

Board of Inquiry into the Occurrence of Grass and Bush Fires in Victoria 1977

Submission of Counsel Assisting

PROV Reference details: VPRS.9823.P0002.4.Unit=Submission of Counsel Assisting

SUBMISSION BY COUNSEL ASSISTING THE BOARD
OF ENQUIRY INTO THE OCCURRENCE OF BUSH AND
GRASS FIRES IN VICTORIA

Fires occur whenever there is a favourable combination of fuel, weather and ignition sources. These factors were present in the State of Victoria in January and February and in particular on the 12th day of February, 1977. On that day not only were there favourable conditions of fuel and weather but also a large number of ignition points. The fires which occurred on February 12th had disastrous consequences both in terms of loss of life and widespread destruction of property and livestock. This Board of Inquiry was set up by the Government of the State of Victoria to enquire, inter alia, into the occurrence of bush and grass fires in the rural areas of Victoria and in particular into the causes and origins of major bush and grass fires which occurred in Victoria during the months of January and February 1977. In the course of the Inquiry we investigated one fire which occurred in December 1976, two fires occurring on the 29th January, 1977, one fire which occurred on the 5th February, 1977 and twelve fires which commenced on the critical day, the 12th February, 1977. The evidence has established, in my submission, that nine of the twelve fires which occurred on the 12th February, 1977 involved S.E.C. installations and that in each instance the responsibility but not necessarily the legal liability, must rest with the S.E.C. It is important to remember, in my submission, that this Board of Inquiry is not required to determine any question of legal liability but has merely to determine, on the evidence before the Inquiry, which person or body should bear responsibility. It is a matter of grave concern that such a large proportion of fires on that particular day should be caused by S.E.C. installations as the evidence has indicated that the Western District region of Victoria can expect 3 or 4 such days with similar conditions to those experienced on the

12th February, 1977 in the fire danger period of each year.

In its Policy Submission which I read to the Board of Inquiry the S.E.C. stated -

"The hazard from electrically charged wires and electrical installations has been more dramatically unmasked as its system of distribution and supply has increased in magnitude". (see page 94). The S.E.C. in its submission went on to emphasize the fact that fire risk stemmed from many other sources other than S.E.C. assets. Whilst that latter statement is undoubtedly true it is, in my submission, a matter of great concern that on a day such as the 12th February, 1977 so many fires were caused by S.E.C. installations.

Before dealing with the cause and origin of each fire in detail I have prepared this table relating to each of the fires dealt with by the Board of Inquiry:-

<u>DATE</u>	<u>FIRE</u>	<u>CAUSE</u>
1. 22nd December, 1976	<u>ROSS CREEK FIRE</u>	The likely cause of this fire was hot ashes being deposited outside a shack near Smythesdale.
2. 29th January, 1977	<u>BEECHWORTH FIRE</u>	Cause unknown.
3. 29th January, 1977	<u>LERDERBERG GORGE FIRE</u>	Cause unknown.
4. 5th February, 1977	<u>LITTLE DESERT FIRE</u>	Lightning strike.
5. 12th February, 1977	<u>MERINO FIRE</u>	S.E.C. responsibility Conductor in contact with the limb of an elm tree, conductor melted, broke and started fire in grass below.
6. 12th February, 1977	<u>WAUBRA FIRE</u>	S.E.C. responsibility Conductor in contact with limb of a pine tree, conductor broke and fire started in high phalaris grass below.
7. 12th February, 1977	<u>NORTH BYADUK FIRE</u>	Cause unknown.
8. 12th February, 1977	<u>BALLIANG EAST FIRE</u>	S.E.C. responsibility Low voltage conductors clashed, expelled small particles of molten metal which started fire in low grass.

<u>DATE</u>	<u>FIRE</u>	<u>CAUSE</u>
9. 12th February, 1977	<u>BEEAC FIRE</u>	S.E.C. responsibility. Again, as in the Balliang East fire, low voltage conductors clashed, expelling particles of molten metal which started fire in grass hay.
10. 12th February, 1977	<u>CRESWICK FIRE</u>	lit by the "hand of man"
11. 12th February, 1977	<u>TATYOON-STREATHAM FIRE</u>	S.E.C. responsibility. Insufficient clearing for the passage of a conductor, tree falls across conductor which melts, falls to ground and fire starts in grass.
12. 12th February, 1977	<u>WALLINDUC-CRESSY FIRE</u>	S.E.C. responsibility of three grounds - (a) Insufficient tree clearing. (b) Inadequate instruction of linesmen. (c) Failure on the part of S.E.C. linesman to screw cap onto fuse
13. 12th February, 1977	<u>MINGAY-LISMORE FIRE</u>	S.E.C. responsibility. Surge divertor shattered and fire started in high phalaris grass at the foot of S.E.C. pole.
14. 12th February, 1977	<u>STRATHMORE FIRE</u>	S.E.C. responsibility due to operation of fuse which expelled incandescent particles to the ground and fire started at the foot of the pole
15. 12th February, 1977	<u>PURA-PURA FIRE</u>	S.E.C. responsibility due to inadequate tree clearing.
16. 12th February, 1977	<u>PENSHURST FIRE</u>	C.F.A. responsibility. Brigade burned off area on 10th February 1977 and believed fire was extinguished. Area re-ignited on 12th February, 1977

I now propose to deal with each fire investigated
by the Board of Inquiry in more detail.

ROSS'S CREEK FIRE

This fire occurred on the 22nd day of December, 1976 which was a day of total fire ban. The fire was detected at approximately 1330 hours burning in forest area approximately 5 kilometres to the north of the township of Smythesdale. The wind was a north westerly wind and the fire jumped Ross's Creek and headed towards Sebastapol Road and burnt into very heavy bushland which was not easily accessible. As a result of this fire there was no damage to property nor was there any injury but the fire did burn out approximately 4,000 hectares of forest. It was controlled at about 0630 hours on the following morning, the 23rd day of December, 1976.

There seems little or no doubt that this fire was started by the hand of man in one way or another. The police and the Regional Forester endeavoured to ascertain the cause of the fire on the 24th day of December, 1976. The origin of the fire was near Gram's Road, Smythesdale, in close proximity to a shack which was occupied by a man known as Antony Tersteeg. He was interviewed by the police and informed them that he was not at home on the day of the accident but he did concede that he left a wood stove burning. It was possible that a spark was emitted from the chimney of his shack. However, Senior Sergeant Mackie of the Ballarat Police has his own thoughts as to the probable cause of this fire (see page 1263). Mackie said -

"My thoughts even at the time were that the fire could have easily been started by household ashes being cleaned from the stove and being deposited outside, and that is how the fire started. I have no reason to believe that the fire was deliberately lit. I think it may have been more carelessness than anything else".

Mackie in his evidence referred to the fact that he

observed the remains of a mound of rubbish in the vicinity of the point of ignition. The mound, as he recalled, was in a north easterly direction from the bungalow. Mackie virtually ruled out the original theory that a spark or sparks had been emitted from the chimney thereby causing the fire. Mackie's views with regard to sparks starting the fire were confirmed by the evidence of James Carey, a Forest Officer employed by the Forests Commission (see page 1265). Carey stated -

"It was obvious to those present that the fire could not have started with a spark from the chimney due to the location of the heap of bushes in relation to the strong northerly wind."

Carey went on to say (at page 1266) -

"In my 23 years with the Commission I have had fairly wide experience in fire supression throughout the State and I could not see how this spark could have come from the chimney against such a strong wind".

Carey was in agreement with the theory advance by Senior Sergeant Mackie as to the commencement of this fire (see page 1266).

Carey was asked whether his theory was that it was more likely than not that ashes were taken from the stove and deposited outside. He replied as follows :-

"Particularly with the puffs of smokes that went up when I was on the tower".

The significance of the puffs of smoke that Carey had observed from Cherry Tree Tower was explained in his evidence when he stated that if one puts ashes out they do not "take off" immediately.

In my view, it is likely that the fire did start in the manner suggested by Mackie and Carey. However, in any event there is no doubt that the fire was caused by the hand of man.

BEECHWORTH FIRE

The fire at Beechworth occurred on the 29th January, 1977, the alarm being given at approximately 1830 hours. A report tendered on behalf of the C.F.A. indicated that in the fortnight before the fire the temperature had been in the high 20's and low 30's and no useful rainfall had been recorded. The temperature at the time of the fire was 34°C and the wind strength was estimated at between 40 - 50 kilometres per hour. The fire originated in bush and grass country on the southern side of Wangaratta Road, Everton Upper, at a point about 9 kilometres to the west of Beechworth. The fire was contained in just under 4 hours.

The fire spread rapidly towards Beechworth and ultimately reached a point about 1 kilometre from the township. The fire was first observed by one Michael Nido who had been shooting rabbits in the area. He admitted lighting a cigarette with a match at about the relevant time but the Police were satisfied that there was no evidence to connect this or any other action of Nido with this fire. Indeed, the outbreak of fire was first reported by Nido himself. In my submission, the cause of this fire must remain open although three possibilities arose.

First, the fire could have been deliberately lit, secondly the fire could perhaps have been caused by a cigarette butt being thrown from a passing car or alternatively, it could have been caused by natural causes. There was no evidence of any campers in the area. In my submission, the Board should record an open finding for this fire.

DAMAGE

Damage occasioned by this fire at Beechworth was comparatively minor and 26 kilometres of fencing was destroyed, hay valued at approximately \$3,000-00 was destroyed in a hay

shed and about 803 hectares of pasture land burnt out.

SUMMARY

In my submission, there is no evidence which establishes the cause of this fire and an open finding should be recorded.



LERDERDERG GORGE FIRE

The fire at Lerderderg Gorge occurred on the 29th day of January, 1977. This fire was not completely extinguished until about the 7th day of February, 1977. The fire was first observed at approximately 1253 hours on Saturday the 29th January, by a Forest Commission Observer in the Mt. Blackwood Forests Commission lookout tower. The flames were observed on a ridge near O'Brien's Crossing. That Crossing is in the general area of a popular camping area on the Lerderderg River. Members of the Forests Commission believe that the fire originated from a position adjoining Gentle Annie Pool on the north bank of the Lerderderg River and, although there is no real evidence to support the theory they believe it is more likely than not that the fire was caused by human carelessness and in particular by the action of a person or a number of persons in one of the many parties that would be expected to use the walking track at that time of the year, it being the first day of the long weekend in 1977. The evidence established that O'Brien's Crossing was a regular starting place for the Gorge walk and it was only some 45 minutes walk from Gentle Annie Pool. The temperature was in the order of 32°C, there was a fairly strong westerly breeze and the fire quickly became out of control within approximately three quarters of an hour.

The fire was fought by both C.F.A. and Forest Commission employees. However, an area of approximately 2,000 hectares was burnt out and large numbers of native fauna perished in the blaze. The vegetation was described as average to poor quality foothill forest consisting of a number of species of scrubby undergrowth and medium sized native gums.

Gregor David Wallace, a Forest Officer employed by the Forests Commission of Victoria, made an inspection of the area

to ascertain, if possible the point of origin of the fire. His observations are set out in considerable detail in the Transcript (at pages 1287 and 1288) and I do not propose to recapitulate them. However, Wallace believed that his observations were consistent with the fire originating on the North bank of the Lerderderg River at Gentle Annie Pool. Wallace went on to say (at page 1288) -

"I suggest that this, the fire, would have been the result of carelessness on the part of one or more persons in one of the many parties which would have been expected to have been using that walking track on the first day of the long weekend".

Wallace virtually rules out the question of deliberate lighting of the fire having regard to the very real danger that such an act would present to persons on the river as fire behaviour in such a place would be difficult to predict. He also ruled out the fact that the fire may have been deliberately lit at a number of places on the slope above Gentle Annie Pool. He believed that this was unlikely for three reasons. First the rugged nature of the terrain. Secondly the density of the scrubby fuels in places and thirdly his interpretation of the comments made by Forest Commission Officers in the towers.

In the fighting of this fire no criticism, in my submission, could be levelled against the Forest Commission employees, Baddock and Robson who withdrew from the path of the fire. In my submission, this fire at Lerderderg Gorge was started by the hand of man.

LITTLE DESERT FIRE

There were a number of fires in the Little Desert which occurred on the 4th and 5th days of February, 1977. On the morning of the 5th February, 1977 a large fire was reported in the Little Desert area to the north of Natimuk. The fire burnt out an area of nearly 16,000 hectares. It burnt out rough scrub and timber in the Little Desert area and grass and stubble in the vicinity of Dimboola. There was no loss of buildings neither were any injuries reported. There is no doubt that the fire commenced as a result of a lightning strike.

Gregory Joseph Carracher gave evidence (at page 1292) regarding his observations as a tower operator and fire spotter in the employ of the Forests Commission of the State of Victoria. There were in fact eight lightning strikes and it appears that the eighth strike was the cause of the large fire which could not be controlled until Sunday the 6th February, 1977.

MERINO FIRE

The Merino fire occurred on the 12th February, 1977 and the alarm was sounded at approximately 1026 hours. The fire originated on a property owned by one Rodney Northcott situated on the Coleraine Road about 3 kilometres east of Merino. In my submission, the S.E.C. must bear the responsibility for this fire which was caused by a high voltage conductor coming into contact with a limb of an elm tree situated near the fence on Northcott's property. The conductor in question broke, fell to the ground and several fires started as a result. Fortunately, this fire was contained within a short time and the damage caused by the fire was not great.

The fire commenced in the immediate vicinity of an S.E.C. power line and the most southerly conductor came into contact with a limb of the nearby elm tree. On Thursday, 10th February, 1977, one Edgar Hardy Enscoe, a local farmer who was also the C.F.A. Group and Communications Officer in the Merino area, observed a char mark on the limb of the elm tree at the level of the S.E.C. conductors. Enscoe said -

"I concluded that the char mark was caused by the outer conductor on the high tension line swinging under the influence of a northerly wind and arcing to the elm branch". (page 505).

Enscoe made his observations at about mid-day on Thursday, 10th February, but he did not take any steps to inform the S.E.C. of the situation until the following day. Enscoe conceded that he had forgotten about the char mark which he had observed after he returned to his home and it was not until the next day that the situation was recalled to his mind. On Friday, 11th February, Enscoe discussed matters of fire protection generally with his Deputy Group Officer, Stuart Nolte. Enscoe and Nolte discussed the question of the char

mark and they agreed that it was a dangerous situation and that the S.E.C. should be alerted. Enscoe then claimed that "somewhere about mid-day" he telephoned Mr. Speed, the Assistant District Manager of the S.E.C. at its Casterton branch. Enscoe claimed that he did, in fact, point out the seriousness of the situation to Mr. Speed who told him that there would be a "lopping gang" in the area during the following week. Speed also told Enscoe that the matter would be investigated.

However, Speed had a slightly different version of his conversation with Enscoe and he also alleged that the telephone call from Enscoe occurred between 3.30 pm. - 3.45 pm. on Friday, 11th February, 1977. Speed stated that Enscoe told him that he had been driving along the Merino-Coleraine Road and had noticed a burn mark on a tree in the vicinity of Pole 179 and he requested the S.E.C. to "have a look at it". Speed claimed that Enscoe did not make any mention about the line or whether it was in contact with the tree and he insisted that Enscoe did not state that the situation was dangerous. Speed also told Enscoe that he would have men in that area on the following Monday and he would have the situation checked then.

In my submission, it is not necessary for the Board to determine whether the S.E.C. were notified of the char mark on the elm tree on Northcott's property at about mid-day on Friday 11th February, as alleged by Enscoe or between 3.30 - 3.45 pm. as claimed by Speed. The S.E.C. were in fact notified of the fact that there was a char or burn mark on the limb of the elm tree and in my submission the S.E.C. should have taken steps to inspect the situation and take the necessary action to remove the hazard. It may well have been the situation that Enscoe, a quiet and reserved man, did not emphasize the seriousness of the situation in the course of his telephone conversation with Speed. Nevertheless, in my submission, the very fact that Speed conceded that he was told of the burn mark on the tree should have alerted Speed to the potential danger.

I consider that Speed was in error in failing to or an inspection of the site on the Friday afternoon or late evening depending on the time that the telephone call was received from Enscoe. Speed's failure to take any immediate steps to remedy the situation is extraordinary, in my submission, when one considers the very hot conditions which had been prevailing in the Western District and the warnings which S.E.C. employees had received from the Commission itself following the disastrous fires of the 8th January, 1969. The Commission had warned its employees, inter alia, about the large number of fires reputed to be caused by trees and conductors clashing after the 1969 fires and yet, with the passage of time, these warnings fell on deaf ears and it is apparent that the S.E.C. became complacent and unconcerned about many problems which existed due to inadequate clearing. Such an attitude on the part of District Managers and Assistant District Managers in the employ of the S.E.C. cannot, from a safety and fire prevention viewpoint, be tolerated in the future otherwise the State of Victoria may again experience fires with disastrous consequences such as were experienced on the 12th February, 1977. The Western District area of Victoria will in the future encounter other days with extreme weather conditions like those which prevailed on the day and unless S.E.C. maintenance standards are significantly raised we will suffer a repetition of these fires many of which, on that particular day, were caused by S.E.C. installations. The S.E.C. warned in 1970 against a repetition of the disasters which occurred on the 8th January in that year. The Commission must now take immediate steps to ensure that, as far as practicable, there is no repetition of the events which again occurred on the 12th February, 1977. In my submission, responsibility for the Merino fire must rest fairly and squarely with the S.E.C.

DAMAGE

The damage caused by this fire was not great. Approximately 20 hectares of pasture was burnt, under 2 kilometres of fencing was destroyed, a hayshed was also destroyed together with some 2,300 bales of hay. Cattle yards also suffered damage.

SUMMARY

The fire at Merino originated on a property owned by Mr. Rodney Northcott situated about 3 kilometres east of Merino on the Coleraine Road. An S.E.C. high voltage conductor came into contact with the limb of an elm tree on Northcott's property, the conductor melted and broke. Several fires started in the grass at about the point where the conductor broke. The responsibility for the fire rests with the S.E.C.

WAUBRA FIRE

The fire at Waubra also occurred on the 12th February, 1977 with the alarm being given at approximately 1545 hours. The fire originated between Poles 13 and 14 on the Addington Kal-Kal Road at Waubra. At the time of the fire there were two large pine trees adjacent to the S.E.C. conductors and situated on either side of a gateway leading to the property of one John Moran. In the conditions which existed on that day a limb from one of the trees was dislodged onto one of the high voltage conductors, the conductor broke, came to the ground and the fire started in high phalaris grass in the general area below the conductors. There was a potato crop planted inside the fenceline and the fire burned to the east for approximately 150 metres in the long phalaris grass and then burned to the south once the flames reached the end of the potato crop. The base of the two pine trees was approximately 3 metres to the south of the southernmost conductor and the limbs of those trees grew out over the top of the conductors. Brian Terence O'Neill, a resident Linesman in the employ of the S.E.C. observed after the fire that a limb of one of the pine trees had broken "almost fully through, where it joined onto a larger limb of the tree. The broken limb was about 4 metres long. Whilst it was still attached to the tree, it was hanging down. The limb had burn marks on it and it was directly adjacent to where the conductor broke" (at page 673).

O'Neill agreed that before the limb had broken it was likely that the limb had extended above the conductor. He also conceded that this was not the only limb which had

extended over the conductor and that a number of other limbs had extended "well out over" (page 674) the most southerly conductor.

The evidence established that a contractor employed by the S.E.C., one Max Macreadie, had been engaged by the S.E.C. in tree lopping operations along this 22 K.V. line from Learmonth to Glenbrae in Glenbrae Road, Waubra in the very week before this fire. Macreadie had cut limbs from these pine trees in either December 1974 or January 1975 up to about the level of the conductors but he did not cut any limbs above that height (see page 699).

"The limbs I cut were fairly big limbs not small ones and because the work was urgent and I had other urgent work to do I only cut the limbs from the ground and cleared them from the fence." (at page 699).

Macreadie could not remember cutting any limbs on the pine trees in question on Thursday 10th or Friday 11th February, 1977 when he was in the area but in evidence (at page 699) he went on to say -

"I do remember that I looked at them and though that there were no limbs close to the line but that at some time the tops should be lopped. I do remember discussing with Kevin Lawler that the tops should be taken out of these pine trees. This was some time prior to 12th February, 1977 but so far as I was concerned there was no urgency for this work to be done."

(Lawler was the foreman of Mid-Western Region of the S.E.C.)

In this fire the S.E.C. failed to maintain standards which the Commission itself laid down after the 1969 fires. In 1970 the S.E.C. stated -

"The Commission has been strongly criticized for its failure to undertake adequate clearing, following a large number of fires reputed to be caused by trees and by conductors clashing. We must resist pressure to reduce the standards set out herein as it considered the minimum level which is reasonable to prevent, as far as practicable, repetition of the disasters which occurred on the 8th January, 1969".

The S.E.C. then laid down detailed instructions for tree cutting and lopping in the Mid-West Region and quite obviously it failed to observe standards which the Commission itself described as being "minimum standards". In this case, the S.E.C. and its contractor departed markedly from reasonable tree lopping and cutting standards and the fire occurred as a consequence. In my submission, the S.E.C. must bear the responsibility for this fire although the progress of the fire may have been stopped if the roadside verge had been cleared of the high, dry grass which encouraged the flames.

DAMAGE

1 unoccupied house was destroyed, 15 head of stock were burnt and approximately 120 hectares of grassland burnt out. Approximately 18 kilometres of fencing was destroyed.

SUMMARY

The fire was the responsibility of the S.E.C. for its failure to adequately clear the branches of two pine

trees which extended over high voltage conductors. In high winds one of the limbs of the tree broke, fell across the conductor and the conductor fell to the ground causing a fire in high, dry phalaris grass on the roadside verge. The fire commenced between Poles 13 and 14 on the Addington-Kal-Kal Road, adjacent to the property of John Moran at Waubra.

NORTH BYADUK FIRE

The North Byaduk fire occurred on 12th February, 1977 the alarm being given at approximately 1550 hours. The fire originated on a property known as "Karri" in Archers Road, Byaduk occupied by Geoffrey Michael Knight and his family. In my submission the cause of this fire cannot, on the available evidence, be established. At one stage it was suggested that a possible explanation of this fire was the fact that a hay stack in a yard at the rear of Knight's property caught fire by spontaneous combustion. In my submission, there is no evidence to establish this theory and it should be rejected. No blame, in my submission, can be attributed to Knight nor can the S.E.C. be held responsible in any way for this fire.

The hay in question had been cut on the 14th November, 1976 and it was not stacked until mid-January 1977. The weather in the weeks preceding the fire was not the type of weather which would lead to spontaneous combustion and the evidence established, in my submission, that the hay was dry before it was stacked by Knight.

The point of origin of this fire may have been situated in the vicinity of a private power pole (not the responsibility of the S.E.C.) on the north side of a hay stack at the rear of Knight's homestead. Mrs Knight was at home on the Saturday morning and she noticed that an air conditioning unit which had recently been installed "went off". She switched off the power to the unit and lay down without looking outside. Mr. Knight had been working at the Byaduk oval. He left there at about 1145 hours and drove to his parents house at "Black Hill" which was situated some 4 miles from his own property. He "smelt" smoke and drove towards his own property and his worst fears

were confirmed. When he was still about a mile from his property he could see smoke and flames at the rear of his homestead. When he drove into the property the fire had already burnt some 3 acres and was quickly burning away to the south. His hayshed was engulfed with flames and was ablaze. Later the same afternoon he endeavoured to ascertain the cause of the fire and he believed that it was probable that the fire was caused by a fuse box on the electric power pole (private service line) which was about 45 feet to the north of the hay stack.

On the 13th February, the day after the fire, he noticed the insulator had come away from the pole. He claims the fuse may have blown and some hot, molten wire may have fallen on to the ground. The S.E.C. checked the line at about 10.30 pm. and Mr. Knight claims that they told him the fuse was intact; the S.E.C. showed him a fuse that was intact. The power was switched on and the Knight's had power on the Saturday night. Then the power went off again.

At about 10.30 am. on the Sunday, Mr. Knight observed the wire detached from the insulator. The S.E.C. through a Mr. Littlechild, say that they inspected the substation pole at about 10 o'clock on 12th February. They found both the high voltage and low voltage fuses were intact. On the service line pole, while the 55 amp fuse had blown, the base of that particular pole was charred. Mr. Knight was advised that the fuse had blown on his private service pole but in the linesman's opinion that blown fuse had not caused the fire.

At the property there was, in fact, a pole, an S.E.C. pole with a substation on it. From that pole there were low voltage conductors leading to the private service pole situated to the north west of the hay shed, at a point beside a galvanised iron shed. From that private service pole there were two low voltage conductors leading to the shearing shed, and a further two low voltage conductors leading to the tank stand.

If it was an electrical fault which caused the fire (and there is no evidence to establish this fact), the fault was on the private service line and the S.E.C. could not, in any event, be held responsible. The cause of this fire remains somewhat of a mystery and, in my submission, an open finding should be recorded.

DAMAGE

This fire was very quickly controlled given the conditions which existed on the day. 5 persons sustained injury, but not serious injury, as a result of the fire, 1,000 hectares of pasture were burnt out and approximately 144 kilometres of fencing destroyed. 150 sheep and one bull perished and approximately 2,600 bales and 3,900 rolls of hay were destroyed.

SUMMARY

The cause of this fire, which originated at the rear of "Karri" occupied by the Knight family on Archer's Road, Byaduk, is unknown.

BALLIANG EAST FIRE

This fire occurred on the 12th February, 1977 with the alarm being sounded at approximately 1602 hours. The fire originated at the property of one Michael Cock in Sharkey's Road, Balliang East and was due, in my submission, ^(we) to S.E.C. conductors clashing and particles of molten metal being expelled in a northerly direction into grass on Cock's property. The fire then spread rapidly and burnt for a distance of some 12 kilometres and was ultimately brought under control of the outskirts of the township of Little River. In my submission, this fire could have been avoided had spreaders been placed between the conductors in question and I consider the S.E.C. is responsible for this fire and its consequences.

The fire was first observed by one Victor George Davis shortly before 1600 hours when he observed smoke coming from the direction of Cock's property whilst he (Davis) was outside watering his own property. Davis immediately alerted the Captain of the Balliang Rural Fire Brigade, Leonard William Peters. Peters then sounded the alarm and immediately attended the fire.

Reginald Edward James, a construction engineer in the employ of the S.E.C. examined the conductors in question on Tuesday, 15th February, 1977. He examined the low voltage conductors between Poles 13 and 14, on the south side of the roadway between the edge of the gravel road and the fenceline. James in evidence said - (at page 637)

"My investigation revealed evidence of recent arcing consistent with contact between the active and neutral conductors on the north side of the poles".

James findings were supported by the evidence of Ronald Leslie Russell, an Assistant Regional Officer of the C.F.A., Region 14. His observations were to the effect that there was an arc mark at a point approximately 30 yards from the most easterly pole and this mark was consistent with the conductors

having clashed. Russell believed that the fire originated at a point approximately 22 yards south of the area in which the conductors clashed. He went on to say in his evidence (at page 640) -

"It is my professional opinion that the fire was caused by the two supply wires touching in high winds with resultant molten metal or sparks being carried over the fence by the wind and igniting the grass in the paddock adjacent".

Tests carried out by the S.E.C. subsequent to the fires of the 12th February, 1977 have indicated that it is possible that small particles of molten metal can be carried a considerable distance, given the right conditions, and if some of these small particles of molten metal do land in dry grass fire can occur. Having regard to the allegations made after the fires of 8th January 1969 one might have expected these tests to have been performed before the disastrous fires of February 12th 1977 as it quickly became clear to the S.E.C. after the recent fires that spreaders were necessary in certain areas. Had spreaders been fitted between these conductors before the 12th February, 1977 the Balliang East fire would not have occurred. The S.E.C. should have realised that spreaders were required in Sharkey's Road well before the 12th February, 1977 and must, in my submission, bear the responsibility for this fire. However, I also consider that this was an area where the local landowners had not taken reasonable steps or precautions to protect their own properties from fire damage. Nevertheless, the responsibility for this particular fire rests, in my submission, with the S.E.C. In the future, the S.E.C. should have patrols which do report on areas where spreaders are or are likely to be required.

DAMAGE

In this fire 2100 hectares of grassland were burned out, approximately 1600 sheep and 1500 bales of hay were destroyed and 48 kilometres of fencing was destroyed.

SUMMARY

The Balliang East fire occurred at approximately 1600 hours on 12th February, 1977 on the property of Michael Cock in Sharkey's Road. S.E.C. low voltage conductors clashed and particles of molten metal were propelled to the south and the fire started with Cock's property and quickly spread to the south. This fire could have been avoided had there been a reasonable system of inspection by the S.E.C. of its conductors as these conductors "cried out" for spreaders to be fitted having regard to the length of the span between poles and the open area generally.

BEEAC FIRE

This fire occurred on 12th February, 1977 in Pierce's Road to the east of the main Ballarat-Colac Highway. The alarm was sounded at approximately 1500 hours and at the time there was a very strong northerly wind blowing. The flames quickly spread both to the south and to the east across grazing and farming land and was halted to the east of the Beeac township.

At first sight there seemed some doubt as to the responsibility of the S.E.C. for this fire having regard to the distance that the small particles of molten metal were required to travel to the point of origin of this fire. The proposition was that the fire started when particles of molten metal were blown from the point where the low voltage conductors clashed across the roadway and into grass hay on the southern side of the roadway to the south of the fenceline. Initially, the distance seemed too great for this proposition to be accepted. However, tests conducted by the S.E.C. since the recent fires have established that under certain circumstances particles of molten metal could travel a sufficient distance to have possibly caused this fire at Beeac. The tests were conducted under Laboratory conditions by Messrs. Hart and Pleasance on behalf of the S.E.C. (See Exhibit 216). Whilst the tests established (at page 1712) that the larger particles tended to retain their heat longer than the smaller particles it was rare for large particles to be emitted from conductors which clashed. Hart (at page 1712) said -

"Particles larger than 1.75 millimetres in diameter only constitute somewhere between half and one percent of the particles ejected from conductor clashes."

Hart considered that particles of less than 1.5

millimetres were a very doubtful proposition as ignition sources for the reason that their ignition threshold temperatures are greater than 1200C and the particles did not reach the ground at that temperature.

Naturally, the details of these laboratory tests must be perused but in one test (at page 1719) a particle of 1.5 millimetres diameter travelled 83 feet and had a temperature of 1566°C on landing (given the wind speeds and other details referred to in the test details. Reference No.6). A particle of 2 millimetres diameter under the laboratory conditions travelled 62 feet and had a temperature of 1580°C on landing. Hart, however, was careful to point out that he had not carried out any ignition threshold experiments for particles of varying sizes.

In my submission in the absence of any other reasonable explanation this fire commenced in grass hay to the south of the southern fence line and that a molten particle which was expelled from the clashing low voltage conductors was the cause of the fire. There is no doubt, either, that spreaders should have been inserted to separate the conductors after the 1969 fire which occurred in this general area. Proper maintenance inspections by the S.E.C. linesmen should have warned the S.E.C. about the potentially dangerous situation existing in Pierce's Road. However, according to a letter received from one Weber who is now living in New Guinea and who was not tested under cross-examination, he (Weber) had requested that spacers be placed on those lines after a fire in that area which occurred on 8th January 1969. Weber claimed that he requested spacers on those lines by telephoning the S.E.C. in Colac. He also claimed to have brought up the subject with the Weering fire brigade members (at page 997). However, the S.E.C. did not insert spacers until after the fires on February, 12th 1977.

In my submission, there is a further matter raised in the evidence which gives cause for concern regarding S.E.C.

installations generally particularly in the light of the failure of the S.E.C. to call any evidence from any Design Engineer in their employ at this Inquiry. Evidence was given to this Inquiry by an S.E.C. employee that he considered that the fire at Beeac commencing in Pierce's Road was due to faulty design on the part of the S.E.C. In my submission the responsibility for this fire also must rest with the S.E.C.

DAMAGE

As a result of this fire damage was not considerable in the light of other fires which occurred on this day. However two houses were destroyed, 16 properties were affected, 80 kilometres of fencing was destroyed and approximately 16 cattle and in excess of 200 sheep perished. A number of outbuildings and motor vehicles were also destroyed.

SUMMARY

This fire occurred on 12th February, 1977 in Pierce's Road to the east of the main Colac-Ballarat Highway. IN my submission, low voltage conductors clashed and particles of molten metal expelled from the clashing conductors igniting grass hay in a paddock to the south of the southern fence line.

CRESWICK FIRE

The fire at Creswick occurred on the 12th day of February, 1977 and its cause and point of origin is very clear. The fire originated on a grass verge to the east of the intersection of Campbelltown - Clunes Road and Weatherson's Road and was lit "by the hand of man". It is not necessary for this Board of Enquiry to determine whether the actions of the man concerned, Frederick Donald Lawrie, were deliberate but to say the least his actions constituted gross negligence having regard to the prevailing conditions.

The facts are shortly as follows. The alarm was given at 1328 hours and the temperature at the time was approximately 36°C. Humidity was 26% and the fire danger rating was very high. Initially the wind was from the north but the wind direction changed to the south-west at approximately 1855 hours. The hot north winds whipped the fire in a general southerly direction through the Ullina and Lawrence districts. At a point near Wheeler's Bridge the fire crossed the Creswick-Lawrence Road and burned south towards the township of Creswick itself. At the time the fire crossed Wheeler's Bridge it had travelled approximately 10 kilometres on a front of about 100 metres. The wind strength was estimated at up to 60 kilometres per hour and in those extremely difficult conditions the front of the fire spread to approximately 1 kilometre. The fire continued to burn towards Allendale and Broomfield and at time fire fighters estimated that the fire front was up to 3 kilometres in width. In spite of all possible efforts by the fire fighters the flames engulfed houses in Broomfield, Smokey Town and North Creswick and then swept through portion of the State Forest and jumped the Creswick-Daylesford Road at a point less than 1 kilometre from the Creswick township. The fire continued to burn through the State Forest and through areas such as Springmount and Cabbage Creek. Eventually the fire was held at Petticoat Plantation which is situated some 10 kilometres south of Creswick itself. One of the factors

contributing to the control of the fire was the south-westerly change which occurred at 1855 hours. Rain which fell early in the morning of 13th February, 1977 was also of assistance to the fire fighters.

This fire, lit by Frederick Donald Lawrie, commenced on the grass verge at the intersection of the Campbelltown-Clunes Road and Weatherson's Road adjacent to a property owned by one Joseph Robert Fawcett. Smoke was observed by a farmer, Francis Rinaldi, who was working on the roof of a high shed on his property which was situated about 8 kilometres from the point where the fire commenced. Shortly after he first noticed the smoke Rinaldi saw a white Falcon station sedan travelling in an easterly direction and away from the point where he first saw the smoke. Rinaldi was able to pin-point the origin of the fire having regard to his local knowledge. Rinaldi and his son intercepted the Falcon station sedan and this vehicle was driven by Lawrie. He, Lawrie, claimed that he had become lost whilst driving to Bendigo and he had "come across" the fire. He claimed that he attempted to extinguish the fire by means of a blanket but the flames were too fierce. Lawrie conceded to Rinaldi that he was a smoker and also admitted that he had been smoking in the car. However, at that stage, he claimed that he had used the ash tray. Lawrie also claimed that he was on his way to seek assistance when he was intercepted by Rinaldi. In fact, Lawrie did lend some assistance in the early endeavours to control the fire.

On the following day, the 13th February, Lawrie was questioned by the Police and in the course of that investigation Lawrie made certain very relevant admissions. He admitted that he had caused the fire when he threw a lighted cigarette out the window of his station sedan when he became lost. He then claimed that he did attempt to extinguish the fire but when he realised that it was beyond him he drove off to seek assistance. Lawrie admitted that he was aware of the fact that the day had been declared a day of Total Fire Ban. He maintained a firm denial when the Police suggested that he lit the fire deliberately.

Much suspicion, in my submission, surrounds Lawrie's behaviour but there is no evidence before the Board which established that Lawrie deliberately lit this fire. However, Lawrie's actions in the prevailing conditions could, at best, be described as gross negligence.

DAMAGE

Very great damage was caused by this fire - although there were no serious injuries. 14 houses were destroyed together with some 33 sheds and outbuildings. Sixty three farmers were affected and 3850 hectares of farm land were burnt out. Approximately 1670 hectares of State Forest was affected and the Forest Commission estimated their loss as being in the order of \$430,000-00. More than 165 kilometres of fencing was destroyed and stock losses were moderately high with approximately 2822 sheep and one bull being destroyed. 22,590 bales of hay were also destroyed. The township of Creswick was also seriously threatened by this fire.

SUMMARY

This fire originated on a grass verge adjacent to the property of one Joseph Robert Fawcett and in the immediate vicinity of the intersection of the Campbelltown-Clunes Road and Weatherson's Road. Responsibility for the fire rests with Frederick Donald Lawrie who, on his own admission, threw a lighted cigarette from his station sedan on a day of total fire ban and whilst the fire risk was critical.

TATYOON/STREATHAM FIRE

The Tatyoon-Streatham fire originated on the farm property of Joshua Charles Hamilton situated on Buangor Road, Tatyoon. The fire commenced at approximately 1318 hours and it had very disastrous consequences. One man Graham Donald Dunn died as a result of severe burns when he was trapped in the flames near his own homestead.

The point of origin of this fire was on the south side of Buangor Road, which roadway ran east and west, some 10 metres within Hamilton's property. Running parallel to the fence line and inside Hamilton's property was a plantation of trees consisting mainly, but not entirely, of sugar gums. The fire commenced between Poles 11 and 12 of a single wire 12.7 KV line which was a spur line. From the outset Hamilton stated that the fire started because there had been a join (sleeve) in the conductor and that the sleeve had broken or come apart and the conductor then came to the ground and caused the fire to start in the grass below. Hamilton maintained that view in the evidence which he gave to the Inquiry. The S.E.C. linesmen gave evidence to the effect that there was not any sleeve in the conductor at the relevant point between Poles 11 and 12. Hamilton, however, stated (at Page 725) to the Police in the course of an interview as follows -

"I'm sure there was a join there where it has broken. I've noticed it there before and thats how it(the conductor) broke".

Detective Sergeant Quirk interviewed Hamilton at his property on the 13th February, 1977 and the following question was asked and answer given (at page 725)-

Quirk : "Well, it would appear as though a limb has fallen and broken these lines. Would you agree with that?"

Hamilton: "No, there were definitely no trees down when I got here and that was straight away. They fell down afterwards ."

In my submission there is no evidence, other than Hamilton's own statement, which in any way establishes the existence of any sleeve in the span of conductor between Poles 11 and 12 and indeed the credible evidence including expert evidence is all the other way. I consider that Hamilton's theory regarding the sleeve should be rejected. Likewise, in my submission, his evidence claiming that there were no trees down when he arrived at the fire scene should also not be accepted.

In my submission, the Tatyoon-Streatham fire was caused by the limb of a sugar gum tree breaking off and then coming into contact with the S.E.C. conductor. There was evidence of a burn mark and an indentation where the conductor had rested on portion of the limb of this sugar gum tree which was tendered as an Exhibit in the course of this hearing. The conductor then melted and the conductor and the broken limb came to the ground and fire commenced in the grass below. Police observations were to the effect that at a point approximately 3 metres to the west of where the conductor had originally been there was a sugar gum tree approximately 10" in diameter. There was a recent break at a point about 25 feet above ground level. The Police did not initially observe the top of that sugar gum tree but it was found on the 17th February 1977 when the Police returned to the point where the fire originated for a further examination of the general area. The "broken off" top of the tree was about 16 paces in length and visual observation established that it was in fact the top of the broken sugar gum tree which they had observed on the previous Sunday.

The clearing through which the conductor passed between Poles 11 and 12 of the spur line was 13 metres in width overall. It is likely, in my submission, that at a point above the position where the conductor was erected, one limb of a sugar gum tree sloped across and above the conductor. The S.E.C. claimed that there was adequate clearance around the conductor and on

their measurements the nearest foliage was between 2-2½ metres from the conductor. However, it should not be forgotten that some of the sugar gum trees forming part of the plantation were up to about 80 feet in height.

In my submission there was inadequate clearance of the trees in this plantation and inadequate clearance between the trees and the conductor. The clearing fell far short of standards laid down by the S.E.C. itself after the 1969 fires which standards were described as minimum standards. By the exercise of reasonable care and judgment on the part of S.E.C. linesmen who had inspected this area before the 12th February, 1977 and compliance with the standards laid down with regard to tree cutting and lopping, this fire and its disastrous consequences may well have been avoided. Photographs tendered in evidence demonstrated the dangerous situation which the S.E.C. had allowed to exist and in my submission there is no doubt that the responsibility for this fire must rest with the S.E.C. by reason of its failure to adequately cut back the plantation in order to allow adequate clearance of the conductor between Poles 11 and 12. The tree cutting activities of the S.E.C. in this region generally left much to be desired and indeed, Douglas James Howard, the Assistant District Manager of the Ararat branch of the S.E. C. virtually conceded (at page 798) that the clearance was inadequate. Howard was asked whether he regarded a clearance of approximately 40 feet as adequate in that area. He replied "Not with those trees as they are at the moment".

He was asked whether the gap should have been a great deal wider before 12th February and Howard replied -

"It would have been preferable had it been wider".

The S.E.C. standards regarding tree cutting and lopping in this region were gradually relaxed and ultimately by February 1977 they were, too say the least, lax. It is imperative that the S.E.C. raise these standards immediately and embark, as far as possible, on an active and vigorous policy of tree lopping and cutting in the Mid-Western Region. Compliance

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with its own standards laid down after the 1969 fires may well have avoided this particular disaster.

DAMAGE

In the course of this fire the township of Streatham was virtually wiped out and 20 houses, 5 shops, 2 garages, a church and two classrooms of the Streatham School were destroyed. The fire burnt across 72 farm properties, and 26,700 hectares were burned out. 16 farm houses were destroyed together with approximately 70 outbuildings. Large quantities of fencing was destroyed, 262,000 bales of hay burnt and just under 100,000 sheep and in excess of 1200 cattle perished in the flames. I referred earlier to the tragic death of Mr. Dunn as a result of extensive burns which he received near his homestead.

SUMMARY

This fire was caused by the limb of a sugar gum tree breaking and falling across an S.E.C. conductor between Poles 11 and 12. The conductor was brought to the ground and fire started in the grass below. There was inadequate clearance for this conductor through the plantation, the total of the cleared area being only 13 metres, and the limb in question extended out and over the conductor. In my submission, the responsibility for this fire must rest with the S.E.C. for its failure to have an adequate gap in the plantation for this conductor and for its failure to comply with minimum tree cutting and lopping standards laid down by the Commission itself following the 1969 fires.

The fact that the line had apparently been patrolled by an S.E.C. linesman, Harold Owen, on the 28th July, 1975 does not improve the position for the S.E.C. Owen's statement which was read to the Board (see page 865) contained this sentence -

"The conductor running through the plantation at J. Hamilton's had adequate clearance from all trees under the condition of swing in a high wind and it was considered no cutting

of limbs was necessary".

In my submission, there was an abject failure by the S.E.C. to comply with reasonable standards for the clearance of its conductor.



WALLINDUC/CRESSY FIRE

This fire also occurred on the 12th February, 1977 and the alarm was sounded at about 1348 hours. The fire danger rating in the area was extreme and the temperature varied between 35°C and 40°C. The fire originated at Wallinduc, approximately 23 kilometres from the Rakewood township and at a point 4.6 metres south of the base of an S.E.C. pole known as Pole 66. Pole 66 was situated on a property owned by one Featherston. The responsibility for this fire must rest with the S.E.C. and, in my submission, their responsibility for the fire can be established on any of three different bases. First, there was inadequate tree clearing on the property of one Ian White situated on the Berrybank-Wallinduc Road. The limb of a sugar gum tree on White's property brought down a 12.7 KV conductor across a wire boundary fence at his property at approximately 1330 hours on February 12th 1977. The evidence clearly established, in my submission, that the clearance between the sugar gum trees and the high voltage conductor was not within permissible or safe limits and that fact was confirmed by a Survey Plan prepared on behalf of the S.E.C. after a survey conducted on 2nd March, 1977 (See Exhibit 135). The inadequate tree clearing by the S.E.C. was highlighted, in my submission, by White's evidence to the effect that he himself had considered that clearance for the conductor was insufficient and about 8 months before the tree fell across the conductor White had called at the S.E.C. Office in Ballarat and requested the S.E.C. to clear limbs from the line. The S.E.C. did not heed White's request and there was no clearance work performed until after the severe fire which occurred on the 12th February. As a result of the limb bringing down the conductor across the wire boundary fence on White's property the fuse, an EDO type fuse controlling the Wallinduc line operated

on Pole 66 on Featherston's property. The operation of that fuse gives rise to S.E.C. responsibility for the fire on two additional bases. First, the evidence of one Cooper a linesman "A" Grade with the S.E.C. (at Page 1081A) established that the fuse controlling the Wallinduc line was not fitted with a cap when he and another S.E.C. linesman went to replace the fuse after the fire but on the 12th February, Cooper said -

"I was standing on the pole dogs and I noticed that the EDO fuse controlling the Wallinduc line did not have a cap on it and ~~that~~ the top of the fuse was gone from the fuse holder" (at page 1081A).

It was apparent that there had been a human error on the part of the S.E.C. linesman who had last replaced the fuse on Pole 66 controlling the Wallinduc line before the 12th February, 1977. That linesman had failed to replace the screw on the cap after he had replaced the fuse. Expert evidence also corroborated the evidence of Cooper. John Charles Ellis, a Metallurgist and the head of the Materials Technology Section of the Research and Development Department of the S.E.C. gave evidence regarding the fuse in question (at Pages 1551 - 1559) and a number of tests were carried out on this fuse and other similar fuses. Ellis said (at Page 1555) -

"All the observations made and all the test performed indicate that the cap was not in position on the top of the White fuse (the relevant fuse on Pole 66) on 12th February, 1977. It has not been possible to assess precisely how long the cap had been missing from the fuse but the extent of corrosion in the area normally covered by the cap was similar to that in the areas not covered on both the White and Glenfine fuses. From this it could be deduced that the cap may have been missing for a considerable period of the fuse's service life".

Ellis also said that the presence of what appeared to be recent arc marks on the top metal fitting could also be consistent with the absence of the cap when the fuse operated, the arcing being caused by unrestrained movement of the top portion of the fuse link when the fuse operated but further tests would have to be undertaken to confirm that theory. The S.E.C. also arranged for an independent examination by Technisearch Ltd. and the findings of that organization confirmed that findings made by Ellis were correct.

What was the likely effect at the time of operation of an EDO fuse of the absence at the time of the screw on fuse cap? Evidence was given on that matter by Anthony Thomas Wilson, Development Engineer, Distribution, of the S.E.C. (at page 1082). Wilson was of the opinion that without the fuse cap -

- "(a) particles from the fuse element are likely to be vented from the top of the fuse tube and will, therefore, not be caught by the fire choke.
- (b) the hot top of the fuse link with the "button" attached is likely to be ejected during fuse operation or will be dropped from the fuse body as the drop out link operates".

The evidence established that the particles of metal expelled from the fuse were capable of starting a fire.

The third basis on which responsibility must rest with the S.E.C. is on the ground that there was inadequate instruction given to linesmen concerning the importance of screwing the cap back on after replacing the fuse (see page 1083).

There is no doubt, in my submission, that the responsibility for this disastrous fire must be borne by the S.E.C. on all the bases to which I have referred.

DAMAGE

Three persons died in this fire. Ian George Bath was found burnt to death in the ruins of his burnt out house and two brothers, Neville and Graham Kirk, were also burnt to death in their farmhouse. 39 houses were destroyed and a number of public buildings including the Scout Hall at Cressy, the Memorial Hall, the Werneth State School and the tennis complex at Werneth. There were huge losses of machinery, farm implements and motor vehicles generally. In excess of 100,000 sheep and 2,000 cattle were destroyed together with several horses and pigs.

SUMMARY

This fire was the responsibility of the S.E.C. on the following grounds -

- (a) inadequate tree clearing on the property of Ian White in spite of a request some 8 months before February, 1977 by White to the Ballarat Office of the S.E.C.
- (b) human error on the part of the S.E.C. linesman who last replaced the White fuse on Pole 66 as the screw on fuse cap was absent from the fuse when the fuse operated on 12th February, 1977 after the sugar gum tree brought down the 12.7 KV conductor across a fence at White's property.
- (c) inadequate instruction by the S.E.C. to linesman generally as to the effect of a failure to replace the screw or cap.

MINGAY/LISMORE FIRE

This fire also occurred on the 12th February, 1977, the alarm being given at approximately 1510 hours. The fire originated on the Camperdown-Ballarat Road to the south of Bucholz's Lane and in the immediate vicinity of an S.E.C. installation known as the Bucholz Isolating Sub-Station. On the evidence it is my submission that the responsibility for this fire rests with the S.E.C. with the fire starting due to a surge diverter shattering and the fractured pieces of the surge diverter falling to the ground in the vicinity of the foot of the pole and the high phalaris grass at that point igniting. There are other possible causes of this fire which were advanced in evidence but, on the balance of probabilities, I consider that the fracture of the surge diverter was the likely cause of this Mingay-Lismore Fire.

Graham Peter Eddy, a registered electrical contractor, lived in the immediate area of the point of origin of this fire. Shortly after lunch on the day of the fire he observed that power to his house was off. Eddy looked outside towards the S.E.C. transformer pole and he then said -

"I could see flames around the base of the pole" (at page 1318).

After giving directions to members of his family Eddy ran to the pole wearing only a pair of shorts and having a wet bag as his only equipment. By the time he arrived at the pole the fire was beyond his control and was "racing away to the south" (at page 1318). The fire also was burning back to the north and he noticed fire some 4 feet to the north of the pole. On the day after this fire Eddy noticed shattered pieces of surge diverter in the general area at the foot of the pole. Eddy made various estimates of the height of the flames when he first observed them and these

estimates varied from 6 - 7 feet to up to about 10 feet (see page 1324). Eddy estimated that the burn back stopped at a point approximately 40 yards from his house. He agreed with the statement made by Athol Hodgson to the effect that the fire burnt back about 185 feet to the north of the S.E.C. pole.

William John Featherston also arrived on the fire scene shortly after the fire occurred and he came across the fire as he was driving to protect his employers property at Vite Vite. In his statement Featherston said (at page 1306) -

"I had just passed Bucholz Lane when I saw a fire burning at the foot of an S.E.C. pole".

Featherston drove past the pole and as he turned his car around he noticed a man in shorts beating the fire with a bag. This man was Eddy. By the time Featherston had parked his car, Eddy had left the scene and attempts by Featherston to extinguish or control the fire were unsuccessful.

The Assistant District Manager of the Camperdown Branch of the S.E.C., George Graeme Saffin, stated in evidence that two linesmen had attended the Bucholz Isolating Sub-Station at Mingay on 13th February, 1977 (at page 1337). From what Saffin was told it appeared that the 3 EDO fuses at the sub-station had operated. One EDO fuse protected the centre 12.7 Kv S.W.E.R. Bucholz spur line and the two other fuses protected the isolating transformer from each phase of the 22 KV Skipton Road Spur line. All 3 fuses were replaced by the linesmen and the fuses held. The linesmen patrolled the Bucholz Spur from the roadway and claimed that they were unable to find any fault. The 3 fuses at this Bucholz Isolating Sub-Station had also operated about a fortnight before the 13th February, 1977 and Saffin believed that the fuses had operated due to lightning.

Observations made by the S.E.C. Resident linesman, William Alan Skene, were to this effect (at page 1341) -

"I made a visual inspection and noticed that both

the 22 KV and 12.7 KV E.D.O. fuses on the sub-station were blown, the earth cover strips on the sub-station were burnt off from ground level to a height of about 5 feet and the copper earth wires were annealed from heat due to a fire in the vicinity of the sub-station pole. The valve type lightning arrestor on the 12.7 KV. side of the lightning arrestor was still in its bracket and attached to the earth wire. Shattered pieces of lightning arrestor were on the ground around the foot of the pole".

Skene then described how he patrolled the Bucholz Spur line by motor vehicle and did not find any further problems.

Anthony Thomas Wilson, Development Engineer, Distribution with the S.E.C. gave his opinion as to the possible causes of this fire. He conceded (at page 1345) that the particular type of surge diverter which was under consideration as the cause of this fire had been a problem to the S.E.C. He said (at page 1345) whilst examining a similar type of surge diverter that had been in operation at the Bucholz Sub-Station

"This particular model.....has a problem in that these seals are not as good as they should be and moisture can get into the device. The problem with moisture is that you can get corrosion. This one has corrosion in it, not as bad as the one that was at Bucholz.....This (corrosion) has two effects. One is that it alters the characteristic of the device firstly, and secondly, with the arcs that pass through the thing, it can enable internal flash-over and build up of extremely high pressure, and the device can, and does, in some cases disintegrate"..

Wilson estimated that the S.E.C. lost about 1% of surge diverters through that mechanism of failure following a surge. When a surge diverter does explode the pieces of the diverter are hot and it was possible that they were sufficiently hot to

cause a fire given the right conditions at the base of the pole.

Wilson's evidence was to the effect that the failure of the surge diverter would not cause the 12.7 KV fuse to operate and therefore as there was ample evidence which established that the 12.7 KV fuse did blow there must have been a fault along the Bucholz Spur line which "blew the fuse and caused the surge diverter to operate" (at page 1350). The 22 KV fuses then operated.

Wilson stated (at page 1351) that to explain the operation of the 12.7 KV fuse on 12th February, 1977 there must have been a fault somewhere on the 12.7 KV spur line on the load side of the fuse. As there was no evidence of any tree or limb in contact with the line Wilson gave the following as a possible explanation (at page 1351) -

- "1. The fire started in the vicinity of the pole from some unknown cause.
2. Subsequently, the hot ionised gases from the fire reduced the normally adequate electrical strength of the air between the overhead conductors, resulting in a flashover between one of the 22 KV conductors and the 12.7 KV conductor with sufficient current flow to cause the 12.7 KV fuse to operate".

In my submission, that is an unlikely possibility which should be rejected. In truth, I seriously doubt whether Mr. Wilson himself believed his explanation was really feasible . He agreed (at page 1362) that it would be a coincidence. Wilson conceded (at page 1360) that it was possible that the diverter could have failed on its own although he did state that he required more evidence regarding the moisture level. He conceded (at page 1361) that there was evidence which would enable the Board to find that the surge diverter could fail having regard to the corrosion.

At page 1362 Wilson was cross-examined and replied as follows -

"Could this be an explanation, that portion of a tree is in contact with the 12.7 KV spur line and that caused the fuse to operate? Yes.

The moisture caused the surge diverter to fail and fracture? Yes.

The portions of the surge diverter, Or some portion of the surge diverter fell to the ground and possibly caused the fire? Yes."

There seems no doubt, in my submission, that contact by a tree or a branch of a tree for about a second with the 12.7 KV conductor could cause the fuse to operate on the Bucholz Sub-Station. Given the high winds and extreme conditions present during the late morning and afternoon of the 12th February, 1977 such contact would not be unlikely. Even on Wilson's theory the surge diverter should not have exploded (see page 1787) and if there had been a flashover which created a surge of current that was one of the events which the surge diverter was designed to handle. On any version this particular surge diverter failed and shattered into many pieces. The S.E.C. readily conceded that this type of surge diverter had presented problems in the past and the S.E.C. were in the course of gradually replacing these surge diverters. In my submission, this surge diverter was defective due to corrosion and that it shattered, fell to the ground and the hot pieces of the diverter caused fire to start in the high phalaris grass below. In my submission, the S.E.C. are responsible for this fire due to a defective surge diverter remaining on the Bucholz Sub-Station and failing to perform its allotted task.

DAMAGE

8 property owners were affected by this fire but no houses were destroyed. 90 kilometres of fencing was destroyed and

approximately 7 outbuildings burnt out. The fire burnt over 1638 hectares of grazing land and more than 2,000 sheep perished. 7,750 bushels of grain and approximately 21,000 bales of hay were destroyed.

SUMMARY

This fire occurred south of Bucholz's Lane on the Camperdown-Ballarat Road at the foot of an S.E.C. installation known as the Bucholz Isolating Sub-Station. Although different theories have been advanced in my submission, a surge diverter failed, shattered and hot pieces of the diverter fell to the ground at the foot of the pole igniting dry, high phalaris grass in the vicinity.

STRATHMORE FIRE

The fire at Strathmore (or Glenthompson) occurred on the 12th February, 1977 at approximately 1215 hours or thereabouts. It originated on a property known as "Roanoke" which is occupied by two Lloyd families. The property is situated in Lovatdale Lane. "Mick" Lloyd and his wife lived in the main house whilst his son and his son's wife, the Fred Lloyds, lived in a smaller house about 500 yards or thereabouts from the main homestead. In a small holding paddock of some 2 or 3 acres between the two Lloyd houses there was an S.E.C. pole, Pole 11 of the Glen Fraser spur line. There was a transformer on the pole and from this Pole 11 there were three private service lines. Attached to the high voltage conductor was a single wire earth return (S.W.E.R.) clamp on type fuse. From Pole 11 one private service line led to Mick Lloyd's homestead another to Fred Lloyd's house and the third private service line led to a cottage and woolshed. There were 3 low voltage conductors leading to Mick Lloyd's house and 2 low voltage conductors leading to Fred Lloyds house.

Two main possibilities have been advanced as to the cause of this fire. The Lloyd's (supported by a body of other evidence both lay evidence and expert evidence) claim that the fire started at the foot of Pole 11 due to the operation of the clamp-on fuse. It is claimed, and the fact is, that this type of fuse can start a fire given the right conditions when incandescent particles are expelled from the fuse and fall to the ground. On the other hand the S.E.C. claim first that the fire started not under Pole 11 but to the north of Pole 11 due to particles of molten metal being expelled from the low voltage conductors which clashed to the north of Pole 11. Alternatively, as I understand the position, the S.E.C. claim that if the fire started at the base of Pole

11 and not to the north of the pole as originally claimed then the fire was still caused by particles of molten metal expelled from the clashing low voltage conductors to the north of Pole 11 rather than by the operation of the clamp-on type fuse expelling incandescent particles to the ground. The S.E.C. claim that these particles of molten metal could have been expelled by the low voltage conductors and these particles could have been propelled by the northerly wind to a position at the foot of Pole 11. In my submission, the Strathmore fire commenced at the base of Pole 11 due to the operation of the clamp-on type fuse when incandescent particles were expelled from the fuse and fell to the ground at the base of Pole 11 igniting tinder dry grass at that point.

In my submission, compelling eye evidence as to the point of origin of this fire was given by Alan Phillip Roll whose property was south-east of the Lloyds and about 1 mile from Pole 11. Roll's property was elevated and "looked down towards Lloyds" (at page 148). Roll went on to say (at page 148) -

"I am able to see the transformer pole on Lloyd's but because of a number of large red gum trees I can see the surface of the paddock in which the transformer pole is situated only for a very short distance to the north of the pole".

Roll in the course of his evidence made several estimates as to the distance he could see to the north of the pole varying from "about 15 feet" (at page 149) to "10 feet at the most north of the pole" (at page 151). However, the significance of Roll's evidence is, in my submission, his observations regarding smoke which he noticed in the area of Pole 11. Roll said (at page 148) -

"I saw a small puff of smoke rising in the area of Lloyd's transformer pole. It was very small. It was to the south side of the pole and there was no sign

of smoke or fire to the north of the pole".

Later in his evidence Roll stated (at page 149) that the puff of smoke that he had observed was "10 to 12 feet to the south side" of the pole. When he arrived at Lloyd's property Roll observed that there was burning to the north of the pole which he described as "back burning". Roll was asked (at page 152 - 3) -

"At that time did you observe there was a burning to the north of the pole, I mean the one which had the transformer on? Yes. It had been back burnt and had been dampened out".

There was other evidence with regard to "back burning". Roderick Frazer (at page 179) stated -

"When I got into the paddock (Lloyd's holding paddock) I observed that the fire was burning back against the wind". Later he said "the fire had burnt around the pole and was burning back towards the gate" (at page 179).

Frazer was questioned in some detail about the back burning which he had observed (at page 182) -

"So that there was then at that time quite a deal of burnt grass to the north of the pole? Yes, I would say 10 metres.

39 feet? Yes.

Something like that? Yes.

Not all of it was burn back, was it?

When I arrived it was all burn back.

Slowly? Yes.

In my submission, the evidence of Robert Henry Morrall, a C.F.A. Regional Officer in charge of Region 5, is also of considerable significance. The evidence disclosed that Morrall was experienced in back burning. He believed that it was quite possible that the fire would have burnt back against the direction of the wind in the conditions prevailing on that day. (at page 214). He gave as his reason the action of the trees, the sheltering of the trees, reducing the wind

velocity at that level. (see page 214).

Morrall, in a statement which he had prepared, stated that an S.E.C. fault was responsible as the cause of this fire.

His reasons for this conclusion were stated as follows (at page 214) -

"the position of the burning, the directions in which the burning spread, in particular across the gravel laneway to the horse paddocks on the other side".

Fred Lloyd and his wife Joan also gave relevant evidence as to the point where the fire originated. Fred Lloyd (at page 186) stated that "there was a bright flash like a lightning flash which lit up the kitchen and the lounge".

He went outside his house, looked in the direction of the pole and observed (at page 186) -

"smoke at the base of the pole on the southside of the pole. When I saw the smoke it appeared to be approximately 2 feet south of the pole and less than 6 feet in height and not very widespread".

Joan Lloyd (at page 248) also described a "terrific flash" which was like lightning. I do consider that the "flash" which the Lloyds observed was a flash due to the operation of the fuse on Pole 11 but on the evidence of Knoop, a registered electrical contractor, I consider that the flash is more likely to have occurred by reason of the fact that the low voltage conductors leading from Pole 11 to Fred Lloyd's house clashed in the vicinity of the house. There is evidence to support this view in Knoop's evidence (at page 289A) .

In my submission, there is abundant evidence which establishes that the fire started to the south of Pole 11 and not to the north of the Pole as alleged originally by the S.E.C. There is a compelling body of evidence, in my submission, which establishes that the burning to the north of the Pole was "back burn". In addition to the eye witness

evidence to which I have referred and the opinion evidence given by Morall, the C.F.A. Regional Officer, the opinion of Dr. Blake (at pages 1751 - 3) is also relevant.

The evidence has established that the clamp on type fuse can eject or expel incandescent particles of sufficient size and heat to start a fire given the right conditions. Those conditions existed, in my submission, on the day of the fire as the grass at the foot of Pole 11 was dry. There is uncontradicted evidence which establishes that the clamp on type fuse on Pole 11 did operate. The cause of the fuse operating is likely to have been a clash between low voltage conductors on one of the private service lines. The S.E.C. allege that the clash between the conductors occurred to the north of Pole 11 and this could have been the situation. However, it is at the end of a long range of unlikely possibilities, in my submission, for particles of metal to have been expelled from those clashing conductors particularly as they are copper conductors to a point at the foot of Pole 11 and to the south of the Pole. The evidence is consistent, in my submission, with the fuse operating and expelling incandescent particles onto the dry grass thereby starting the Strathmore fire. The S.E.C. should bear the responsibility for this fire.

*argued
cause of
death*

DAMAGE

The Strathmore fire caused considerable damage and approximately 7,200 hectares of pasture was burn out, approximately 272 kilometres of fencing was destroyed, 46,000 bales of hay burnt and approximately 11,000 sheep and almost 100 cattle perished.

SUMMARY

This fire originated on the Lloyd's property known as "Roanoke" at Lovatdale Lane. The fire commenced to the south of Pole 11 due, in my submission, to the operation of a clamp-on type fuse expelling incandescent particles onto the dry grass below.

PURA PURA FIRE

The fire at Pura Pura occurred on the property of one Walter Frederick Petrass and the alarm was sounded at approximately 1245 hours on the 12th February, 1977. Once again, in my submission, this fire was due to inadequate tree clearing by the S.E.C. and an S.E.C. high voltage conductor came into contact with a branch or a number of brandes of a sugar gum tree. The S.E.C. conductor in question passed through a plantation of sugar gum trees. The branch or branches that contacted the conductor caught fire, fell to the ground and the grass in the immediate vicinity became alight and the fire spread from that point.

Temperatures in this area in the days preceding the 12th February had been high and there had not been any rainfall of any significance since mid-January. The temperature on Friday 11th February had been as high as 39°C and on the Saturday at 1300 hours it was estimated at approximately 35°C rising later in the afternoon to 36°C. This fire, commencing in the Petrass property, was fanned initially by a strong north wind and it spread to the south and south east on a wide front. It travelled to the Mt. Elephant and Derrinall area and indeed burnt to the very edge of the Derrinall township. There was a wind change shortly after 1400 hours and the fire then burnt back towards its point of origin. This Pura Pura fire eventually joined the Streatham fire and ultimately both fires were brought under control.

Two days after this fire occurred S.E.C. Officials inspected the fire scene where the blaze commenced and they observed that the tops of several sugar gum trees had been in contact with the conductor known as the Trewliss Spur line. It was this conductor which passed through the

plantation of sugar gum trees in Petrass' property. The top section of one tree was denuded of its leaves, the branches were dry and brown and the indications were all too clear that the high voltage conductor had been in contact with the branches for some time. In addition, other branches within 30 metres of the conductor also demonstrated signs that they had been in contact with the conductor. There is no doubt, in my submission, that the clearance for the conductor through this plantation of sugar gum trees was inadequate and fell far short of reasonable standards which should have been applied by the S.E.C. There were a large number of sugar gum trees in dangerous proximity to this high voltage conductor and these trees should have been removed well before February 12th, 1977. This is particularly so when one considers the fact that Petrass had given a warning to S.E.C. employees shortly before Christmas 1974 that trees in this plantation were in close proximity to the conductor and at the scene he requested the S.E.C. employees to cut back the trees. Petrass was told by the linesmen that his request would be reported to the local centre and he would be informed when a tree lopping party would attend to the problem. In fact the S.E.C. did not take any steps to extend the gap in the plantation before the day of this fire but, on the other hand, Petrass did not take any steps to follow up the request that he had made when the linesmen were on his property in spite of the complete lack of action by the S.E.C. Further, it was possibly an unfortunate time to make such a request to the S.E.C. linesmen who had attended the property at Petrass' request to attend another problem which was in fact not a problem for the S.E.C. as it involved Petrass' private service line. Nevertheless, I accept that the S.E.C. were in fact warned of the problem which ultimately caused the fire more than 12 months before February 1977 and yet not step was taken to remedy the situation. The S.E.C.

Survey Plan dated 12th March, 1977 (Exhibit 150) demonstrated the sag in the conductor whilst the Survey Plan (Exhibit 151) demonstrated vividly the problem which existed in this plantation. There was a "burst of energy" by an S.E.C. tree cutting party "after the horse had bolted". In my submission, the S.E.C. should, as far as practicable, ensure that a potential danger such as existed in this plantation is removed before disaster occurs. If the tree cutting specifications issued by the S.E.C. after the 1969 fires had been adhered to this fire might not have occurred. Steps must be taken in the future by the S.E.C. to guard against similar occurrences as days such as the 12th February, 1977 have occurred in the past and doubtless such days will again occur in the future. On days such as the 12th February, foliage or regrowth which may ordinarily appear to be clear of the conductor is whipped into contact with the powerline thereby causing fire. In my submission, the S.E.C. in the future must take all reasonable steps to guard against similar incidents such as occurred on Petrass' property on 12th February, 1977. The S.E.C. should also, in my submission, have given consideration to relocating this spur line to avoid the plantation in question.

DAMAGE

The damage caused by this fire was very considerable and Richard George Hearst died when he was caught in the flames whilst attempting to plough a fire break on a property at Vite -Vite. In addition there was considerable property damage with 14 homes being destroyed. 91 property owners were affected and approximately 18,600 hectares of grazing land was burnt out. Approximately 50,000 sheep died as a result of the fire and just under 1,000 cattle were destroyed.

SUMMARY

This fire occurred on 12th February, 1977 on the property of one Petrass. An S.E.C. conductor passed through a plantation of sugar gum trees, came into contact with a branch or branches of one of the trees and fire started in the tinder dry grass below when one or more of the branches fell to the ground.

PENSHURST FIRE

The fire at Peshurst also occurred on the 12th February, 1977 and the alarm was sounded at approximately 1305 hours. This fire originated on the southern side of McArthur Road approximately 2 kilometres from the Peshurst township and at a point between properties owned by Michael Page and Albert King respectively. On a reading of all the evidence including a consideration of the evidence of soil analysis it is my submission that this fire commenced in an area which had been "burnt off" by members of the Gazette Rural Fire Brigade on the 10th February, 1977. I believe that the fire had not been fully extinguished by the members of the Brigade and therefore responsibility, but not necessarily legal liability, rests with the Brigade and consequently the C.F.A. having regard to the provisions of the C.F.A. Act 1958.

The fire commenced in an area which some witnesses described as a peat swamp or "peaty" area. Whilst the soil analysis report indicates that the soil which was analysed was not peat there is a large and compelling body of evidence, which in my submission should be accepted, to the effect that there were many tussocks in the general area burnt off by the Brigade two days before the fire commenced. The evidence came, in general, from men experienced in local conditions and who were aware of the fact that peat could be retained in or under these grassy tussocks and, given the right conditions, the tussocks could re-ignite and the fire could spread. Those conditions did exist on the 12th February and, in my submission, one or more of the tussocks ignited thereby causing the fire which has severe consequences.

According to one Albert King the Gazette Fire Brigade burnt a strip estimated at between 10 - 15 yards in width along the southern side of McArthur Road on the Thursday preceding the fire. Clarence Burger, the Captain of the Gazette Rural Fire

Brigade disputed the width of the area burned off and claimed in evidence that the method employed was to burn or strip about 5 yards wide by spraying the grass at the edges of the area to be burnt before the fire was lit, then to light the fire and later extinguish it. Burger claimed that at the time the Brigade members left the area there was no sign of any fire. Burger went on to say :-

"At least 1500 gallons of water was poured on the area where it is alleged the Penshurst fire started. This was done because of the tussocky nature of the ground in which it is sometimes difficult to extinguish a fire and because I was aware that the following day, Friday the 11th, was day of "total fire ban". (page 609).

On Friday, 11th February, at about 0800 hours Burger patrolled the area which he had burned off the previous afternoon and evening and he did in fact see smoke rising in one place and he took the necessary steps to extinguish that fire. The smoke that Burger observed was some distance from the area where the fire commenced on the following day. Burger again patrolled the area at three hourly intervals, at 1100 hours and 1400 hours and he did not observe any further smoke. Burger went on to say -

"I am satisfied that the fire which was lit during the protective measures carried out on Thursday 10th February was out. I do not believe that the Penshurst fire was caused by the protective measures on that day". (page 610).

There were eye witness observations from Albert King and his son-in-law Graeme King concerning the point of origin of this fire. Both King's saw smoke rising from over near the old slaughter yards. The old slaughter yards were in the general area of the tussocky land which the Brigade had burned off. Albert King had himself passed the area where the fire commenced on Friday 11th and the morning of Saturday 12th February 1977 and on neither occasion did he see any sign of either smoke or fire. However, he was well aware of the

characteristics of the area and King was in no doubt that in spite of large quantities of water being pumped onto the fire area, heat could remain under the tussocks and a hot, gusty northerly wind could cause fire. In this context Senior Detective Mengler of Hamilton Police gave evidence of tests which he and Albert King conducted in this area at about 1.30 pm. on 13th February, 1977. Naturally, this area had been involved in the fire which occurred on 12th February but there was still significant heat retained under one of the tussocks in the fire area and at that time the fire had been extinguished at that point for more than 24 hours. Desmond John Kelly passed the area where the fire commenced at about 1245 hours and he made these observations -

"There was a swirl of smoke rising from a tussock of rough grass. It was sort of like smoke coming out of a chimney". (page 585).

Kelly made these observations from the road and the smoke that he referred to was "in the burnt-out area where the brigade had burnt the fire break a few days previous". (page 585).

Having made these observations Kelly then sought assistance at Michael Page's property. Kelly did not attempt to extinguish the smoke because he was a diabetic and, in any event, he did not have any equipment in his car which would have been of any assistance under the circumstances.

Weather conditions in this area were extreme during the morning of 12th February. At page 595 of the transcript King gave evidence as follows -

"In your statement you say that the heat is there under the tussocks even though there may be no sign of fire? That is correct.

Can that be so even though there is no sign not only of fire, but no sign of smoke? Yes.

Were the winds experienced in this area on the Saturday morning particularly fierce? They were.

Blowing generally from the north? Yes.

You believe, I take it, that wind from the north could blow dust from under the tussocks, is that right? Yes.

Do you regard this as a dangerous area for burning off at that time of the year? No. During the week it was all right, but it just happened to be that bad day".

Albert King was a man who had lived and worked in this area for about 30 years and, in my submission, his evidence should be accepted by the Board. King also stated in the course of his evidence that it was not sufficient to just pour water onto the area but it was necessary to "shove the nozzle in" to the soil to extinguish the heat and fire under the tussocks.

In my submission, a feature of Mr. Burger's evidence was his complete rejection of even the possibility of the fact that the Penshurst fire may have been caused by the burning off operations of the Gazette Rural Fire Brigade. The very thought appalled him and, indeed, the Regional Officer of C.F.A. Region 5, Robert Henry Morrall, was also reluctant to concede the fact that the burning off operations of the Brigade could have caused this particular fire. However, Morrall did say (at page 603) -

"If heat had been retained under these tussocks could not that stronger wind have caused the fire to start? If heat had been retained, yes, perhaps it could have".

The C.F.A. in the course of the evidence led regarding the Penshurst fire attempted to suggest or establish that this fire may have been caused by molten particles igniting dry grass following a clash between S.E.C. conductors. In fact, there were S.E.C. conductors in the general area but there is no evidence which in any way implicates the S.E.C. in the Penshurst fire. There is no evidence which establishes that the conductors did clash, and indeed, the contrary is the case. An examination by S.E.C. employees from an elevated platform vehicle did not reveal any evidence to suggest that the conductors in the area had clashed.

In my submission, the Penshurst fire commenced in the

area burnt off by the Brigade on Thursday, 10th February, 1977 and one of the tussocks ignited in the extreme conditions causing the fire to spread with severe consequences and considerable loss and damage. Members of the Brigade, bearing in mind the character of the locality and the existing weather conditions, could have been more watchful of the burned off area on the Saturday although it is difficult to take this criticism too far in view of the fact that both Kelly and Albert King had passed the area where the fire ultimately started earlier on Saturday 12th February and neither man had observed any sign of either smoke or fire at that stage. However, in my submission, responsibility for the fire rests with the C.F.A. through the actions of its Brigade members.

DAMAGE

This fire burned for approximately 5½ hours before it was contained and 3 houses were destroyed together with a number of hay and wool sheds. Approximately 3400 hectarea of pasture was burnt out and about 106 kilometres of fencing destroyed. Stock losses were considerable and many sheep, cattle and horses were lost.

SUMMARY

The fire commenced on the southern side of McArthurs Road in the vicinity of an old slaughter house situated approximately 2 kilometres from Penshurst. The area was "tussocky" and on Thursday 10th February, 1977 the Gazette Rural Fire Brigade had burned off a strip in the area. The fire was not completely extinguished and having regard to the weather conditions and the character of the locality a tussock ignited and the fire spread quickly from that point on Saturday 12th February, 1977.

GENERAL SUMMARY

Twelve of the sixteen fires investigated by this Board of Inquiry occurred on February 12th 1977.

In my submission nine of these fires occurred due to S.E.C. installations and are the responsibility of the S.E.C. The fire at Peshurst is, in my submission, the responsibility of the C.F.A. whilst the fire at Creswick was "lit by the hand of man". The cause of the fire at North Byaduk is not known.

The nine fires which I consider are the S.E.C. responsibility were caused in varying manners. I have prepared the following table with regard to the fires on the 12th February which I submit occurred in circumstances indicating S.E.C. responsibility.

CLASHING CONDUCTORS

1. Balliang East Fire.
2. Beeac Fire.

— possibly

SURGE DIVERTER (DEFECTIVE)

3. Mingay-Lismore Fire.

— c.f. en.

CLAMP-ON FUSE (EXPELLING INCANDESCENT PARTICLES)

4. Strathmore Fire.

— possible cause

TREES OR LIMBS OF TREES CONTACTING CONDUCTOR

5. Merino Fire.
6. Pura-Pura Fire.
7. Wallinduc-Cressy Fire.
8. Tatyoon-Streatham Fire.
9. Waubra Fire.

OPERATION OF EDO FUSE (INCORRECT OPERATION OF FUSE DUE TO HUMAN ERROR ON PART OF S.E.C. EMPLOYEE)

10. Wallinduc-Cressy Fire.

There were, in fact, 69 fires which occurred on the 12th February, 1977 within the State of Victoria and only

12 of these fires on that day were, for obvious reasons, investigated in detail by the Board of Inquiry. All of the major fires which occurred on that day were dealt with by the Inquiry. The proportion of fires starting as a result of S.E.C. installations taken over any full year is not great however, on days such as the 12th February, one interpretation of the statistics could be that S.E.C. installations are particularly vulnerable and have a very real potential for starting fire. The S.E.C. in my submission, failed, in a number of respects, to take adequate or reasonable precautions to guard against fires, commencing as a result of its electrical installations and great care should be taken in the future to, as far as practicable, prevent a repetition of the February disasters. However, the S.E.C. is not alone in its complacent attitude towards fire prevention and it is clear, in my submission, that some other statutory bodies, Municipalities and many individuals must cast aside their apathetic attitude to fire prevention and take steps which may minimize the risk of fires such as were experienced on February 12th, 1977 recurring in the future. It is, and always will be, impossible to completely guard against or prevent fires but steps should be taken forthwith which may reduce the number of future outbursts.

THE ADEQUACY AND EFFECTIVENESS OF PRESENT MEASURES
TAKEN BY GOVERNMENT, PRIVATE AGENCIES, AND BY INDIVIDUALS,
TO GUARD AGAINST THE OUTBREAK OF BUSH AND GRASS FIRES
IN THE RURAL AREAS OF VICTORIA.

In dealing with the second Term of Reference I propose to deal separately with each Statutory Authority, organization or body of persons and consider the conduct of each such Authority, organization or body in the light of the evidence adduced at this Inquiry in relation to the second Term of Reference. I propose to consider the adequacy and effectiveness of the measures taken by the Forest Commission of the State of Victoria, National Parks, the S.E.C., the C.F.A., Municipal Councils, the C.R.B., the State Emergency Service (S.E.S.), Vicrail, and individual farmers generally. However, before dealing individually with each organization I propose to make these general comments.

After most disastrous fires, such as the fires which occurred on 8th January, 1969, there has been some improvement in fire control and prevention. Indeed, evidence has been given before this Inquiry by several witnesses to the effect that it is necessary for a major fire to occur before persons in that general fire area take steps in an endeavour to prevent further such outbreaks of fire. However, memories are short and, generally speaking, improvements in fire control and fire prevention are short lived. It has been demonstrated, in my submission, at this Inquiry that at the "grass roots" level fire prevention is left to organisations which are inadequately financed to carry out effective steps for fire prevention. I consider that, in particular, fire prevention has fallen down at local government level and that the C.F.A. has not taken sufficient steps to ensure that all reasonable efforts have been taken

with regard to fire prevention generally at that Municipal level. Further, the attitude of a number of individuals is characterized by apathy and as pointed out by Mr. McArthur "generally there is a remarkable reluctance on the part of the rural community to take adequate measures for the cleaning up of rubbish and the removal of fire hazards from around the homestead block. Damage assessments after many large rural fires show that over 50% of the total damage has been caused by the destruction of homesteads, shearing sheds, haysheds and other outbuildings. With very little effort on the part of the property owner, this type of damage can be drastically reduced". McArthur made that statement as long ago as 1968 but, in my submission, the same attitude was present, with several noticeable exceptions, in very fire conscious areas, in rural areas of Victoria as at February 1977.

The evidence also established, in my submission, areas of conflict between the various Statutory Authorities and organizations generally as to which body should be responsible for fire prevention work and there was a lack of liason between the various bodies who had a responsibility for fire prevention and protection generally and a lack of co-ordination between these bodies. In my submission, steps taken to guard against the occurrence of fire in the 1976 - 1977 fire season had reached a low ebb. Reasonable precautions to guard against the outbreak of fire are essential because on a day such as the 12th February, 1977, and the evidence establishes that the Western District area of Victoria has an average of 3 or 4 such extreme days each Summer period, no fire fighting organization yet known to mankind could have prevented the spread of those fires once the fire obtained a hold.

In my submission the actual brigades on that day, volunteer firefighters assisted by direction of the professionals in the C.F.A. did a remarkable task to extinguish the fires before nightfall. In that context I refer to the evidence of Adam Ian Laidlaw (at page 2536) -

"When we think of the rapid speed of travel and size of these fires and that four or five were running at the same time, it presented an enormous task. The fact that they were all brought under control before nightfall without the assistance of rain was a magnificent feat, probably without parallel".

The critical matter of concern is fire prevention and, in my submission, measures taken generally by most interested bodies were inadequate and not sufficiently effective to guard against the outbreak of fire, both bush and grass fires, in the rural areas of the State of Victoria.

VICRAIL

Evidence led on behalf of the Victorian Railways established that there was a policy, albeit a limited policy, of both burning off and spraying by means of chemicals of areas adjacent to their lines. The Railways also emphasized the fact that they were aware that proper maintenance of locomotive spark arrestors was an essential part of fire protection from their standpoint. They considered that there was an adequate and proper system of maintenance of these spark arrestors in force at the present time. In my submission, no criticism can be directed at Vicrail having regard to their policy in "burning off the higher priority risk areas".

In the spring of 1976 approximately 2240 kilometres of reserve, adjacent to the track, was sprayed by means of chemicals. The use of chemicals which were sprayed

from a train, had a desiccating effect on the vegetation within about 6 metres of the track and this permitted early burning of that portion of the reserve whilst the remainder of the vegetation outside the sprayed area was still not fully cured. There was no evidence led at this Inquiry which criticized Vicrail for inadequate fire protection, although a submission tendered on behalf of the Graziers Association of Victoria did express concern that fires had occurred due to defects in rolling stock, from overheated bearings and from sparks caused by braking. There is no doubt that the burning off activities of Vicrail are of vital importance in the rural areas of this State both from the viewpoint of reducing the number of fires started by locomotives and from the standpoint that the rail line and a "burnt off" area adjacent to the line can, in certain circumstances, provide a useful fire break. In my submission, Vicrail should be on the watch that its standards with regard to fire protection are maintained.

FORESTS COMMISSION

In my submission, the Forests Commission presented an impressive body of evidence at this Inquiry and the evidence establishes that the Forests Commission, bearing in mind limited finances, has been reasonably active in fire prevention. As Dr. Moulds, the Chairman of the Forests Commission, stated in his evidence (at page 2508) -

"It would be fair to say that, as a generalisation, the community is receiving the standard of fire protection for which it is prepared to pay".

Dr. Moulds (at page 2503) also said -

"It could be said that the total flow of funds available to the Commission is sufficient to provide

a fire fighting capability in terms of manpower and equipment to handle only an average fire season. Whilst it is conceded that it would be unrealistic to expect funds to be provided every year to enable an adequate response to be made to extreme conditions (as in 1938 - 9) there is need for substantially increased funds to improve on the level of capability now obtained. This is partly due to an acceleration in the use of forests by a more mobile and leisured community and the necessarily greater intensity of fire protection measures that must be provided".

Dr. Moulds conceded (at page 2509) that at one point or another the Forests Commission's fire protection organization will be found wanting should there be another extreme fire danger season. He considered that the Fire Protection capability of the Forests Commission would be substantially improved "by a modest injection of funds for additional men and equipment" (at page 2509). In my submission, having regard to the very important areas of this State under the jurisdiction of the Forests Commission including the Dandenong Ranges such an injection of funds as sought by Dr. Moulds could prove extremely beneficial in the long run. The problem presented with regard to fire prevention and fire protection measures in the Dandenong Ranges differ greatly to the problems presented in other areas of the State. After the severe 1968 fires in the Dandenong Ranges a Joint Report was prepared following consultation between representatives of the Shires, National Parks Service, Forests Commission and the C.F.A. and these recommendations are set out in a document tendered by the Forests Commission - "Fire Management Problems in the Dandenongs". That document is, in my submission, of importance also because it gives an extensive list of the problems found to be associated with the actual

operation involved in fire prevention and suppression works in the Dandenong Ranges.

Dr. Moulds in his evidence (at page 2507) stated the Forests Commission policy generally with regard to fire protection generally. He said -

"The Commission has endeavoured to steer a course of reasonable compromise between a fire protection regime of the highest quality and the demands for no smoke pollution, no fuel reduction burning as affecting aesthetics and for closure of roads and tracks in "wilderness" type forest areas".

Undoubtedly with the emergence of many and varied conservation groups compromise is necessary and on the evidence presented to this Inquiry the Forests Commission has coped with the problem in a reasonable manner.

The Forests Commission have been very active in Fire research and that activity has "borne fruit". Details of the work performed by the Fire Research Branch of the Forests Commission and the value of that research work are contained in the evidence of Valentine Percy Cleary, the Chief of the Division of Forest Protection. Mr. Cleary is also a member of the Country Fire Authority. Cleary also demonstrated the value of "post fire" research and his evidence contains in considerable detail the steps taken by the Commission with regard to fire prevention.

In the evidence of John David Gillespie, the Divisional Forester, Western Division of the Forests Commission appear a number of steps which he considers should be taken towards fire prevention. Gillespie (at page 2491) said -

"The first requirement I would list is a general need for availability of additional funds to provide for -

7.

- (a) improved primary access where necessary (notably in desert areas).
- (b) accelerated development of marginal fire breaks where these are appropriate (again mainly related to desert areas).
- (c) an increased programme of controlled burning (including control lines where necessary).
- (d) Accelerated work on fire research aspects."

In my submission it is desirable for the Forests Commission to have an increase in funds directed towards fire prevention to enable additional men to be employed, for the use of additional equipment to carry out more fire prevention work such as controlled burning and for the purchase of more equipment to enable more work to be performed.

On the evidence, it is my submission that with good leadership and direction at the top of the organization and generally competent employees in the field, the Forests Commission, within its financial restrictions, has performed creditably in taking reasonable precautions to guard against the outbreak of fire in Forest areas under its control. However, it should not be forgotten that in an extreme fire season the Forests Commission may well be found wanting in both men and equipment to combat a series of large forest fires.

MUNICIPAL COUNCILS

In my submission, fire prevention and protection generally has fallen down at the Municipal level and, with some exceptions, the performance of the "proper officers" has been well below par. It is vital that the problem of fire prevention be handled efficiently at the "grass roots" level and, in my submission, this

has not occurred in the past due to a failure on the part of a number of proper officers to perform their duties as prescribed under the C.F.A. Act 1958 effectively or at all. Naturally, there are some exceptions and it appears that where there has been a "proper officer" who has knuckled down to his task the system can prove effective. In my submission, if fire prevention and protection ceases to be effective at a local level it is likely to "fall down" altogether.

"Proper Officer" is defined by S3 of the C.F.A. Act 1958. The basic responsibility for fire prevention at a local level rests with the municipalities and that responsibility is imposed generally by Sections 37, 38 and 41 of the C.F.A. Act 1958.

In many Municipalities the "proper officer" is the Shire Secretary or Shire Engineer and he has "thrust upon him" the duties of proper officer in addition to his normal duties. In this context I adopt the comments made in the submission put forward by the C.F.A. Officers Association -

"This creates a situation where an administrative municipal officer, probably with neither fire experience nor training, finds himself carrying out the duties of a fire prevention specialist and, because of the extent of his normal duties, usually in his spare time. It is little wonder that the fire prevention activities in the average municipality leave something to be desired". (Pollard's evidence at pages 2651 - 2).

The Secretary of the Victorian Rural Fire Brigade's Association, Mr. Rooke, in the course of a submission presented on behalf of that Association said -

"Some proper officers display a lack of knowledge of their duties relative to fire prevention. It is considered that their role and duties should be made

clear to them and that these instructions should be kept up to date as to amendments of the C.F.A. Act and Regulations affecting the performance of their duties".

In my submission there has been a failure on the part of the C.F.A. generally to take adequate steps to ensure that proper officers performed the tasks allotted to them under the C.F.A. Act. Some Regional Officers in the employ of the C.F.A. have been well aware of the fact that the proper officers have not been carrying out the duties imposed upon them in a proper and efficient manner yet there has never been any Report to the Governor in Council from the C.F.A. pursuant to the provisions of S45 (1) of the C.F.A. Act 1958. That section provides, inter alia, for the transfer, in the circumstances provided in the sub-section, of the powers and duties of the proper officer to any Regional Officer, Assistant Regional Officer or Assistant Chief Officer nominated by the Authority -

A number of submission have been made to the Inquiry with regard to the future of "proper officers". The C.F.A. Officers Association submitted that the C.F.A. should appoint a "Fire Protection Officer" to "take over the duties of the Proper Officer of municipalities as they relate to the C.F.A. Act, in respect of each municipality or combination of municipalities, where deemed necessary". (see page 2656). Whilst I agree that a Fire Protection Officer should be added to each C.F.A. region (and perhaps more than one such officer in the real fire hazard regions) I do not believe that it would be in the best interests of fire prevention and fire protection generally for the office of proper officer to be abolished. I consider that the proper officer of a municipality does have a place, and could play a very important and effective role in fire prevention generally provided he is adequately supervised in the performance of his duties

and provided his role as "proper officer" is not on a part time or informal basis and merely secondary to other duties which he may be required to perform within the framework of his Municipality. "In my submission, for the future the supervision of the Proper Officer should be carried out by the additional Fire Prevention Officer appointed in each Region. I agree basically with the views expressed by Mr. Brian Learmonth who stated (at page 1811)-

"The C.F.A. to place at least one Fire Prevention Officer in each C.F.A. Region to act as an extension officer to educate and stimulate the highest standard of fire prevention to both individual properties and townships".

Learmonth went on to enlarge on the duties of such officer in each Region and said (at page 1813A) C.F.A. "To establish a fire prevention officer in each region to effect the highest possible standard of prevention throughout that region. His duties would include liason with property owners to explain the operation of the scheme, discuss and advise on fire prevention programmes, organize town prevention committees to plan and execute prevention in town brigades, to assist and advise brigades in prevention campaigns"

Learmonth considered that the fire prevention officer he envisaged should be in addition to the Regional Officer and Assistant Regional Officer in each Region and should be "a prevention officer totally committed to prevention" (at page 1815). Learmonth, in my submission, also accurately summed up the performance of some Proper Officers in this passage of the evidence (at page 1815).

Q. "In one or two Shires there is a gentleman who is nothing else but the Proper Officer, but that is rare. He is

usually anything from the Shire Secretary or Engineer down to the local dog catcher, as far as I can see. Indeed, his primary job is usually something else and he is compelled to be the proper officer as well, and the job on which his salary depends takes precedence?

A. That is exactly right.

Q. That seems to be the position in Shire after Shire? They do not have the time. I do not think that Councils are very enthusiastic generally."

In my submission, one of the primary duties of the Fire Prevention Officer should be the duty of ensuring that the Proper Officer of each Municipality within the region carries out his work effectively and does not merely "sit back" and let fire protection take care of itself.

Dr. Moulds (at pages 2508 - 9) considered that the use of proper officers in connection with the taking, superintending and enforcing of all necessary steps for the prevention of fires constituted prevention "on the cheap" with results of commensurate value. "Better fire prevention, which would include facing up to the somewhat unpleasant task of enforcement, would be achieved by employing full time staff with a specific duty of fire prevention". However, in my submission, the system of "proper officers " should be continued but it is vital that the C.F.A. ensure that all those proper officers do carry out the duties assigned to them under the C.F.A. Act 1958.

I consider that it is essential in the future to have effective control of fire prevention at the Municipal level and marked improvement in the future will have to be shown by Proper Officers otherwise a repetition of these tragic fires may well occur.

S.E.C.

"The Commission has been strongly criticized for its failure to undertake adequate clearing following a large number of fires reputed to be caused by trees and by conductors clashing. We must resist pressure to reduce the standards set out herein as it is considered the minimum level which is reasonable to prevent, as far as practicable, as repetition of the disasters which occurred on 8th January, 1969".

Unfortunately, once again the S.E.C. must be censured following the February, 1977 fires for its failure to adequately maintain its installations and follow any real or active policy of fire prevention. Shortly after the 1969 fires the S.E.C., realising that it was under pressure to improve its standard of maintenance generally and in particular tree clearings, did pursue a more active policy with regard to fire prevention as the realisation had been brought home forcibly to the S.E.C. that its installations could cause fires and on days of extreme fire danger S.E.C. installations were particularly vulnerable. However, the S.E.C. improvement in maintenance and tree clearing was "short lived" and deteriorated significantly during the year 1976. Alan Kinder, the District Manager of the S.E.C. at Hamilton said in evidence (at page 405) -

- Q. "Looking back on it, do you regard 1976 as being a bit of a disaster year in the Glenthompson area for tree lopping?
- A. Looking back on it, yes.
- Q. It could be described as virtually the year of neglect for tree lopping, could it not?
- A. Yes."

The failure to pursue a vigorous policy with regard to tree cutting and lopping was the cause, in my submission, of the fires which occurred at Waubra, Tatyoon-Streatham, Wallinduc-Cressy, Pura-Pura and Merino on the 12th day of February, 1977. The S.E.C. were slow in acting on reports requesting tree lopping as was evidenced by the situation at Merino. The evidence indicated (at page 479) that a request for tree lopping made on 9th September, 1969 was attended to on 7th December, 1969 and a later request made on 18th February, 1975 was complied with in April, 1975. However, even more serious, in my submission was the failure of the S.E.C. to act at all on a number of reports which I accept on the evidence were made to S.E.C. Officials from time to time. Examples which can be given of the S.E.C.'s failure to act on complaints made to them are contained in the evidence of Ian White (Wallinduc-Cressy fire), Petrass (Pura-Pura fire) and Weber (Beeac fire). The S.E.C. also failed to act promptly having regard to the warning received from Enscoe with respect to the potential fire hazard existing at Merino.

There was no regular inspection of the S.E.C. installations to ensure that there was adequate clearance between trees and conductors and the detailed tree cutting instructions given to several S.E.C. regions after the 1969 fires quickly fell into disuse. Although the tree clearance standards were described as minimum standards, which the Commission itself had laid down, the S.E.C. rarely, if ever, approached the standards. Clearances for conductors passing through a plantation of trees were regarded by linesmen as adequate whereas, in fact, the clearance did constitute a hazard and a definite fire risk. An example of this was on Hamilton's

property at Tatyoon when a linesman, Owen, had inspected the site in July 1975 and had regarded the clearance as being adequate. The disastrous Tatyoon-Streatham fire commenced at this very point. Further, there was no system of inspection of low voltage conductors, particularly in open areas where high winds were likely to occur, to ascertain whether spreaders should be inserted between the conductors to prevent the clashing of conductors. In my submission, the fires which occurred at Beeac and Balliang East could have been avoided had there been an inspection of the conductors and spreaders inserted. In my submission, there should be patrols established on a regular basis to inspect S.E.C. installations generally and report in writing on the condition of the installations and whether any steps should be taken to remedy any fire dangers observed during any such inspection. The reports should be made initially to the District Manager who should, in turn, be required to report in writing and on a regular basis to the Regional Manager of the S.E.C.

The system of recording complaints has been acknowledged by the S.E.C. to require updating and revision. Mr. Chapman, the Assistant General Manager (Marketing and Distribution) of the S.E.C. has indicated that a committee of senior officers has been set up to review and make recommendations on procedures for recording and follow up of complaints on safety matters received from the customers and other parties at District and Regional Offices. In my submission, it is essential, from a fire protection viewpoint, to ensure that this committee makes recommendations which will ensure that all complaints are recorded and are in fact investigated promptly and, if necessary, attended to without undue delay. Chapman's evidence contains details

of action which the S.E.C. proposes to take with regard to the following matters -

- A. Instructing personnel on fire hazards.
- B. Tree cutting.
- C. Fuses.
- D. Aerial Consumer's Mains (in this submission I have referred to these Aerial Consumer's Mains as private service lines and I recommend that the S.E.C. should give consideration to changing the name of these installations to private service lines as I consider the phrase "Aerial Consumer Mains" does not emphasize the fact to the consumer that these installations are the customers responsibility and not the responsibility of the S.E.C. I also agree with the S.E.C. recommendations regarding a system of inspection of these private service lines. It is a possibility that the North Byaduk fire was started due to a defect in Knight's private service lines. It is important, for the future, to have a regular system of inspection of these private installations and action must be taken by the S.E.C. if the consumer fails to engage a registered electrical contractor to remedy any defect or perform work on or in the vicinity of these private service lines.
- E. Surge Diverters.
- F. Low Voltage Mains.
- G. Pole caps.
- H. Recording of Complaints.

It is imperative, if a reasonable effort is to be made with regard to fire prevention that the S.E.C. promises to reform the situation are not just empty promises and the situation allowed to deteriorate as it did after an initial burst of activity following the January 1969 fires. The S.E.C. should, in my submission,

warn consumers of the potential fire risks involved in its installations on at least one occasion each year. It may be appropriate for the S.E.C. to give such a warning, clearly spelled out, in the quarterly account delivered to the consumer in about the month of September or October in each year. Consumers in rural areas must be encouraged to make reports regarding S.E.C. installations to the local S.E.C. Offices but it is essential that the S.E.C. act promptly in attending to those reports. Rural consumers must be encouraged, if it is possible, to co-operate more with the S.E.C. and make the necessary reports particularly in the light of Chapman's evidence (at Page 2373A).

"There is a need to recognize that responsibility for the prevention and spread of bushfires is totally dependent on the combined efforts of all sections of the community, not the S.E.C. alone. The supply system in Victoria is now so extensive and elaborate that the S.E.C. does not have the resources to shoulder the total responsibility of reducing risk from such sources as falling trees or falling limbs of trees or contact between trees and lines."

In the course of the evidence adduced at this Inquiry there were several witnesses who expressed the view that the S.E.C. stood alone with regard to an inspection of its installations and that they, as consumers and landholders, had no obligation to take any steps by observation or otherwise with regard to S.E.C. installations. Such an attitude should, and must, be discouraged and it is very clear, in my submission, that fire prevention cannot succeed without co-operation by individuals.

The S.E.C. must also consider the question of re-routing lines in certain areas of the Western District in particular where there exists at present the situation of S.E.C. conductors running beside extensive plantations of sugar gum trees forming part of a shelter belt. Whilst it would be undesirable to remove all these trees it may well be a feasible proposition to re-route the line. It is not a practical proposition, having regard solely to the cost angle, to place the S.E.C. installations underground. The evidence presented to the Inquiry demonstrated that the cost of such an undertaking would be astronomical and quite beyond the financial resources available to the Commission.

In my submission there should be more research carried out by the S.E.C. on problems such as clashing conductors, fuses generally and a device (if such a device is possible) to immediately cut off power if a conductor is brought to the ground in the situations such as were experienced at Tatyoon, Merino, Pura Pura and Waubra. The design of many existing installations should be carefully checked as there is evidence from the S.E.C. itself to the effect that the conductors clashed at Beeac due to faulty design.

Further, there must be more co-operation not only between the consumer and the S.E.C. but between the S.E.C. and the C.F.A. and other bodies interested in fire prevention and protection. There was liason between Dr. Connolly, representing the S.E.C. and Brigadier Eason, as Chairman of the C.F.A., following the January 1969 fires but, with the passage of time, the liason deteriorated and the co-operation between these two bodies lessened. I recommend that an official of the S.E.C. should be invited and should attend meetings of the Regional Advisory Committees established under the provisions of the C.F.A. Act 1958.

It is essential, in my submission, that the Regional Advisory Committee be made aware each year of the problems confronting the S.E.C. with regard to maintenance of its installations and all activities involved in fire prevention generally such as tree cutting. The S.E.C. representative should have to submit a report in writing regarding steps which have been taken or require to be taken in each year with regard to fire prevention rather than adopt the attitude which has been present in the past, to the effect that S.E.C. installations are unlikely to cause fires. S.E.C. participation in fire protection and prevention generally must become more positive and once the standards are raised the C.F.A., whom I consider should have overall control of all fire prevention activity in rural areas of this State, must ensure that these standards are maintained and that we do not have a series of empty promises such as were made by the Commission following the 1969 fires. In this technical age some of the risks associated with S.E.C. installations as a source of fire are now known and full co-operation by individuals and all bodies associated with fire prevention is necessary if the risks of fire are to be reduced. It is and will be impossible to remove the risk of fire from S.E.C. installations but, with more co-operation that risk of fires starting from S.E.C. installations can be reduced in the future. It is vital to reduce this risk as the recent report in the "Age" Newspaper on June 23rd indicated. According to that report a C.F.A. Regional Officer, Mr. Morrall warned graziers in the Western District at a Field Day organized by Mr. Stuart Cuming (who gave evidence at this Inquiry) that February's disastrous bush fires could be repeated next Summer. According to

the report C.S.I.R.O. Scientists have predicted similar high fire risk conditions such as occurred on February 12th. Great improvement is necessary in all aspects of S.E.C. maintenance of its installations in the rural areas of Victoria in an endeavour to reduce the fire risk from its assets. In the past, there has been a problem with lack of man-power and it may well be the situation that the Commission has concentrated too much on extending its activities and providing more potential consumers with power to the detriment of maintenance of existing installations. The S.E.C. has also experienced some difficulties with conservation groups and with a number of individuals in rural areas who do not desire any lopping or removal of trees. I envisage that a fire prevention officer, if such a person be appointed in the future, could be of assistance in resolving problems which the S.E.C. has encountered in that area.

STATE EMERGENCY SERVICE

The State Emergency Service (S.E.S.) does not have any statutory authority and, as was pointed out clearly by Dr. Moulds (at page 2505) bush and grass fires are the kind of emergency fire which two organizations, the C.F.A. and the Forests Commission, have specific and defined statutory responsibilities and authority. In my submission, it is clear that the complete responsibility and authority for directing all operations in a forest fire should rest with the Forests Commission and in a grassland fire with the C.F.A. Any other system of responsibility could lead to chaos on the fire ground. In my

submission, it is unthinkable that the S.E.S. should have control in a fire situation and I agree with Dr. Moulds (at page 2505) when he said -

"It is considered that there is no role "as of right" in a fire situation for the State Emergency Service".

The S.E.S. were "involved" in two incidents in the fires which were under consideration before this Inquiry, at Creswick and at Beechworth. At Creswick three young, enthusiastic radio "hams" (two of whom had C.B. radios) did become involved or embroiled in a conflict with the C.F.A. generally and it seems likely that one of these over enthusiastic young men did direct a convoy of fire trucks in a direction which was inappropriate. The C.F.A. see the incident as serious but in my submission, the actions of two of these young men may well have been foolish in assuming a responsibility which was not theirs to assume and the position was highlighted by the fact that two of the young men wore uniforms issued by the S.E.S. and containing S.E.S. insignia. In my submission, the C.F.A. over-reacted to the Creswick situation insofar as the S.E.S. are concerned but it is important to firmly and clearly bear in mind that on the fire scene, such as Creswick, the responsibility and authority for directing operations must be and remain with the C.F.A.

The incident at Beechworth where Mr. Diffey ordered Mr. Thompson and his S.E.S. men from the fire ground was an unfortunate incident particularly as it was a "test case". I do not propose to recapitulate the evidence led in respect of this incident. Once again I agree entirely with Dr. Moulds when he says (at page 2505) -

"Persons who are members of the S.E.S. who attend a fire when that organization has not been specifically requested to attend to carry out certain tasks should be regarded as individual volunteers under the control and direction of the C.F.A. or Forest Officer in charge, as appropriate."

The S.E.S. could play a role on the fire scene, particularly in "mopping up" operations but "command and control" generally at the fire scene must rest with the C.F.A. or Forests Commission depending on the location of the fire.

NATIONAL PARKS SERVICE

The Forests Commission in its submission dealing with Fire Management problems in the Dandenong Ranges was critical of the National Parks Service and referred to a conflict with the body over management aims and alleged that there was a tendency for no fuel reduction burning work and a desire to retain vegetation in its present state. The National Parks Service, though its Director Mr. John Brookes, denied that such a criticism was valid. He also denied that criticism made by Mr. Mutton in his evidence at the Inquiry with regard to the Lower Glenelg National Park was in any way justified. With regard to the Lower Glenelg National Park, Brookes (at page 2565) referred to the fact that fire protection funds spent on the Park were considerably more than the Forests Commission was able to spend on the land before it became a park. Great care has to be taken with fuel reduction burning in a park whereas in a broad forest area large scale fuel reduction can be carried out. It is

apparent that there has been compromise by members of the joint committee considering fuel reduction burning in parks but on the evidence of Brookes (at page 2563 a workable plan for fuel reduction in parks has been resolved and achieved.

There was also criticism of the National Park Service by the Dandenong Rural Fire Brigade's Group in evidence given by Mr. Thatcher (at page 2756D) in expending monies on improved picnic and car parking facilities at the Ferntree Gully National Park rather than on fire protection measures within the Park itself on the grounds that it would be preferable to have expended the monies on fire protection measures in the park . In my submission, the decision was a matter of judgment by the National Parks system as to priorities at the time and I do not accept that criticism as valid.

The National Parks Service faces difficult decisions in the existing circumstances and the Service has to delicately balance the problems of fire protection on the one hand and the protection of the Park in its natural condition on the other hand. The National Parks Service, like all other bodies involved in fire protection and prevention, has a limited budget and within the confines of the financial restrictions I consider the performance of the National Parks Service to be reasonable.

COUNTRY FIRE AUTHORITY

By virtue of Section 14 of the C.F.A. Act 1958 the control of the prevention and suppression of fires in the Country area of Victoria is, subject to the Act, vested in the C.F.A.

Section 20 of the Act reads as follows -

"The duty of taking superintending and enforcing all necessary steps for the prevention and suppression of fires and for the protection of life and property in case of fire and the general control of all stations and of all brigades and of all groups of brigades shall, subject to the provisions of this Act, so far as relates to the Country area of Victoria be vested in the Authority".

The Act deals, inter alia, with the duties and powers of public authorities (by Section 43) and the duties of Regional Officers within their respective regions with regard to inspections (section 44). In my submission S44 C.F.A. Act 1958 is an important Section and, in my submission, Regional Officers have fallen down in the performance of their duties under that Section. S44 is as follows:

"It shall be the duty of every Regional Officer subject to the general direction and control of the Authority and the Chief Officer, to make regular inspections within his region to ascertain whether the provisions of the Act are being properly and efficiently carried out and administered therein and to report to the Authority thereon at such times as are prescribed or as the Authority directs and for the purposes of any such inspection any such Regional Officer may enter into and upon any land or premises whatever within his region".

In my submission, although regular reports have been supplied to the Authority by the Regional Officers such reports do not, in the main, deal with questions

of fire prevention or protection. Regional Officers have not had the time to make regular inspections within their respective regions having regard to the onerous nature of their duties and, in many cases, the vast area of the Region. Regional Officers, in my submission, have demonstrated that they are prepared to work long hours, indeed hours far beyond the normal call of duty, in an endeavour to carry out the many duties and tasks assigned to them under the Act and by the Authority generally. As professional trained officers they have, to a man, shown dedication and devotion to duty and I consider that great credit generally must be given to these Regional Officers. Naturally, some criticisms can be advanced against individual Regional Officers for individual "indiscretions" such as the failure to hold a meeting of the Regional Advisory Committee in Region 6 for some 4½ years after November 1971. Nevertheless, in that Region there were active Local Advisory Committees and the Officer concerned believed in his own mind that adequate steps were being taken in Region 6 during that time. That Regional Officer may well have been in error but looking at the performance of these Officers generally their performance has been remarkable having regard to the magnitude of their task.

However, there have not in the past been regular inspections by Regional Officers to look for fire hazards and dangers and in my submission, it would be a desirable step to appoint an additional C.F.A. Officer in each Region whose sole task is concerned with fire prevention and protection. I have already referred to some of the duties of the Fire Prevention Officer earlier in this submission when dealing with the question of "proper officers".

In my submission the question of fire prevention is of paramount importance because, on a day such as the 12th February, 1977, once a fire starts no amount of strategically burned firebreaks will prevent the spread of the fire. It is imperative that the outbreak of fire on a day such as the 12th February, 1977 be restricted to a minimum and to that end all possible fire hazards should, as far as possible, be removed. I envisage the Fire Protection Officer as a paid employee of the C.F.A., properly trained in all aspects of fire prevention, being responsible to the Regional Officer. He should be required to make reports on a regular basis to the Regional Officer who should in turn, refer the matters raised to the Authority. In the future, it is essential that the Country Fire Authority have material before it, following regular and detailed inspections of the Region, on which it can exercise judgment and make an assessment whether an authority such as the S.E.C. is taking reasonable steps to prevent the outbreaks of fire from its installations in that region. I have merely taken the S.E.C. as an example and naturally similar considerations would apply to all other bodies involved in the question of fire prevention. In the event of the Authority not being satisfied that a particular statutory authority has taken the necessary steps with regard to fire prevention the C.F.A. must ensure that those steps are in fact taken. The Fire Protection Officer will be a type of extension officer, in my submission, who has the capacity to liaise with all persons and bodies connected with fire prevention. It is essential that the C.F.A. have before it detailed information regarding fire protection in each Region so that it can exercise a judgment on the adequacy or otherwise of fire protection.

If, contrary to my submission, a Fire Prevention Officer is not appointed for financial or any other reasons then it is essential that the present Regional Officers and their Assistants make the necessary inspections, as far as practicable, within each region and organize brigades to make such local inspections to look for fire hazards and dangers. It is essential, in my submission, that Regional Officers report in writing to the authority on the standard or adequacy of fire prevention measures that have been taken within the region and their opinion regarding additional steps which they consider are necessary at any particular time.

Research into fire behaviour and grassland fires generally has not received the attention which it deserves from the C.F.A. As long ago as 1968 Mr. McArthur wrote -

"Unfortunately most fire research being undertaken at the present time is connected with forest fire control and research into rural or grassland problems is not receiving the attention it deserves. Ultimately most State rural fire authorities should establish a fire research group which would help to pass research findings on to the brigades and property owners".
He went on to say -

"There is an urgent need for an extension service between research and the field user".

Mr. Mackinnon (at page 2429) also commented on the fact that very little research has been done on basic factors involved in fighting fires and later in his evidence he refers to a number of problems which he considers could well be improved with proper and

and adequate research. In my submission, research has been the "poor relation" of C.F.A. activities to date. The benefits of proper research can be seen in the evidence adduced at this Inquiry by Mr. Cleary from the Forests Commission. It is highly desirable for the C.F.A. to provide a properly qualified research officer and then gradually build up a research section which can provide information of assistance to the volunteer in the field.

At this Inquiry the C.F.A. has, on occasions, been criticized for expending too much money on Fiskville at the expense of other operations, such as the purchase of new motor vehicles, tankers or radio equipment. I do not consider that such criticism is justified, and I am firmly of the view that the training volunteer fire fighters can and do receive at Fiskville will ultimately be of great benefit. The problem seems to be a problem of arranging for a sufficient number of volunteers to receive this training each year bearing in mind the limited numbers who can be accommodated at any one time. In my submission, the training available at Fiskville is invaluable and lectures and demonstrations by experts in fire suppression methods will be beneficial to the man in the field. However, it is also important to have training at a local brigade level as most Regions do face different problems with regard to fire suppression. There is no substitute for experience and in my submission valuable experience can be imparted by the professionals of the C.F.A. to the volunteers at an organization such as Fiskville.

In any consideration of the manner in which the C.F.A. budget is allocated in any one financial year the composition of the authority should be borne in mind.

Two members of the Authority are selected by the Governor in Council from a panel of not less than four names submitted by the governing body of the Rural Fire Brigades Association. Consequently, the man in the field does have a voice in the Authorities decisions. In my submission the C.F.A. has to operate within a limited budget and in each year it is a question of judgment and priority as to the monies expended on Fiskville, the acquisition of new motor vehicles or tankers, radio communications or any other aspect of C.F.A. activity. There is no evidence before this Inquiry to suggest that the C.F.A. has, in financial matters, acted otherwise than in a perfectly proper and reasonable manner. The suggestion was made in the course of cross examination of the Deputy Chairman of the C.F.A., Mr. Diffey, that the Authority was not able to spend the amounts allocated to it in each financial year. In my submission, that submission should be rejected and although there may, at first sight, appear to be a surplus at the end of each financial year, that surplus is illusory as the funds have been "earmarked" for projects which have already been embarked upon by the Authority. There is no evidence, in my submission, before the Inquiry which establishes that the C.F.A. cannot and does not spend monies allotted to it in the financial year. Indeed, the contrary is the case and the C.F.A. is fully committed financially and a further injection of funds would be highly desirable and would enable the standard of fire prevention and fire suppression to be raised.

Lack of finance has been a hindrance, and in my submission, a significant hindrance to the C.F.A. and to a large degree the Authority has been "hamstrung"

due to financial considerations. Radio communications in rural areas require upgrading and updating and it is a matter of concern, in my submission, that there are still a large number of rural and urban brigades, in the order of 116, that are not equipped with C.F.A. self-propelled tankers. As pointed out by Mr. Pollard in his submission on behalf of the C.F.A. Officers Association (at page 2650 and 2655) "obviously a Fire Brigade without a fire fighting appliance suffers from low efficiency and a lack of morale".

However, it is simply not possible at this stage due to financial restrictions for each brigade to have a C.F.A. self-propelled tanker. Robin Jackson, the captain and radio operator for the Strathmore Rural Fire Brigade, stated (at page 239) -

"All brigades should have a C.F.A. unit.

We do not have a C.F.A. unit attached to our brigade and one other brigade near Glenthompson does not have a unit".

There is a desperate need for additional C.F.A. appliances to be made available particularly due to the reduction in the number of privately owned vehicles due to economic conditions and a number of other factors which I will discuss at a later stage in this submission. Mr. Mackinnon in his evidence (at page 2428) said -

"because of difficult economic conditions in the past three years, the age of private units and state of servcibility is both old and poor".

Mr. Laidlaw (at page 2537) agreed generally with the views expressed by Mackinnon although he considered that farmers kept their small units in good order.

However as to the larger units he said -

"the tanks are rusting out, the tyres are worn and are not being renewed and the vehicle is not roadworthy".

In my submission Laidlaw's evidence generally and on this particular question (at pages 2536 - 7) is of considerable significance. It does seem reasonable that there be an incentive for landowners, to set up a vehicle throughout the whole fire danger period and to have that vehicle at the ready throughout the critical summer period. It is essential for fire suppression to be effective to have a number of large tankers at a fire site within the shortest possible time if an early attempt to contain a fire is to have any real prospect of success. However, the difficulties of mobilising such a force are great. Jackson (at page 239) said -

"To have a chance to contain the fire (at Strathmore) in its initial stages, it would have been necessary to have at least 10 - 12 units at the scene soon after I arrived, which, I believe, would have been within 10 minutes of the fire starting. It is impossible geografically to achieve such a force in that time".

In my submission, dealing with the private vehicles, there is merit in the suggestion by the Graziers Association that farmers may be able to purchase ex-Government trucks at a reasonable price for such as a larger type of fire vehicle.

Laidlaw (at page 2537) said -

"I think it is a good idea if it can be arranged the suggestion there might be that the C.F.A. could make these

available to approved farmers who would be prepared to set them up as a large vehicle, for a period of three years or something like that".

The situation with regard to the C.F.A. tanker at Cressy is undesirable having regard to the limited capacity of the tanker in an area which has demonstrated in the past to be very prone to the outbreak of fire. That tanker should be replaced with a tanker of considerably increased capacity at the earliest possible opportunity but, once again, it is a question of economics. I repeat the words of Dr. Moulds -

"as a generalisation, the community is receiving the standard of fire protection for which it is prepared to pay" (at page 2508).

The C.F.A. must, in my submission, ensure that communications generally are updated and improved as there were problems in some areas on February 12th. At Strathmore the communications were reasonable and Jackson (at page 239) stated "generally, the communications in fighting the fire were good. They would have been more effective if an aircraft had been over the fire earlier". However, in other areas such as Cressy, communications were described by the Police as being virtually non-existent. More training is essential for radio operators and the provision of more V.H.F. sets is required but once again finance is the critical factor. On its present budget the C.F.A. can do no more than have regular services of its priorities and increase equipment, both vehicular and communication, as part of a general process.

As to the Regional Advisory Committee, that body is vested with extensive responsibilities pursuant to the provisions of S 53 of the C.F.A. Act 1958. I consider that the functions of that body are important and are

basic to the question of fire prevention generally. It is important, in my submission, that the Regional Advisory Committee operate effectively within each region and not be allowed to lapse into oblivion as was the case in Region 6. In my submission, the legislation should be amended to give the body some "teeth" and I consider that the C.F.A. Officers Association views should be adopted and that the Regional Advisory Committee be given the power to ensure that their recommendations are, in fact, carried out. It is also important for the Committee to "produce the goods" and submit the recommendations and plans to the appropriate authorities under S53 (a) (i) and (ii) and not allow long periods of time to elapse while such plans are being prepared.

Pollard in presenting the C.F.A. Officers Association submission said - (at page 2654) -

"Each Regional Advisory Committee has prepared or is preparing plans for the creation of strategic fire breaks. These plans in most instances receive no assistance from Government departments, municipalities and public authorities concerned because -

- (1) They are apathetic about fire prevention.
- (2) Finance for construction of fire breaks is not available.
- (3) They are concerned that the clearing work required will antagonise other groups (conservationists etc)."

It is important, in my submission, for the Regional Advisory Committee's to endeavour to overcome these problems if the standard of fire prevention is to improve in the future.

With regard to Local Advisory Committees the evidence indicates, in my submission, that they have not been particularly effective particularly with respect to their functions as defined under Section 55 (a) and (b). The function of the Local Advisory Committee is important and if that body is prepared to perform its tasks diligently then fire protection and prevention generally must improve.

It is extraordinary that the Regional Officer, usually the only permanent fire officer in the area, does not have any voting powers and speaks by invitation only. I submit that the recommendations of the C.F.A. Officers Association in this regard be adopted. I also strongly recommend, as suggested by the Associations submission, that Section 41 of the C.F.A. Act be amended to include public authorities.

The S.E.C. in a policy submission recommended, inter alia, that a new independent statutory body be set out which would have the function and duty of planning and administering fire prevention methods. It was suggested that the body could be called "The Fire Protection Authority".

It is necessary, in my submission, to refer to the full terms of this submission (at pages 93 - 97). In my submission, such a new statutory body should not, under any circumstances, be set up and I am of the view that the control of fire prevention and protection generally in rural areas should be vested in the C.F.A. With an extension of its powers the C.F.A. could perform an identical role to that which the S.E.C. submits the new statutory body should play. In my submission all activities connected with fire prevention, protection and suppression should be co-ordinated within the framework of the C.F.A. Act and that body should be in control of all fire activities in the rural areas of the State

of Victoria. Under no circumstances should this Board of Inquiry recommend that another statutory body be set up.

Finally, I consider that the C.F.A. has performed reasonably in the past but the Authority must, for the future, be organised so that it can operate more effectively in the field of fire prevention. Financial restrictions limit the resources which the C.F.A. can make available in the rural areas of Victoria and unless there is an increase in the budget available to the Authority improvement in all aspects of fire prevention, protection and suppression will be a slow process.

COUNTRY ROADS BOARD

Problems have occurred in the past with the C.R.B. with regard to the Board's policy in relation to burning off operations along major highways. The attitude in each region seems to depend, to a large extent, on the whim of the Divisional Engineer in that region. There must be closer co-operation between the C.R.B. and other bodies regarding the provision of adequate fire breaks on roadside reserves and I consider that the submission of the Graziers Association has relevance in this matter -

"While the Association agrees that there are areas of native vegetation along portions of the major highways which should be preserved it, nevertheless, is strongly of the view that the C.R.B. should be encouraged to provide for more active support for fire protection along major highways"
(at page 13 of the submission).

The Association also suggested that the C.R.B. should assist in providing equipment in fire-break

preparation. I agree that this is desirable if the C.R.B. is prepared to co-operate.

Fire breaks are necessary and they are highly desirable and, in deed, they are of great assistance in controlling small fires or even larger fires which occur on days other than "disaster days" such as the 12th February. However, it was demonstrably clear in my submission that no system of firebreaks however well constructed could have controlled the fires which occurred on the 12th February, 1977. I provide one brief example. The Wallinduc-Cressy fire occurred within 5 metres of Pole 66 on Featherston's property. The pastures in that property were low and had been eaten down.

There was a main highway, Lismore-Cape Clear Road approximately 121 metres from the point where the fire originated yet, on that day and in those conditions, the highway did not assist in any way in holding the flames. Nevertheless, in my submission, the provision of strategic breaks is important and co-operation between the C.R.B. and all other bodies is essential for the future of fire control.

INDIVIDUAL FARMERS

I referred earlier in this submission to McArthurs comments on individual farmers where he said -

"Generally there is a remarkable reluctance on the part of the rural community to take adequate measures for the cleaning up of rubbish and the removal of fire hazards from around the homestead block".

The evidence indicated and views conducted by this Board of Inquiry amply supported, in many instances, the opinion expressed by McArthur in 1968. There is a great necessity for many individual farmers to take adequate steps to protect their own property so that the ravages of fire can possibly be avoided. Many areas, of the Western District of Victoria, on the other hand are very fire cautious and many landholders in the Strathmore and Streatham areas together with other areas of the Western District are extremely fire conscious. The problem of obtaining a better overall standard of fire protection is not capable of easy resolution. How can the C.F.A. encourage more fire consciousness in an unwilling or disinterested landholder? It seems likely that the depressed rural economic conditions which in turn have led to a shortage of manpower have contributed markedly to a deterioration in standards of individual fire prevention generally. It will be difficult, if not well nigh impossible, for the C.F.A. to stimulate farmers to carry out fire prevention measures having regard to the depressed rural conditions and the cost of performing prevention work which has increased rapidly over the years. Apathy is a great problem in fire prevention and it is obvious that the C.F.A. has a very real problem on its hands. There is, in my submission, a need for the C.F.A. to attempt education of people generally about the risk of fire and precautions that can be taken to prevent or minimise damage. Mr. Learmonth in his submission, proposed that a Study Group should be set up by this Inquiry to improve fire prevention generally. He considered that past fires, if properly researched would indicate clear guidelines for effective prevention procedures which should be encouraged on both an individual

and co-operative basis. In my submission, it would be very beneficial for such a Study Group to be set up, research the information and make further recommendations to the Government in the light of the material.

In McArthur's article "Rural Fire Protection (1968) there is valuable information regarding precautions which should be taken by individuals with regard to farm and homestead protection and I refer the Board to that article.

In a number of instances in the course of evidence led at this Inquiry individual farmers appeared quite horrified at the suggestion that they should be required, from time to time, to inspect their own properties for fire hazards and if a hazard was found either attend to it themselves or refer the matter to the appropriate body concerned.

I have no doubt that individuals in the rural areas of this State will have to carry out these routine inspections if attempts at fire prevention are to succeed. A number of farmers took the view that because the S.E.C. brought electricity to the property it was solely the duty of the S.E.C. to inspect the installations and clear trees or limbs of trees from the vicinity of conductors if such action was required. Many were apathetic towards fire hazards on their properties and more co-operation is required for the future. eg. Hamilton at Tatyoon could easily have inspected the trees in his shelter belt in the vicinity of the conductor and observed that one of the sugar gums was diseased. Co-operation between Hamilton and the S.E.C. might have enabled this tree to be removed by an S.E.C. tree lopping gang. In McArthur's words -

"in rural areas fire control really starts with

the protection of the homestead and outbuildings".

Generally speaking the standard of individual fire protection before the February fires was low.

I propose to deal with Item 4 (a) of the Terms of Reference before shortly investigating term 3.

Item 4 (a) is whether developments which have occurred in the Rural areas of Victoria during recent years indicate a need for Government and private agencies and individuals;

- (a) to take different or additional steps to assist in the prevention of bush and grass fires.

In my submission there are a number of developments which have occurred in recent years which indicate a need for all bodies concerned with fire prevention and protection to take different additional steps in an endeavour to prevent the outbreak of fire in rural areas. These developments include -

- (a) a decline in rural population and therefore a decline in man power for fire prevention and suppression. The figures provided by Mr. Shea in the Ararat area generally were dramatic.
- (b) There has been a decline in farming profitability and a general depression in rural areas. Farmers have been faced with increased costs and reduced prices for a number of rural products. The decline in farming profitability

reduces the capacity of the farmer to provide equipment and do preventive work. In the submission before the Board from Dr. Lang it was estimated by the Darlington Rural Fire Brigade that in 1974 - 5 labour and petrol alone for burning fire breaks cost \$38.00 per kilometre.

- (c) There has been a rapid and extensive increase in the supply of electric power.
- (d) The fact of shorter working hours and longer holidays for employees in the rural areas of Victoria has reduced the amount of time available for fire prevention work.
- (e) The numbers and availability of privately owned tankers has fallen away partly due to farmers engaging in cropping enterprises which "tie up" registered trucks with bulk bins until late in the fire season.
- (f) There has been an increase in pasture fuel resulting partly from the use of super phosphate and partly due to the advent of myxomatosis.

McArthur in his article Rural Fire Protection stated (at page 275) -

"Grazing animals such as rabbits and kangaroos exercise a considerable control over fuel quantities and eaten out hills and paddocks sometimes provided considerable barriers against the spread of grass fires. The advent of myxomatosis played an important role in changing the overall fire control problem in many areas of Australia and

and the resulting reduction of the rabbit populations means that many previously bare, barren hills now carry sufficient grass to allow a fire to spread unhindered".

This list of developments is not intended to be exhaustive but it does indicate some reasons why all persons and bodies engaged in fire prevention will have in the future, to take additional and different steps to assist in the prevention of bush and grass fires. I have, in dealing with the second Term of Reference, dealt with a number of matters which I consider require updating.

Some of the steps which I recommend should be taken include -

- (a) More heavy units are required in rural areas and these tankers should have larger water capacities.
- (b) The C.F.A., within its financial limitations, must endeavour to provide each Brigade as soon as possible with a self-propelled tanker unit.
- (c) More quick filling pumps should be available for the refilling of units so that the tanker spends the maximum time at the fire.
- (d) More consideration should be given to fire breaks such as suggested by Jackson (at page 239). He said -
 "The most effective breaks, I believe, are double ploughing with a burnt break in between a summer crop, both should be used more in conjunction with natural barriers (creeks, swamps, roads, etc.)."

(e) An increase in the number of listening sets (see page 239) is highly desirable . A number of witnesses, including both Jackson and Laidlaw, made this suggestion and I wholeheartedly agree with it. There should be a "bulk buy" of these listening sets by the C.F.A. who should then make the sets available for purchase by individual farmers and graziers.

(f) Electric fences should not operate on a day of total fire ban. In the submission from the Graziers Association (page 18) there is reference to one fire being attributed to an energised wire fence. Further, in the evidence of McCutcheon (at page 1669) appears this question and answer -

Q. "What do you think of electric fences as starters of fire?"

A. I know they are capable of initiating fires under laboratory conditions".

In the light of that evidence I recommend that property owners should be obliged to turn off power on their energisers on days of total fire ban.

(g) The suggestion was made by several witnesses (including Stuart Cuming at page 142) that the power to grids that service rural properties should be turned off on days of acute fire danger unless installations can be made fire proof. Arrangements have been advanced both for and against such a step.

Chapman, an assistant General Manager of the S.E.C. said in the course of his submission -

"A review will be undertaken of the practicability of switching off power supply in fire prone areas under extreme fire conditions. The Commission does not discount taking such measures as the ultimate action if necessary, although it recognises that the outbreak of fires would still remain a possibility when power is reconnected and it would entail many problems both for the community and the Commissioner".

Many of the problems which could arise if power was switched off on certain extreme days were highlighted in the evidence of Wilson.

Wilson (at page 1494) was asked his views on the problem. He replied - "There are two major disadvantages. One is to ascertain a criterion of which day one switches it off. It would certainly be within the C.F.A. or whichever authority currently determines the level of acuteness of fire danger. This is a problem as far as the community is concerned in regard to the amount of time it would be switched off, and the fact that such things as food storage, communication - the community is so dependent on electricity these days it would be difficult to understand them doing without it on specific days and this may be some significant time during the summer".

Wilson also referred to interference with refrigerators, hospitals, water pumps, irrigation pumps and sewage treatment. He also made reference to the difficulties that the S.E.C. itself would experience in taking such a step.

"I do not think our system is set up such that it is easy to cut off a designated area without going right back to the zone sub station in which case one would be cutting off a substantially larger geographic area than is necessary or desirable". (at page 1494)

Wilson also made reference to problems which could be experienced with Unions over this question. In addition, if a conductor was in contact with a tree whilst the power was turned off fire could occur once the supply of power was renewed.

In my submission, the Inquiry should not recommend that power should be switched off on certain extreme fire danger days but the S.E.C. should certainly review the situation as soon as possible and I do suggest that the S.E.C. should provide a copy of such report for the C.F.A.

- (h) Another suggestion which was advanced in the course of several submissions concerned the proclamation of days of Total Fire Ban. At the present time, of course, which the C.F.A. proclaims a day of Total Fire Ban such a ban extends over the whole of the State of Victoria. Various submissions were made and these varied between a ban being applied

to certain regions of Victoria but not to other regions, the division of the State of Victoria into four quarters for the purpose of the ban and the division of the State into two halves, the dividing line in such a case being either the Hume Highway or the Melbourne-Sydney railway line. Region 4 also wished to act as a type of "guinea pig" with regard to the fire bans. In my submission, there has not been any good reason shown in the evidence before this Inquiry to justify any alteration in the present system whereby there is a ban on lighting fires over the whole of the State.

Mr. Diffey, the Deputy Chairman of the C.F.A., was asked (at page 2061) about his views on a system of fire bans applying to specific regions of the State of Victoria. He replied that the proposal was virtually impossible and that this was basically due to the fact that no one was prepared to define the boundaries. In any event, the situation could be reached where there was a ban on one side of the road but not on the other and in my submission, many problems could well arise were the present system altered. Diffey pointed out difficulties (at page 2062) experienced in N.S.W. where meteorological districts are divided into regions for the purpose of separate total fire ban days. The views of the Authority on this point are set out in detail in a letter from the Secretary of the C.F.A., Mr. Allen, to the Under-Secretary dated the 14th January, 1977.

(see pages 2064 - 5). In my submission, the views of the C.F.A. on this matter are reasonable and no alteration should be made to the present system whereby the lighting of fires is prohibited over the whole of the State.

- (i) The question of the use of aeroplanes on days of extreme fire danger was also the subject of evidence at the Inquiry. Issues arose as to whether there should be greater use of aeroplanes by the C.F.A. on days like the 12th February, 1977 for the purpose of "spotting" fires and also as to whether it was beneficial to have an aircraft over the general fire area to assist in the control of the fire. In my submission the evidence did not establish that aeroplanes would assist greatly in "spotting fires" in the grassland situation. The best evidence established that an observer in an aeroplane would see the fire once it had a hold but there would, of necessity, have to be a considerable amount of smoke before such observer did spot the fire unless, by chance, the aeroplane was in the immediate vicinity of the point of origin of the fire. By the time the observer in the aeroplane saw the smoke it was likely that the fire had already been observed from ground level (see Laidlaw's evidence at page 2538). On the other hand there is no doubt, in my submission, that the C.F.A. could, and should, have made more use of aeroplanes to direct operations in the field once the fire had broken out. Laidlaw (at page 2538)

was asked whether he considered more use of planes could have been made on 12th February to direct operations. He replied - "Most definitely, in some cases, most definitely - in others planes were very effective, but you would have to be careful not to have too many planes and to keep the air space clear for the planes being used". Robin Jackson in dealing with communications generally in the Strathmore fire said (at page 239 - 240) -

"Generally the communications in fighting the fire were good. They would have been more effective if an aircraft had been over the fire earlier. A private craft was ready to take to the air at Lake Bolac shortly after the fire began. However, he was told to wait as the C.F.A. had a craft in the area. It was subsequently discovered that this craft was in fact near Bendigo and by the time this was determined the Pura Pura fire had started and the Lake Bolac fire had gone to this area and, accordingly, we were without aerial assistance till approximately 4.30 pm. and then only for a short period".

In my submission, the C.F.A. should give serious consideration to the greater use of aircraft to direct operations and in that context I observed on the occasion of the visit to Fiskville that research on this matter was being carried out by the C.F.A. An aircraft with a trained observer who knows local conditions "like the back of his hand" can be an invaluable assistance

to the fire fighters on the ground.

- (j) The legislation with regard to the use of incinerators should be amended and I agree with the submission of the Dandenong Rural Fire Brigades Group (at page 2756F).

It appears that many fires have been caused in the Dandenong Ranges over the years by sparks being emitted from incinerators.

- (k) In the course of the evidence there was criticism by several landowners regarding the planting and retention of sugar gum trees in the Western District area of Victoria. Witnesses did suggest that sugar gum trees were generally a liability, particularly on extreme days of fire danger due to falling limbs in the windy and hot conditions. On the other hand, the virtues of sugar gum trees were extolled by witnesses such as Dr. Lang (at page 2457 - 8). There was also the compelling evidence of Mr. Simpfendorfer in support of the retention of sugar gums in the Western District. Further consideration should be given to a publicity campaign in an attempt to educate and assist farmers and graziers generally with regard to the types of trees to be planted not only in shelter belts but in the vicinity of the homestead itself. In this context the report prepared by Pratt, a C.F.A. Officer, is of considerable interest and importance. In my submission, the Forests Commission has the resources and "know how" to assist farmers as to the suitability or otherwise of particular varieties of trees to be

planted and efforts should be made to impart this knowledge to interested farmers and graziers.

- (1) The S.E.C. standards with regard to tree clearance and maintenance of its installations generally must be raised in order to guard against a repetition of the February 12th disasters. Once these standards are raised they must be maintained. I have already dealt with this problem in some detail in other sections of this submission. It is imperative, in my submission that the S.E.C. make regular reports to the C.F.A. providing information of fire risks which have arisen or which are likely to arise from S.E.C. installations generally, the steps taken or to be taken to overcome or reduce such problems and I consider the S.E.C. should provide statistics of all fires which have occurred due to the operation of its installations generally. In the future the S.E.C. must co-operate more with the C.F.A. if the risk of fires from S.E.C. installations is to be reduced. The S.E.C. must prescribe its own standards regarding maintenance of its installations as the Commission has the technical expertise in this field. The standards of clearance which the S.E.C. prescribes in any particular area of Victoria should be communicated to the C.F.A. so that its officers can make any necessary inspections to ensure that S.E.C. standards are being effectively maintained. Consideration should also be given to

publishing these standards in local newspapers so that members of the public generally and farmers and graziers in particular can have the opportunity of reporting any situation where it is believed the required standards have not been met or maintained. Co-operation is required between the S.E.C. and the C.F.A. and members of the public, particularly in rural areas, must also shoulder the responsibility of carrying out inspections on their own properties and reporting situations which they assess as dangerous. In order to finance a programme which will raise S.E.C. standards as to maintenance of its installations it may well be necessary for the S.E.C. to make an annual levy on all of its consumers throughout the State of Victoria in order to meet the cost of such a scheme. The assessment of the cost of additional works to be undertaken by the S.E.C. for the reduction of fire hazards is \$11.5 million over a 4 year period and \$3.1 million for the 1977 - 8 financial year.

- (m) The S.E.C. should implement the suggested scheme outlined by Chapman with regard to private service lines.
- (n) All sporting activities in fire danger areas should be cancelled on potentially serious fire danger days.

I turn now to a brief consideration of Term 3 of the Terms of Reference which involves a consideration

of the adequacy and effectiveness of present practices adopted in the fighting of major bush and grass fires occurring in the rural areas of Victoria. Closely connected with this question is the Term of Reference 4 (b) which enquires into the question of whether different or additional practices in the fighting of these fires should be adopted in the light of recent developments in rural areas of the State.

Although there were problems experienced on the 12th February, 1977 with regard to the fighting of the fires there is no doubt, in my submission, that the performance of the volunteer in the field supported by the professionals in the C.F.A. was a truly remarkable performance. I refer again to the views Mr. Laidlaw expressed with regard to the manner in which these fires were controlled. On a disaster day like the 12th February there was a large number of fires, which became major fires, occurring within a short space of time. These fires also started in areas adjacent to one another and consequently there was a shortage of equipment on occasions because of the multiplicity of fires. Many of the individual problems experienced in these fires are set out in the submission from the Victorian Rural Fire Brigades Association and I do not propose to recapitulate them. McArthur in his report did criticize some individual Brigades particularly because of their alleged lack of effectiveness on the eastern flank of the fire. Whilst individual criticisms might be valid the overall performance of the volunteer fire fighters was superb. Dr. Lang in the course of his submission said -

"During the fires the crews of both C.F.A. and private tankers acted with their customary determination and courage, exposing themselves to hazardous conditions involving great discomfort.

Dr. Lang also praised those who worked behind the scenes such as the women who prepared and delivered refreshments to those on the fire ground. The performance of the fire fighters on February 12th was remarkable in all the circumstances.

More research into fire behaviour generally is, however, necessary and the C.F.A. must undertake this task in the near future. Control of the eastern flank is vital if a fire is to be held and later extinguished. Research into new forms of equipment for fighting fires is a necessity and this research must also be carried out by the C.F.A. It is clear, in my submission, that if a section of the eastern flank has not been controlled by the time the wind changes then it will become a live flank causing a very large front of fire to move with the wind. The figures in Table 1 show damage which occurred after the wind change in relation to the total damage caused. Having regard to present day technology, equipment and fire fighting techniques it may have been possible, in spite of the extremely difficult conditions, to contain this damage after the wind changed to less significant proportions.

However, looking at the matter overall there is no doubt that the performance on 12th February was full of merit. On a day such as 12th February 1977 any suppression technique is largely ineffective and the magnitude of the disaster can only be reduced by hazard reduction and fire protection measures undertaken by all bodies such as the S.E.C. and by all individuals. Significant improvement in all levels of fire prevention will have to be undertaken in the future otherwise further disasters will occur in the rural areas of the State of Victoria.

	BEFORE ha.	AFTER CHANGE ha.	
CRESSY	41,760 25,130 (seen)	23,500 6,880 (seen)	56% 48%
PENSHURST	3,430	1,640	48%
PURA PURA	18,750	8,200	44%
TATYOON	22,060	4,310	20%
STRATHMORE	6,060	1,100	18%
N. BIADUK	900	180	20%
BALLIANG	3,050	250	8%
WAUBRA	1,700	800	47%
CRESWICK	5,500	600	9%
BEEAC	500	*	16%
MERINO	20	nil	-
LISMORE	1,600	820	51%
	105,330	41,480	(39%)

These figures are based on McArthur's report. The second group of figures are the area visible from the satellite photos and are a minimum figure.

Refer McArthur's report - page 35: north-eastern flank virtually untouched.

McArthur reported an 11 km. freeburning edge at the time of the change.

This figure is less than the 28,900 ha. of McArthur. He noted on page 39 that two thirds of the edge was freeburning.

McArthur comments that 6 km. of the eastern flank were under control before the change. Compare McArthur's figures of 7,300/3,100.

These are McArthur's figures. The result was better in this fire - refer page 56/7.

McArthur's figures.

The 600 ha. is McArthur's figure. The 5,500 is a Forests Commission figure. McArthur notes this is the only larger fire --- which did not breakaway on a broad front to the north-east ----- (page 44)

* McArthur's figures are apparently in error. He quotes 2150/350. His percentage of area burnt after the change is 16% and appears to be of the correct order.

I understand there was no breakaway on this fire.

NOTE: This list is confined to fires of February 12th under examination by the Board.