be removed. Settlements of forest workers might be encouraged, as means of fire prevention or of arresting spread of fires.

In many ways, the proper alignment of forest boundaries has a direct bearing on the problem of forest fires. The arbitrary fixing of forest boundaries without consideration of matters such as those which have been mentioned must prove to be an expensive policy.

Issue of Licences, &c.—The issue of all licences, including mill-site licences, and letters of allotment to forest users generally and to sawmillers whose mills are erected on private lands adjacent to forests, should be controlled by one Department. Because of its pre-eminent interest in the forest, the Forests Commission is suggested as the proper authority. Such bodies as the Melbourne and Metropolitan Board of Works and other bodies engaged in the supplying of water to towns should be excepted from the operation of this general authority.

Co-operation in Fire Prevention.—The Meteorological Bureau, the State Fire Authority, local Fire Authorities, the Forests Commission and other bodies having control of forest areas should work, by their officers, in co-operation, in the exchange of information likely to aid in the prevention of outbreak of fire or in its suppression. Such co-operation appears to be obviously necessary, but it has not been so recognized by certain Departments in the past.

Cost of Instituting Certain of the Matters Recommended.—As far as the scheme of State and Local Authorities is concerned, the material therefor is, with the exception of the State Fire Authority, already in existence. The cost of maintaining such an Authority would be negligible when compared with the revenue derived from the forests and when the value of the services it would perform is assessed.

It is thought that municipal engineers may be already fully occupied. It might be necessary that the council should engage assistance for the engineer at certain times of the year when preventive operations were in progress. Preventive work, generally by burning especially, is cheap and quickly carried out by a small staff. A small expenditure can ensure adequate protection for probably two or three years. The cost to the State of the " acute danger period " would be the amount of wages of volunteer bush workers, if their services were needed and accepted by the local authority or forest officer. The period occurs infrequently. Had the acute danger period scheme been in operation in January, the lives of workers and members of their families would have undoubtedly been saved, as would forest settlements and townships. For such a result this State can not refuse to pay.

Bush Fire Brigades.—The Bush Fire Brigades were brought into existence after the 1926 bush fires. They have formed their association. They consist entirely of volunteer members. Their sources of money for all purposes of the brigades and the association are those of voluntary donation, with the exception of a membership fee payable by each member of a brigade if such a payment can be called an exception. No money is provided by the Government. Under the *Bush Fires Brigades Act* 1933, the administration of the Act is in the State Forests Department. Pursuant to that provision, the Forests Commission has provided a secretary, who is an officer of the Commission, to conduct the secretarial duties of the brigades. In the last ten years the brigades have received from the Forests Commission equipment to the value of about £700, i.e., less than £1 10s. per week. Such gifts are made only to brigades situated in the vicinity of State Forests or Crown lands and who give an undertaking to assist in suppression of fires in such forest or lands. For the last five years fire insurance companies have donated £100 per year.

Under the Act, certain supervision of the brigades is provided for and certain limited powers are conferred on the brigades for use in and about their suppression work. The brigades have no power to carry out prevention measures. No provision for monetary assistance appears in the Act.

These brigades have in past years saved many thousands of pounds worth of property from destruction. It is recommended that an annual grant be made to the Association for distribution among the brigades for the purposes of purchase of equipment of which the brigades are in urgent need. The matter needs no argument further than the statement of the fact that the one duly constituted bush fire fighting body in the State, which has yearly protected public and private property of great value, by voluntary effort, and which, even in the fires of January, 1939, saved for privote persons and the State assets of great value, has received assistance by the State through the Forests Commission, at the rate of less than £1 10s. per week.

Where these brigades have come into existence there has been a lessening not only of destructive spread of bush fires, but also of outbreaks. In a region where it is known that there is a body of men by whom no sympathy will be shown towards the person who illegally causes fire, there exists some check upon the actions of persons who might be of a mind to burn illegally.

For the reasons that the bush fire brigades have been created and maintained by the voluntary effort and service of their members, that they have proved their sincerity in the cause of fire suppression, that they are efficient, and that they ought not to be discouraged by being placed under the authority of a stranger, it has been recommended in this Report that they should take, through their nominee or nominees, an important place in the scheme which has been recommended.

Foundation of Scheme.—The general scheme suggested in this chapter is founded partly upon existing legislation of other States of the Commonwealth and New Zealand and of certain States of the United States of America and partly upon the adaptation of such legislation to what appear to your Commissioner to be the requirements of the forest lands and other conditions in Victoria. Care has been taken to bear in mind that systems in existence in other States or overseas cannot be safely taken as establishing good practice for Victoria unless the climatic, topographical, economic and social conditions in such other places approximate fairly closely to those which exist in Victoria.

The Forests Commission.—In the next chapter, the position of the Forestry Commission, insofar as it is affected by matters falling under the titles of this and the next chapter, is discussed.

CHAPTER V.

THE MEASURES WHICH ARE NECESSARY OR DESIRABLE TO BE TAKEN BY ANY AND WHAT CORPORATIONS, PERSONS OR BODIES TO PROTECT LIFE AND PRIVATE AND PUBLIC PROPERTY IN THE EVENT OF BUSH FIRES BURNING IN VICTORIA.

The fourth paragraph of the Commission of Inquiry forms the title to this chapter.

Much of what appears in this chapter is intermingled so closely with what appears in the last preceding chapter, that both might have been conveniently considered together. It should be remembered, therefore, that certain matters which are not mentioned here have already been discussed, expressly or impliedly, in what has gone before.

Life is always endangered by bush fires. The persons whose lives are almost solely put in jeopardy are the forest workers and in many cases, their wives and families.

Private property endangered by fire consists of all property used in the forest for whatsoever purpose, such as sawmills, dwellings, machinery, cattle, stocks of timber; and outside the forest such property as may be affected by the spread of fires, by lessened rainfall, and by such results of erosion as floods and siltation. Public property which may be affected consists in the main of loss of forest produce, and injury to the water supply and to the means of conservation and storage.

Erosion.—Where fire is sufficiently severe or frequent, it consumes the decaying litter of the forest floor, and beneath that litter, the humus of the earth. The productiveness of the earth is thereby lessened or destroyed. Furthermore, where the mat of the forest floor is so destroyed, the rain which falls, having no impediment to its flow upon the ground, escapes to the rivers and creeks in greater volume than is possible where the mat exists to check and to help the absorption, by the earth, of the rain water. Some results of the unimpeded flow are the rapid removal of such of the humus as has escaped destruction by fire, the scoring, by runnels of water, of gullies and the beds and sides of the small "feeders" of rivers and streams and the destruction by floods of the banks of rivers and streams. These forces of "sheet" erosion, "gully" erosion and river erosion yearly cause many thousands of pounds worth of damage to property in Victoria. From these types of erosion, disastrous siltation occurs, the eroded matter being carried in suspension and precipitated when the speed of the water is reduced. After the fires of January, 1939, rich river flats were buried to a depth of several feet beneath deposited silt of inferior productive quality. The damage to river banks causes encroachments upon and destruction of areas otherwise usable for agricultural and pastoral purposes. Erosion generally is a constant crippling enemy to water supply, whether for the big cities or for the farmer who draws upon an irrigation scheme for the nourishment of his crops and pastures. Constantly it fights and worsts the water engineer in his struggle to conserve and store water. Its depletion of the amount of earth stored water intended by Nature, results in the drying of the springs whereby the streams ordinarily are fed in a dry season. Its sheet and gully denudation of the soil and its ravages upon river banks result in the rapid siltation of man-made water reservoirs. It is considered by engineers that it is impracticable to rid the reservoirs of silt, it being less costly to build new reservoirs. Already the best sites on many rivers have been used for reservoirs. It fills the river bottoms, so that where, in a dry season, the river had ceased to flow but had conserved in its bed many pools of water, the pools no longer are to be found. Fire, in result, and an example of such result is erosion, affects each one of us, whether we are of the towns or of the country. The common weal is most grievously threatened by erosion.

In other countries, it has forced itself upon the people's notice as a devastating agent more capable of causing lasting damage than an army invading the land with gas and artillery. The seriousness of the forces of erosion are understood in some parts of the Mallee where, yearly, tons of the soil are carried across the State to the Southern Ocean. Soon the menace will be seen just as seriously at work in other places whose names have stood for richness of the soil and the wealth it holds for men. Every year, many thousands of acres of forest lands are damaged by fire. Few people in the past have been interested, except the informed scientific experts in the several departments of knowledge of the land and its protection. Each year the area over which the forces of erosion work has been increased. With the increase of area, the forces become more potent and less amenable to restraint by man. This State is threatened with the destruction that has overcome other countries of longer periods of inhabitation. Large tracts of America, which once were rich and populous, are now deserted, the soil gone, the surface a sea of shifting sand, the air unbreathable, being laden with fine suspended dust. The bush fire is an important contributing cause of erosion. An Erosion Committee was recently appointed in this State. It deliberated and made a report. It is not intended, apparently, that it should sit continuously or at intervals. It is essential that it or some similar body should devote itself to the problem. It is for such matters as the consideration of causes, and methods of prevention, of destruction of the soil and its products by (*inter alia*) bush fires, that it has been recommended that a land utilization body be instituted.

The greater part of what is to be discussed under the title of this chapter may be conveniently set forth in relation to the part which the Forests Commission ought to take in respect of the matters falling under this title.

Forests Commission.—It is acknowledged that the terms of this Inquiry do not permit of an examination of the internal management of any department. But in considering what measures ought in future to be taken to protect life and property, certain matters of departmental internal management emerge.

Departmental Divisions.—It is recommended that the Forests Commission recognize and provide for the efficient exercise of three major functions, namely those of Commerce, Reclamation and Rehabilitation. It has been found that the Commission has been too closely pre-occupied with questions of revenue production to the comparative exclusion of considerations of reclamation and rehabilitation. Both reclamation and rehabilitation of forests bear a close relationship to the questions of prevention of fire and protection of life and property. Each department should be placed in charge of experts in each such sphere ; the three should work under the authority and guidance of the Commission's Chief Fire Officer. The influence of commercial enterprises upon prevention and protection of life and property has been examined. The responsibility and past misconduct of the several classes of forest commercial undertaking have been discussed.

The influence of the lack of any real plan of reclamation is to be found in those areas which have been milled, either by the cutting of selected trees or by the cutting of all timber. Such areas are for the most parts tracts of devastation, in which the millers' waste, old logs, dead trees, scrub and bracken are found in a dangerous abundance. Every such area is a source of danger of origin of fires and of the promotion and acceleration of fires invading such an area. The reclamation department of the Commission should clear these areas by means of light fire and mobile equipment until they have been brought to a condition in which they are fit for rehabilitation as forests by the proper department. The processes of reclamation, being progressive, would provide a safeguard which, unlike some preventive and protective works, would ultimately lead to profit. As many of the operations involved in and related to re-afforestation provide incidentally safeguards against outbreak and spread of fire, the combined operations of the reclamation and rehabilitation departments would tend to result in both profit and safety.

Control of all Forests.—The Forests Commission should be placed in complete control for fire prevention and suppression purposes, of all forests, except in those areas in respect of which it has been recommended that they should be exempted from control by any other department.

Control of Graziers.—Not all graziers burn their areas. Classification of grazing lands by classes, determined by the fact of whether burning is practised by graizers or not, should be made. In some areas where illegal burning is persistent and where the returns from grazing are not large, graziers should be excluded from the forest. In areas where illegal burning is practised and where the returns are profitable, either strict patrols should be maintained and prosecutions launched under the law in its suggested slightly altered form to facilitate proof, or the system of agistment with effective patrols and herdsmen should be substituted for that of letting specified areas for grazing.

Control of Campers.—The Commission should be empowered to define camping areas, within its territory, for tourists and holiday campers and to regulate and police the conduct of campers therein.

Control of Miners and Others Entering the Forest.—Control of miners and others in its territory should be conferred upon the Commission.

Forest Practice.—According to the Forestry Authorities of the world the first consideration of the forester is, or ought to be, the prevention and suppression of fire. Prevention in the absolute degree being impossible, quick suppression is the imperative first step. For this purpose the following matters and practices are indispensable :—

Early Detection.—Look-Out Towers.—Towers so placed that no part of the forest is beyond range of the vision of observers, should be placed throughout the forest. These towers should be in communication by telephone with a central body devoted to fire fighting, and as far as possible with each other. Wireless transmitting sets whereby instructions may be given to ground patrols carrying small receiving sets are used in such towers in many parts of the world.

Aerial Observers.—There are two forms of patrol, aerial and ground. The aeroplane has been used for detection work in other countries and of recent years in Victoria. There are in Victoria large tracts of rugged mountain country, uninhabited and far removed from habitation ; the aeroplane is particularly valuable for detection of fires in such country. What is to be done in these regions, after detection, is a problem at present well nigh beyond solution. Being without roads or tracks, these extremely rugged and inaccessible forest fastnesses present a problem which apparently no one in this State feels competent to solve. The detection and ascertainment of the position of the fire in the forest, however inaccessible that position may be, has the advantage of placing the fire-fighting force in possession of accurate information upon which may be based a plan of disposition of forces to take protective measures at places which are accessible and thus to prevent the unfettered spread of the fire and to protect property which may lie in its path.

The use of the aeroplane in Victoria, there being an entirely insufficient installation of look-out towers, has been general. But it is suggested that the use has been too restricted and could be valuable only if fires were to break out according to time-table. In the immediate past, on days of fire danger, the aeroplane has made a circuit of very wide range. It has, in its circuit, passed over location " A " at 10 a.m., has quickly passed out of vision range of " A," and has not returned until next day or the next fire danger day. If firebreaks out at " A " at 10.10 a.m., it may be detected by some other means ; it will not be detected by the aeroplane observer. The system of aeroplane observation should consist of a network operation by one or more machines. The aeroplane should carry a transmitting wireless set and the ground patrol or other ground body a receiving set.

Compartmenting and Ground Patrols.—It is universal forest practice to endeavour to divide the forests into compartments. The compartment is valuable for more than one purpose. It enables the outbreak of fire to be kept within bounds within the compartment in which it originated. It gives quick and unimpeded access by ground fighting forces to the locality of the outbreak. The boundaries of the compartment constitute fire-lines which, according to their several characters, either of themselves act in some degree as fire-breaks or afford a safe base from which fire suppression operations may be conducted. The boundaries also provide means of egress for men in case of crown fires or ground fires of great intensity.

The compartment boundaries may be :—

(*a*) *Fire-Lines.*—These are mere narrow tracks, which have been cut and cleared and which are not intended to act as fire-breaks. They allow access by foot or horse. From them, burning-back work may be conducted, thereby removing the fuel from the path of the advancing fire.

(*b*) *Fire-breaks.*—These consist of wider strips of forest land, cleared by cutting or burning or both and designed to impede the progress of fire. They may be left clear ; or upon them green growth may be encouraged. They are of use also for ingress and egress of fighting forces and for burning back wherever they lie in the path of a fire of unusual severity. Tracks for the passage of vehicles may be constructed upon them.

(*c*) *Roads and Tracks.*—These boundaries of compartments are of the greatest value. They admit of the rapid passage of motor vehicles and equipment and the carriage of water, for use in suppression work. The importance of roads, even in small forests, cannot be too strongly stressed. In forest country such as exists in many parts of Victoria, they are a necessary part of every fire-fighting plan. The cost of construction of roads in some districts is heavy. The cost of severe fires is infinitely heavier.

FORESTS COMMISSION OF VICTORIA

Machinery.—For the effectuation of any forest fire prevention plan, machinery is necessary. The cost of construction of roads by inefficient " relief workers " is comparatively enormous. With the aid of petrol-driven machinery, the cost, including the capital outlay for such machinery, would be greatly reduced. So it is, in connexion with many other forest operations which are conducted directly for the purpose of fire prevention or protection or which result, indirectly, in affording such prevention or protection. The necessity for such machinery has been recognized by the Commission, but the machinery has not been provided.

Cost of Road-making, including Machinery therefor.—The cost of road-making ought to be added to the royalty rate payable by the sawmillers. At present, the sawmiller hauls or carries his produce from the logging area to the mill and from the mill to the nearest highway. His operations would be rendered much more profitable, over the course of the whole year, if roads were made available to him, even though it be conceded that in some parts of the State, during the snow season, roads are impassable during certain periods or that during the rainy season, certain roads are not usable. For the assistance and saving which would be afforded millers, it is just that they should be obliged to pay, out of decreased costs, and therefore increased profits, all or portion of the outlay.

Motor Transport.—For the purpose of swift suppression of fires, motor transport is obviously necessary. The Commission has long recognized the fact. At present it has a fleet of motor vehicles which is not yet adequate. Motor vehicles are of great value for use in other forestry work.

Water Conservation.—Water conservation in dams and tanks throughout the forest is necessary. It is useless and wasteful to spend money for this purpose, unless roads, transport, equipment and men are first supplied ; or at least, unless the policy of providing such elements of the fire-fighting plan proceeds simultaneously with that of conserving water.

Equipment.—Where roads, water and means of transport exist, motor pumps are used in other countries. It is doubtful whether, in the present state of fire precautions work, they could be used to effect. Their range would appear to be restricted by physical conditions at present. They could be usefully introduced to certain limited areas where road-making and water conservation have progressed. They should be installed wherever and whenever conditions warrant their introduction. The requisite personal equipment of each fire-fighter is too well known to require elaboration here. It is suggested that fire " foams " should be added to the equipment of those whose part in fighting is to quell fire by the application of water. These are in use in some parts of the United States of America. They consist of a mixture, details of which are set forth by Professor Folweiler in his " Theory and Practice of Forest Fire Protection in the United States ", 1937 edition. They add to the efficacy of water, with which they are used, by producing a " blanket " which smothers fire.

Equipment Depots.—It is recommended that stores of suppression equipment for the use of volunteers or persons employed casually for fire-fighting should be permanently maintained at convenient positions, having regard to the degree of fire risk and to the accessibility of the forest region.

Enrolment of Outside Forces.—A scheme of enrolment of persons not employed by the Forests Commission and willing to engage in suppression work should be instituted for the purpose of forming a body similar to and for the purposes suggested under the heading " *Enrolment of Volunteers* " (page 24 *supra*).

Burning.—It has already been recommended that the Forests Commission must recognize the necessity of protective burning in its areas. It is not suggested that the practice be followed in mountain ash country, except to a small extent, where necessity demands that it should be done. In all other parts, where less valuable timber, less susceptible to fire, occurs, this method of prevention of outbreak and spread cannot, either in the public or private interest, be ignored.

Staff.—It has already been stated that the Forests Commission field staff is ludicrously inadequate. The fact of their numbers in relation to the multiplicity of duties which devolves upon them and to the area of the forests which they are expected to maintain and protect calls up the recollection of Lewis Carroll's " forty maids with forty mops."

Forestry Officers and Local Conditions.—It is reluctantly that any suggestion is made which, if it were acted upon, would delay the realization of an officer's expectation of advancement. The esteem in which your Commissioner holds forestry officers as a class has already been expressed. With that preface, it is recommended that each forestry officer should be stationed in one district for as long a time as is practicable and consistent with justice to the officer. Thorough knowledge of local forest lore and of the district generally is essential for the efficient discharge of the officer's duty ; and, what is equally important, the recognition by the local rural populace that the officer had such knowledge and was efficient would do a great deal to establish the officer, in the estimation of the people, as a person competent to speak with authority upon questions of prevention and suppression and to direct their efforts in time of emergency.

Policy.—All fire prevention and protection measures are progressive and recurrent. No step in field operations can be done once and for all time. There must be, over the years, a turning back to and repeating of the operation already done. The forest is not static and the protecting hand of man can never be idle. It is therefore necessary that a general plan must be formulated, and, with modifications to suit each district, pursued. Such a plan is in the course protecting hand of man can never be idle. It is therefore necessary that a general plan must be of erection by the Chief Fire Officer of the Forests Commission. If it is to be successful, its formulation and application must be left in the hands of the experts of the Forests Commission.

Finance.—The Forests Commission protests that it has insufficient funds at its disposal and that such funds are available irregularly, both in time of payment and amount. In the absence of any criterion by which the amount necessary for the management of the forests may be judged, it is difficult, and would be unsafe, to make a positive finding on the question of the amount. But by the intrinsic evidence supplied by the proven insufficiency of the staff, it does appear probable that the Commission's complaint is justified. There can be no doubt of the justice of the complaint that the moneys made available for field operations are paid to the Forests Commission irregularly, both in point of time and amount.

All forestry operations, including those of fire precaution, are progressive and recurrent. It is necessary that the Forests Commission should be able to plan its expenditure for some considerable time in advance of the operations which are to be carried out by such expenditure. The fact is self-evident. This course the Forests Commission has never been able to follow. Its income of moneys for expenditure in the field is uncertain. It varies from time to time by many thousands of pounds. In recent years a large amount of such moneys has been removed from the control of the Commission, to that of the Minister of Forests, so that in addition to irregularity there is complete deprivation of control of a substantial part of such moneys.

The sources of moneys for expenditure by the Forests Commission are the Forestry Fund, Loan Moneys, Government Grants and Grants by the Employment Council.

The Forestry Fund.—Section 37 of the *Forests Act* 1928 is as follows :—

> " (1) There shall be established and kept in the Treasury an account to be called the Forestry Fund.
>
> (2) There shall in each financial year be paid out of the consolidated revenue into the said fund—
>
> (*a*) the sum of Forty thousand pounds ; and
>
> (*b*) in addition when the gross amount received in such year from royalties leases licences permits authorities and the sale of forest produce under this Act exceeds Eighty thousand pounds a sum equivalent to one-half of the gross amount received therefrom in excess of Eighty thousand pounds ;
>
> and the consolidated revenue is hereby to the necessary extent appropriated accordingly.
>
> (3) The said fund shall be applicable only to and available only for the payment thereout in each financial year of such sums for the improvement and re-forestation of State forests and the development of forestry and any special purposes under sections twenty or twenty-one of this Act as the Governor in Council on the recommendation of the Commission directs."

Sections 20 and 21 referred to in the foregoing Section direct the Forests Commission to make provision out of available moneys for the general management of the forests and the commercial disposal of their produce.

During the recent period of financial depression the amount of £40,000 referred to was reduced to £32,000 and has not been restored. The permanent staff of the Commission is paid with moneys from the fund.

Loan and Government Grant Moneys.—These are moneys made available respectively from loan moneys and grants made by Government from time to time.

Unemployment Relief Moneys.—These are moneys granted on the recommendation of the Employment Council for expenditure on the employment of relief workers for forest field work. From January, 1933, to January, 1939, the Employment Council from time to time recommended that there be made available sums of money for expenditure on the employment of relief workers. Much of the work which was done by expenditure of relief moneys in that period was for the purpose of fire prevention and protection. Up to September, 1935, the allotment of these moneys was made either upon a schedule of works, showing the places where such works were to be carried out and lodged by the Commission with its application for relief

moneys, or for expenditure in areas to be selected by the Commission. In September, 1935, the manner of allotment of relief moneys was changed and during that month and thereafter up to January, 1939, and presumably since then, if later allotments have been made, the complete control of the expenditure of relief moneys was and has been given to the Minister of Forests.

These facts are revealed by a file of the Forests Commission, for which your Commissioner called when seeking to investigate the validity of the Forests Commission's plea of insufficiency of money for fire prevention and protection work.

There appears on the file a letter, which marks the change of policy and which is dated 27th September, 1935, from the Secretary to the Premier to the Acting Chairman of the Forests Commission, the relevant part of which letter is as follows :—

" With reference to your memorandum of the 16th instant addressed to the Honorable the Minister of Forests relative to suggested additional unemployment relief works, I am directed to inform you that the Government, on the recommendation of the Employment Council, and subject to the approval of the Governor-in-Council, which is being sought, has approved of a grant of Twenty thousand pounds (£20,000) being made to the Forests Commission, from the National Recovery Loan Fund (1935–36), for the undertaking, as early as practicable, of the silvicultural treatment of hardwood forests in areas to be selected by the Honorable the Minister of Forests, having regard, *inter alia*, to the volume of local seasonal work available in the vicinity of such areas."

Part of a similar letter, dated 22nd February, 1936, from the Secretary to the Premier to the Chairman of the Forests Commission and which deals with grants from the National Recovery (Unemployed Relief) Loan Fund, to the Country Roads Board and the Forests Commission, is as follows :—

" (1) *Road Works.*—The road works to be carried out shall be Items 1, 2, 3. . . . . *of the Schedule submitted by the Country Roads Board* . . . . . .

(2) *Forests Works.*—The works to be undertaken by the Forests Commission shall consist of silvicultural treatment and fire protection works *in hardwood forest areas to be selected by the Honorable the Minister of Forests.*"

. . . . . .

(The italics have been supplied by your Commissioner.

Thereafter, moneys were allotted by the Employment Council for expenditure in areas to be " selected ", " determined " or " approved " by the Minister of Forests.

The following table of moneys available to the Forests Commission for expenditure in recent years shows the variation of amount from year to year. It should be borne in mind that since September, 1935, the Commission has not had control over the expenditure of Unemployment Relief moneys, which constitute more than half such available moneys :—

—	Forestry Fund.	Ordinary Loan.	Votes.	Unemployment Relief
	£	£	£	£
1933–34	54,000	34,000	75,000	93,000
1934–35	39,000	45,000	81,000	121,000
1935–36	63,000	47,000	87,000	417,000
1936–37	112,000	51,000	96,000	351,000
1937–38	88,000	42,000	104,000	258,000
	356,000	219,000	443,000	1,240,000

TOTAL FUNDS.

Total Unemployment Relief Funds	£1,240,000
Total Other Funds	£1,018,000
	£2,258,000

The Employment Council is concerned with the providing of employment for men whose need is urgent. It, therefore, sets a limit, on occasion, to the period within which money granted by it may be spent. In some districts at certain times because of climatic conditions, it is impracticable to carry out prevention and suppression work within the prescribed period. This adds a further embarrassment to the Commission's problem of obtaining men and money for its field work.

This Report now turns from the foregoing general matters to those of a more particular nature.

Safety Precautions at Mills.

Tops and Waste.—It is suggested that tops and waste be burned by or under the direct supervision of forestry officers of the Forests Commission and that the cost thereof be added to the royalty rate payable by the miller.

Clearing About Mills.—It is suggested that clearing about mills should be of greater radius than it has been heretofore, and that it should within its area include all huts and cottages of mill-workers and all buildings and erections generally. The clearing should be devoid of trees and scrub of whatever kind and should extend at least five chains beyond the outer-most buildings of the mill and mill settlement. A further area, to a distance to be determined by the local fire authority, should be burned off beyond such clearing, if such burning-off appears to the local authority to be desirable.

Water.—At each mill there should be installed a water supply adequate for purposes of fire fighting and stored in such manner as may be likely to conserve the supply against evaporation and depletion by use for other purposes. The conditions of climate, natural water supply and fire risk are so diverse throughout the State, that it is not desirable to prescribe any one method of conservation. The method of conservation should be prescribed for each district, and, within each district, should recognize the relevant conditions affecting the safety of life and property at each mill. The State Fire Authority, on the advice of the local authority, should determine the matter. All water conveyed from streams or reservoirs, should be conveyed by buried metal piping. The use of an exposed pipe or wooden flume for the purpose of conveying water to a mill or mill-settlement, should be made an offence at law.

Suggested Removal of Mills from Forest.—There are forest regions in Victoria which are particularly dangerous fire areas. Of these regions it can never be said that their mills are quite safe at all times or that, at some times, any mill is reasonably safe. Much discussion took place, during the Inquiry, concerning the advisability of moving mills out of the forests. Your Commissioner recommends that such a general policy for the whole of the State ought not to be considered. Generally speaking, in most areas, mills can be made safe both in respect for life and property. The miller is the best judge of the best methods of economically conducting his business. Almost without exception he has placed his mill in the forest. It is suggested that it would be unjust to interfere with this established practice where there is no real necessity, on grounds of safety, for change. The suggestion for removal was sponsored by a party who was represented before the Commission of Inquiry and who fears the possibility of the incursion of millers into its hitherto inviolate forest territory. If all millers were excluded from all forests, no such fear would trouble the party in question.

But it is recommended that in areas of extreme fire danger, the future policy of the Forests Commission should be directed to the non-admittance of new mills to such dangerous areas, and to the future removal of such mills as are now in those areas. Such a policy finds support in the fact that in many cases a mill has been destroyed by fires on more than one occasion, on the same site.

It is suggested that it would be unjust to place one miller under a disadvantage in his competition with others. It is possible that the mill operating outside the forest would do so at a greater overhead expense than would the mill inside the forest. If this be so, the matter might be equalized by royalty rate concessions in favour of the outside mill. In cases where the Forests Commission decided to order the removal from the forest of a mill established in the forest, the miller could be recouped the cost of removal by an added, similar concession. In either the case of the removal of the established mill or the refusal to the intended new mill of permission to set up in the forest, the matters of disadvantage to the owners of such mills, if there were disadvantages, might be adjusted by the loading of the royalty rate payable by millers who were not so affected.

Turning Places on Roads.—There should be provided on all single-track or narrow-track roads in dangerous areas turning places for vehicles.

Standing Dead Timber Near Roads.—Such standing dead timber as may threaten the safety of roads or vehicle tracks from mill and other forest settlements to main roads should be felled. The same precaution should be taken in the case of all roads in densely forested areas. The more immediate need for the taking of such precautions exists in the case of the first-mentioned class of roads.

Dug-Outs.—The construction of dug-outs at all mill settlements, and at winches during the fire danger season, should be compulsory. Objection to the construction of dug-outs at winches was made, during the Inquiry, on the ground of the expense of construction. Generally speaking the winch is moved to a new site about three times in the course of a year. It is probable that the occupation of only one site coincides with the fire-danger season. It was admitted by objectors that in most kinds of country the cost of construction would be small.

The design of the dug-out, despite the test to which dug-outs were subjected by the fires of January, 1939, is a matter for the most careful consideration, of which only technicians are capable. It is true that the efficacy of dug-outs in fires such as those of January, 1939, appears to have been proved. Nevertheless, it must be remembered that hasty generalization is dangerous. It is recommended that the matter be submitted to experts, of which there are many in the Public Service ; and that such experts determine the best manner of construction.

It is suggested that, in the event of this recommendation being acted upon, the experts should particularly consider the questions of ventilation, air-purification, location, design (for example : whether tunnel, or tunnel with cross chamber, or in flat country, shaft and drive), baffles both for air and smoke, storage of water inside dugouts, supply of medicaments (for example : for prevention or relief of temporary blindness and inflammation of the eyes), water sprays, and restoratives ; the direction in which the entrance to the dug-out should face ; the question of exposed timbers and sheet iron ; and the various other suggestions which appear in the transcript of evidence. It is suggested that it is essential that technicians who may be considering the matter, should read such parts of the transcript as relate to the matter of dug-outs generally.

While your Commissioner refrains from making suggestions upon the technical matters last referred to, he feels that if any system of compulsory installation of dug-outs is to be successful, the dug-outs must be of simple design, and as free as possible from mechanical appurtenances, which, because of neglect, may be found to be unworkable in time of emergency.

Surroundings of Dug-outs.—It should be mandatory that an area of six chains in diameter, having as its centre the entrance to the dug-out, should be kept clear of all trees and scrub, buildings, and material of whatsoever kind. Stores of petrol and oil, stacks of firewood and all other stores of inflammable material should be kept at such considerable distance from the dug-out entrance as the State Fire Authority may decide ; and in such a position that in the event of explosion or ignition, smoke fumes or heat caused thereby will be unlikely to enter the dug-out. Generally, it will be found to be safe to keep such material at a place south or east of the dug-out.

Much of what has been recommended as falling within the special field of the Forests Commission has already been practised, to a too limited extent, by the Forests Commission. Much of what has been suggested should, if it is to be implemented, be left to the technical officers of the Commission for its detailed development and application to forest management.

CHAPTER VI.

THE RESPONSIBILITY OF THE FORESTS COMMISSION.

The terms of the Commission of Inquiry cast no duty upon your Commissioner to investigate or pronounce judgment upon the subject of the title of this chapter. But, by implication, censure may well rest, perhaps unjustly, upon the Forests Commission, unless the possibility of an excuse for its failure in respect of some matters be demonstrated. The purpose of this short chapter is to go no further than the raising of that possibility.

It is clear that a body charged with the management of an estate cannot safely be held to be answerable for its conduct unless such body has been a free agent in full control of its affairs. It has already been shown that a large portion of the moneys available for expenditure upon fire prevention works has been taken from the control of the Commission. Your Commissioner has not investigated the manner in which such portion has been applied, it having been his opinion that the terms of his Commission do not admit of such an inquiry. But he has felt obliged to consider the possible result of the altered control of these moneys.

The matter may be put in the form of a statement of broad principle, namely, that when it is found that a body has been deprived of a substantial part of the means which ordinarily enable it properly to discharge its duty, it ought not, without further investigation, to be held responsible for a failure in that full degree of achievement which might reasonably have been expected of it, had it been left untrammelled to pursue its own course.

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CHAPTER VII.

THE DESIRABILITY OF ESTABLISHING THE INDEPENDENCE OF THE FORESTS COMMISSION.

As an addendum to the chapters which deal with the subject of the measures to be taken to prevent the outbreak of fires and to protect life and property, this chapter is written for the purpose of recommending that the Forests Commission be in future placed in full control of the management and protection of the forests.

The degree of independence which it is intended by the *Forests Act* 1928 that the Forests Commission should enjoy is not clear; nor is the scope of ministerial authority over the Forests Commission defined. It is recommended that the statute be amended in such a way as to place these questions beyond doubt.

Whether the Minister of Forests was entitled by law to exercise the function of expending upon fire prevention and protection works moneys which had theretofore been controlled by the Forests Commission, and whether the Employment Council was entitled to impose a condition which ensured that only the Minister should control the expenditure of such moneys, are matters which, although they are open to doubt, are of little importance in their relationship to the matters for inquiry.

The gravamen of the subject may be stated in two distinct propositions :—

(*a*) Forestry being a science, and its practice an art, understandable only by technicians, it is undesirable that control of moneys to be expended upon the maintenance and protection of forests should be given to any person who, in forestry matters, is a layman.

(*b*) The control of moneys in the manner which has been discussed is open to abuse. It admits of the expenditure of public money in a manner designed to advance an interest not connected with forestry. It admits of the subordination to that interest of the very important question of the safeguarding of our forests.

CONCLUSION.

It has been the aim of your Commissioner to compress this Report within as narrow compass as he finds it possible to do without abandonment or rejection of any matter which might possibly be of assistance to any person or body who may be minded to consider these recommendations. The method of direct statement, shorn of argument, has been largely adopted.

The gist of the several matters discussed in this Report might have been rendered more readily understandable had a concluding summary been appended. But as the Report is itself, for the greater part, a précis or summary, the further summarizing of its contents was thought to be inappropriate.

Your Commissioner wishes to record his gratitude for the assistance given him by Mr. Gregory Gowans, of the Victorian Bar, who was briefed to assist the Commission, and who, during long periods of physical discomfort which the official party was caused to suffer by the coincidence of a heat wave with your Commissioner's country tour, rendered very real and unfailing service to your Commissioner.

The thanks of your Commissioner are also tendered to Mr. P. A. Carbines, of the Crown Solicitor's Office, who acted as Secretary to the Commission, and to Senior Constable J. E. Hutchinson who, as chauffeur and orderly, did more than his duty in ministering to the comfort and safe conduct of the party.

All of which your Commissioner has the honour to submit for your Excellency's consideration.

As WITNESS my hand this sixteenth day of May, One thousand nine hundred and thirty-nine.

LEONARD E. B. STRETTON.

For Ministers,
F. W. MANN.

By Authority: T. RIDER, Acting Government Printer, Melbourne.