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FOREWORD

A LETTER FROM THE CHAIRMAN

Many events during the last eighteen months have provided the Country Fire Services with indellibly torrid moments, with resultant strains on the staff which few outside of the organization could ever comprehend.

I have received some correspondence which proclaimed that if the organization were operating efficiently, then the staff would be spared from the onerous tasks involved in responding to inquiries. Nothing, of course, could be further from the truth, since as the expertise and competence of various specialists at Headquarters becomes more widely recognized, these persons become increasingly called upon to provide answers to 1001 questions, some of which need to be seen to be believed. Some queries literally need full-scale research projects to be devoted to the generation of meaningful replies. When delays arise, some indignant parties complain thereby unleashing yet more difficulties. Although one of the important tasks of the C.F.S. Headquarters is to disseminate authoritative information and express expert opinions, this service can escalate beyond all reasonable limits and for several officers, doing research for others has become more than a full-time job.

Every serious fire brings several inquiries in its wake and almost every report, no matter what its origin, but having an impact on fire fighting or prevention, needs to be evaluated by competent persons in Headquarters. Their attention must be diverted from those tasks for which they were ostensibly employed. In spite of such problems, the C.F.S. has developed a laudable reputation for participation and supportive interest in nationally coordinated fire research, even though the travel funds necessitated for this have been held up in some quarters as an example of irresponsible spending!

The Board members have not been spared from the brunt of this maelstrom and have had to devote ever increasing time and effort. I never cease to express surprise when people assume that the Chairman's job is full-time. Sometimes it certainly feels like it but like all other Board members, I actually have a full-time occupation outside of the C.F.S. The assumption, that seems to be growing, that C.F.S. Board members can be asked to be anywhere at anytime at their own expense and travelling in their own cars will only precipitate the day when the jarring concept of a full-time, fully paid, expense account endowed Board equipped with official limousines will need consideration. It will, of course, be difficult to justify such a body in the eyes of 15 000 volunteers.

Professor Peter Schwerdtfeger, Chairman, C.F.S. Board.

EDITORIAL

ASH WEDNESDAY III

More than 16 months after the event the Coronial Enquiries into the fires in South Australia on Wednesday 16th February 1983 have finally been completed and the findings have become public record.

Some criticisms were made of the operations of the Country Fire Services and particularly of C.F.S. headquarters. These criticisms were made by Council assisting the Coroner. The Coroner, in his findings, states, "No doubt a number of these criticisms are well justified on the evidence. However, I would again emphasise that in making recommendations for the future one has to bear in mind that C.F.S. personnel were fighting against enormous odds on Ash Wednesday. Further more, as is conceded by Mr. Bell (Coroner's Council), we now have the benefit of hindsight."

Some of the criticisms were indeed justified. On the final page of his findings Mr. Ahern states, "It is my hope that recommendations which have been specifically set forth in these findings will not be pigeon-holed." Mr. Ahern is assured that for my part, no recommendation will be pigeon-holed. We must continue to strive for improvements in equipment, systems and procedures and I will leave no stone unturned in pursuit of these objectives.

For your part, you performed with honour. No fire fighting service in the world could have performed the tasks better on the day—but we all know that some time in the future you will be called upon to do it all again.

LLOYD C. JOHNS,
Director
S.A. Country Fire Services

C.F.S.'s Tony Keay retires.

The Country Fire Service's Acting Deputy Director, Mr. G.A. (Tony) Keay, retired on August 24th, 1984.

On the eve of his retirement Mr. Keay reflected back on his 32 years of fire fighting experience.

"The past decade has seen tremendous changes in the role of the volunteer fire fighter. The vast improvement in technology and training methods calls for today's C.F.S. volunteer to be a fire fighter with an all-round knowledge of fire fighting.

"The days when our volunteers were basically required to fight bush and grass fires have passed. The continuing spread of urban development into areas formerly mainly rural, and the transportation of highly flammable and often explosive products being carried through country areas, has meant that our fire fighters have to be prepared for all emergencies and not just rural fire fighting," Mr. Keay said.

A professional fire fighter, Mr. Keay has had 10 years with volunteer fire services in S.A., having joined the then Emergency Fire Service in 1974, transferring to the C.F.S. when it was established in 1978, as a regional officer.

He was promoted to Superintendent of Operations in 1980 and to Acting Deputy Director in July last year.

He was previously with the Northern Territory Fire Service for 12 months and earlier had a 20-year career with the Warwick Country Fire Brigade in the United Kingdom, where he was officer-in-charge of the Rugby fire station, and officer responsible for fire prevention.

Mr. Keay said the 1980's had heralded in technological developments in the design and operation of fire fighting vehicles and in the greatly expanded use of radio communications, and both had become an integral part of the C.F.S. operations in the field.

"These aspects will require the continuing expansion of training skills and facilities", he said, adding that the two Ash Wednesday disasters were the biggest and most horrific that he had been involved in during his 32 years as a fire fighter.

Mr. Keay, who holds the Fire Services' Long Service and Good Conduct Medal (the forerunner to the Australian National Medal), and who is a member of the Institution of Fire Engineers, plans to spend more time caravanning and sailing — two recreational activities which did not fit into a fire fighter's summer-time leisure programme.

Friends and colleagues from the South Australian Country Fire Services headquarters, join with brigades, councils and fire fighting associations in wishing Tony and Doris Keay a happy and healthy retirement.

Front Cover:

C.F.S. "Smokey" flies interstate on Children's Education Project

In a move aimed at evaluating and sharing fire safety education programmes for children with other fire services, the Country Fire Services fire protection symbol, "Smokey the Koala" made a week-long visit to four interstate capitals in the first week of July 1984.

Accompanied by the C.F.S. Superintendent of Research, Mr. Tony Crichton, and the Publicity/Promotions Officer, Mr. Peter Mills, "Smokey" left Adelaide by T.A.A. for Sydney, the first port of call on Sunday 1st July.

The party also visited Brisbane, Melbourne and Hobart.

T.A.A. officers Captain John Mardling and Flight Hostess Judith Flannery were on hand to welcome "Smokey The Koala" on board for his fire safety education visit to the eastern states.

SAS Channel 10's children's personality "Fat Cat" (pictured left) turned up at the airport to say goodbye and give his friend "Smokey The Koala" a T.A.A. overnight bag. Travelling with Smokey was C.F.S. Superintendent of Research, Tony Crichton (centre) and Publicity Officer, Peter Mills (not pictured).

In each capital the C.F.S. officers held discussions with officers of the respective fire services on their programmes.

Mr. Crichton said he believed it was the first time that a fire prevention "mascot"/symbol had made an interstate trip to meet similar characters in other states.

"We believe there are numerous areas in the education of children on fire safety that can be shared by the various State fire services and our visit to the services provided excellent opportunities to discuss and evaluate these programmes", Mr. Crichton said.

Mr. Crichton said T.A.A.'s assistance for the interstate visit was greatly appreciated. On arrival at each city, "Smokey the Koala" was welcomed at the airport by local fire authorities.

In Melbourne, "Smokey" met the Country Fire Authority's character, "Captain Koala", while on arrival in Hobart the Tasmanian's State Fire Commission character, "Willy the Wombat", greeted him.

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NOTICE TO BRIGADES

1984 FIRE PREVENTION WEEK

Friday 19th to Saturday 27th October

The City Parade of C.F.S. Fire Appliances will be held on Saturday 27th October 1984.

ACKNOWLEDGEMENTS

The South Australian Country Fire Services aknowledge the support of Trans-Australia Airlines (T.A.A.) for the service and courtesy extended to our officers and Smokey at all airports during the East Coast trip.

Smokey the Koala did not go empty handed thanks to Hardie Containers of Athol Park who supplied a specially prepared box to carry Smokey's fire safety education material.

. . . Editor

CORONER'S INQUEST—FINDINGS—1983 ASH WEDNESDAY II BUSHFIRES

ARCING POWER LINES LIKELY CAUSED FOUR OF THE FIVE FIRES IN THE HILLS

(Adelaide Hills Fires, Ash Wednesday II, 16th February, 1983)

ADELAIDE HILLS— Arcing Electricity Trust power lines likely caused four of the five bushfires in the Adelaide Hills on Ash Wednesday II.

The State Coroner, Mr. K. B. Ahern on Friday 20th July, 1984 gave his findings after a 56 day inquest into the Adelaide Hills fires on 16th February, 1983, which claimed 14 lives and caused well in excess of $26m damage.

Handing down his findings from the 259 page report, Mr. Ahern said that clashing power lines most likely caused the fires at Woodside, Mount Osmond, Hahndorf-Mount Barker and Mylor. The fifth blaze at Bridgewater started when a fallen tree limb touched power lines and created sparks.

Many of the items raised in the findings of the Coroner from Ash Wednesday 1983 have been addressed by the Country Fire Services over the last 18 months; particularly the breakdowns that occurred in some aspects of communication and of the need for greater cooperation between some brigades and headquarters.

These items will be considered further in the light of comments in the report in relation to the following recommendations.

Recommendations:

Country Fire Services

1. Need for a joint intelligence centre comprising representatives of the C.F.S., S.A. Metropolitan Fire Service and S.A. Police.
2. Acknowledged the worth of pre-planning responses in particular fire areas.
3. Appointment of a liaison officer to coordinate public messages and handle media enquiries.
4. Benefit would be gained by having an officer in the field, whose responsibility would be to relay back to Headquarters up-to-date information concerning the progress and indeed path of the particular fire.
5. Some brigade fire fighting equipment "not up to standard" should be updated. Suggested local councils seek C.F.S. advice regarding purchase, upkeep and maintenance of equipment generally.
6. Manpower should be made available for C.F.S. training throughout the State.
7. Set up a special mobile force trained in all aspects of fire fighting activities including fire prevention and fire hazard reduction. "The expertise of such personnel could be used on days of serious fire hazard to great effect," said Mr. Ahern.
8. C.F.S. Board should exercise its powers under Section 53 of the Country Fires Act, to enforce the clearing of dangerous undergrowth, but only when owners or occupiers of land or Councils in particular areas have failed in this endeavour.

Recommendations continued . . .

Councils and Other Statutory Bodies

1. Urged S.A. Government agencies with land under their control to ensure they keep that land free of fire hazards.
2. Need for stricter compliance with clearance notices both by councils and householders. "It is initially up to Councils to take the initiative against defaulting owners."
3. Strongly urge that all Councils give the question of hazard reduction high priority.
4. A survey be undertaken as soon as reasonably possible, of fuel build-up in all areas of danger particularly where hazard reduction has been neglected.
5. Penalties for failing to clear dangerous build-ups of vegetation should be substantially increased.
6. Suggested the compulsory installation of sprinkler systems at houses in fire prone areas be considered.

Electricity Trust of South Australia

"In a number of cases evidence established quite conclusively that power lines had made contact with tree branches or limbs."

1. A treelopping programme by the Trust should be stepped up and maintained on a regular basis throughout the State.
2. The placing of power lines underground might be a matter for consideration by the Trust.
3. Officials no doubt can give urgent consideration to other ways to reduce the likelihood of fires resulting from power lines.

Fire Causes:

The Coroner's findings on the various Adelaide Hills fires were:

WOODSIDE FIRE

The Coroner found that arcing power lines had caused the fire at Downer's Road, Woodside.

He said there was "no doubt" about it. Witnesses had seen power lines arcing and emitting sparks. Mr. Ahern found the fire started in a paddock on the road about 11.00 a.m.

Spacer bars had been installed on the power lines in the late afternoon of Ash Wednesday following the outbreak of fire.

He said a man who owned the property opposite the fire, Mr. M. J. O'Shea, his wife and a C.F.S. officer had all seen sparks coming from arcing power lines. Another witness, Dr. D. Cruikshanks-Boyd, of the Australian Mineral Development Laboratories, had examined the power lines from a cherry-picker and had noticed evidence of arcing.

He had found approximately 20 arc marks on the lines.

ETSA's regional manager, Mr. F. Bazeley, had inspected the site and agreed he had seen areas of arcing.

Mr. Ahern said he had "no doubt the fire was caused by the arcing of conductors." Fortunately the area burnt had been relatively small and little damage had been done.

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CORONER'S INQUEST—FINDINGS—1983 ASH WEDNESDAY II BUSHFIRES . . . .Continued.

Fire Causes continued . . .

MOUNT OSMOND FIRE

The specific origins of fires which devastated Greenhill and killed four people have not been found, but the view favoured is that the fires origin was towards the lower or northern end of the retaining wall to a block at Chapman Crescent.

The Coroner said this in his findings on the Mount Osmond fire which he said had spread into several areas of the Adelaide Hills.

He indicated the most likely cause of the Mount Osmond Fire was clashing power lines, although he held this view "not with great confidence."

Five causes of the fire had been suggested—an incinerator, a swimming pool filter, clashing power lines, bottles or tins or broken glass or possibly arson.

He discounted arson because no evidence had been given and the incinerator, pool filter and bottles and glass theories lacked support.

Mr. Ahern said an examination of conductors on February 16th revealed evidence of arcing between the "sleeve" of one line and the "uncovered neutral conductor".

About mid-way between power pole 14 and the join in the blue conductor was a poplar tree. According to photographs taken after the fire branches of the trees had grown through the lines.

But Mr. Ahern said "the arc marks alone would not assist" in determining whether arcing happened that day, some day before Ash Wednesday or from then until the day the lines were looked at.

"Certainly the fact of the branches of the poplar tree growing through the conductors would allow for contact to be made, particularly having regard to the high wind prevalent on Ash Wednesday", he said.

"There is also of course, some evidence of a small fire having occurred at the base of the poplar tree. This was observed a day or so after Ash Wednesday and would have been consistent with a small fire having occurred fairly recently."

He said no evidence had been given of anyone seeing clashing lines or lines and branches touching on Ash Wednesday.

Mr. Ahern added that on the assumption that clashing did occur it is conceivable with the ejection of hot metal particles that some particles were blown across Chapman Crescent in to a vacant block with dry vegetation, in which the fire started about 1.25 p.m.

He said the fire had:

- Spread rapidly up the slopes of Mount Osmond, forking near or at Mountain View Place.
- Fronts had crossed Mount Osmond Road and moved into the golf course where trees and plantations "erupted into flames" and where flying debris had been seen.

A "spot" fire from the golf course had started in a pampas bush near Devil's Elbow and then spread in three directions.

Mr. Ahern said fire had burnt into Waterfall Gully and also entered Cleland Park Reserve. The Waterfall Gully fire was initially a slow burning fire.

At least four fronts crossed the Greenhill Road at various localities.

The fire in the pampas bush reached the South-Eastern Freeway and jumped it at places, with one fire burning South-East up the Gully leading to Eagle on the Hill.

Other spot fires seen along the eastern side of Bullock Track had reached the freeway and with a wind change the eastern flank had become the fire front.

Fires progressed into Cleland after the wind change, but the Coroner was unable to determine the origin of the fronts which crossed Greenhill Road.

HAHNDORF-MOUNT BARKER FIRE

Arcing power lines in a tree top on River Road, Hahndorf caused the Hahndorf-Mount Barker fire, the Coroner found.

The fire was reported to have started approximately 1.05 p.m. Mr. Ahern said it was also quite conceivable that some tree branches, that had not been trimmed by ETSA for about 3 years prior to the fire, had made contact with the conductors causing burning bark to fall to the ground.

He said photographs submitted showed some branches of a tree on Mr. M. L. Noske's property on River Road were located between four of the conductors.

Mr. Noske's neighbour, Mrs. P. D. Goczan had told the inquest she had heard a "loud cracking noise" about 1.05 p.m. She had gone outside and seen flames on Mr. Noske's property.

The late Mr. R. D. Orr, the District supervisor, Mount Barker C.F.S. had gone to the fire but had difficulty getting to the fire front.

At the junction of Fairview and Von Doussa Roads, Hahndorf, the fire had jumped "a considerable distance" into heavily timbered country. Numerous spot fires had been occurring about the Hahndorf Oval.

Mr. P. J. Parry of the Australian Mineral Development Laboratories had examined power lines on Mr. Noske's property.

He had reported arcing marks at a number of places on the lines. Two areas of arcing both extended for about 25 centimetres. Some of the arc marks were shiny and apparently of recent origin.

Mr. Parry said the presence of gum tree branches among the lines increased the possibility of arcing.

Mr. Ahern said it was reasonable to conclude that arcing power lines in the vicinity of the gum tree had been the probable cause of the fire.

BRIDGEWATER FIRE

A tree limb falling across power lines and subsequent sparking caused the Bridgewater fire, the Coroner said.

A fractured tree limb had made contact with high and low-voltage power lines, causing sparks.

The sparks had been blown in the wind and had ignited vegetation on the other side of Banksia Road, Bridgewater at about 1.30 p.m.

The bough or limb which broke, had been weakened by rot or termites. The high winds on the day caused the limb to break away from the trunk and come into contact with conductors.

Mrs. C. A. Abbott a resident of Banksia Drive, Bridgewater, had told the inquest she had been in her house when she heard a noise "like the snap of a branch." She had gone outside and seen a tree branch "balancing" on power lines. The wire was sparking and sparks were falling in the direction of the ground.

A short time later she had seen a stringy-bark tree across the road, alight with the flames starting "a few metres up the tree" from ground level

She could not say whether the lines had clashed.

Mr. I. Sarvas, a Police Technical Services officer, had examined a branch from the scene which showed sustained burns to a number of areas. The branch was hollow and infested with rot.

He had also examined the power lines and about three metres from a spacer bar had seen blackening of the high and low voltage lines.

A Mr. C. T. Hall who investigated the fire had found fire burn areas on the bough and small areas of "finger-like" scorching.

Mr. Hall had referred to a series of tests carried out by the S.A. Institute of Technology to simulate the effect of branches falling across power lines.

In the experiment a "highly audible buzzing sound" had been heard. Arcing had commenced at the points of contact between the branch and the power line, followed by widespread arcing and the foliage igniting.

Mr. Hall had said the fire started as a result of sparks falling from arcing at the points where the branch touched the power line.

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CORONER'S INQUEST—FINDINGS—1983 ASH WEDNESDAY II BUSHFIRES . . . . Continued.

Fire Causes continued . . .

BRIDGEWATER FIRE

Mr. Ahern said there could be little doubt about the validity of Mr. Hall's opinion.

He said ETSA did not dispute it was a possibility that sparks generated by the contact of the branch with conductors might have been a possible cause of the fire.

MYLOR FIRE

A witness had heard "an explosion" above her head near power lines shortly before the Mylor fire began, the Coroner said.

He found the clashing of conductors had caused the outbreak of fire on the Thomas' property, Leslie Creek Road, Mylor at around 2.00 p.m. or a little later.

Mrs. J. Thomas had been outside her house watering when she heard the explosion. About that time the water supply failed.

A short time after she had observed a small fire about two metres (7 to 8 feet) east of the stobie pole on the property.

Mr. Ahern said the overloading of the water pump had not caused the fire.

Mr. P. J. Parry of the Australian Mineral Development Laboratories had inspected the site with the assistance of ETSA personnel and found evidence of arcing between two of the power lines.

From the number of marks the lines had come into contact on a number of occasions.

A stobie pole junction box also indicated one conductor had been arcing with the terminal block. The conductor not clamped had been free to move in the box and damage to the box was consistent with exposure to heat.

Mr. Parry said it was unlikely molten aluminium from arcing of the incorrectly installed conductor in the junction box had caused the fire.

The fire was most likely caused by showers of molten aluminium (caused by arcing power lines) falling to the ground and igniting vegetation.

McLAREN FLAT FIRE

Arcing of undertensioned power lines caused the fire at Truscott Road, McLaren Flat.

The Deputy State Coroner, Mr. K. J. Prescott gave his findings on the McLaren Flat fire, which killed three people and destroyed 34 houses causing more than $12.5m damage.

Mr. Prescott found that the McLaren Flat fire had been caused by the "clouting" of an undertensioned power line against another on Truscott Road.

The arcing had ejected molten aluminium particles which had been carried by wind to a paddock, which had caught fire.

One (1) person at Ashbourne and two (2) at Prospect Hill died in the fire.

Approximately 800 CFS Personnel were involved with some 87 CFS units.

About 40 fire fighters including 2 policemen were injured.

Many fire fighters received on the spot medical attention for eye injuries and smoke inhalation by St. John volunteer personnel.

Nine people were taken to the Flinders Medical Centre and treated for burns, heat exhaustion and eye injuries.

Two (2) homes of the 34 reported destroyed or damaged were owned by C.F.S. volunteer fire fighters, who were elsewhere fighting the fires.

Fire destroyed hundreds of kilometres of fencing; hundreds of cattle and sheep were killed or so badly burnt they had to be destroyed; feed and machinery sheds were gutted.

Total area burnt 16 946 hectares.

Mr. Prescott criticised ETSA tensioning procedures and recommended that uniform tension measurements be used for all power lines.

Three Honoured for Bushfire Bravery

Three heroes of the 1983 Ash Wednesday bushfires in the Hills have received bravery medals from the Governor of S.A., Sir Donald Dunstan.

The Hills recipients of the Royal Humane Society's bronze medals were Robin Camens, of Lobethal; David Newman of Cudlee Creek; and Geoff Peddar, of Ashton. Mr. Peddar (a C.F.S. volunteer) and Mr. Camens were involved in saving the life of a woman at Greenhill at the height of the fire.

Mr. Newman, a fire control officer, was instrumental in rescuing a badly-burnt teenage fire fighter.

All three were in serious personal danger during the rescues.

Mr. Peddar commented on receiving his medal that it was really on behalf of the many who risked their lives on that day.

Earlier this year he and Mr. Newman also received Queen's Bronze Medals for Bravery, from the Governor.

The Volunteer congratulates Mr. Robin Camens, Mr. David Newman and Mr. Geoff Peddar on the honour bestowed on these courageous men, and salutes the many brave C.F.S. volunteers who risked their lives and performed heroic deeds in the Ash Wednesday II bush fires . . . Editor.

INCIDENT REPORTING SYSTEM

NEW ARRANGEMENTS

Accurate information is essential to planning and management to reduce South Australia's fire losses. The Research Division is updating the current incident reporting system to collect information simply and efficiently.

A comprehensive system is planned to commence in the 1985/86 financial year. The system will meet Australian Standard 2577–1983 "Collection of Data on Fire Incidents" and provide readily accessible data for planning and management. Comments on the use and value of the existing fire report form and system are welcomed.

To increase the value of fire reports greater effort is needed to improve the rate of return and the reliability of data. Problems arise where reports are not sent or are incomplete, incorrect, or contradictory (where more than one brigade attends an incident). These problems also increase the scope for interpretation errors by encoders.

From July 1984 please send fire reports to your Regional Officer At: C.F.S. Headquarters (Regions 1, 2, 3 and 7); Regional Offices (Regions 4, 5 and 6).

C.F.S. Headquarters aims to give Regions up-to-date monthly summaries of incidents. Please send in your reports promptly so the data can be encoded and analysed.

BUSHFIRES: WHAT HAVE WE LEARNED?

by D. R. Packham, Director (Research)
National Centre for Rural Fire Research
Chisholm Institute of Technology

1. INTRODUCTION

One of the thoughts that must occur to witnesses to the aftermath of bushfire disasters like Hobart 1967 and Ash Wednesday 1983, must surely be "How did so many survive?" If one experiences an intense bushfire in person, the stress is such as to make the survival of people even more surprising. The facts are however, that even in an intense bushfire, survival is the rule rather than the exception. We can hope that, in any future "Ash Wednesday", there will be no more than 100 deaths and the destruction of about 2000 homes—though one can imagine disaster situations in which much worse losses could occur. But need we be so pessimistic? Cannot we do better than this?

Without doubt the most effective protection against bushfires is large-scale prescribed burning to reduce bush fuels to safer levels. However, whether or not we apply fuel reduction, it may still be possible to decrease our life and house loss in future conflagrations. Studies currently underway clearly show that the main determinant for house survival is occupancy of the house by able bodied people, especially if they have a reasonable supply of water. It is also probable that the house, in turn, is the safest haven for people under bushfire threat. Such conclusions are more realistic than impossible dreams of large scale evacuation—with the resultant increase in loss of life and homes which must occur during, and after, an evacuation which goes wrong. This paper gives my view of the realities of a bushfire, based both on a consideration of the physics of bushfires, known bushfire behaviour and a memorable personal experience of Ash Wednesday when my house at Upper Beaconsfield was assailed by fire.

The fires of Ash Wednesday were typical of the disasters which can occur throughout Australia at regular, but infrequent, intervals. The interval between disaster fires is long enough for the great Australian apathy to flourish, and for us all to imagine that "she'll be right". On Ash Wednesday 1983 it was *not* right and on the next occasion it will not be right either, unless we do something about it NOW. Whilst I suspect that the official attitudes are that we can't do much in the face of such problems, I know from 22 years of bushfire research that we can, indeed, do a lot.

2. THE NATURE OF THE BUSHFIRE THREAT

We must understand what we are up against in a real bushfire. A bushfire is only a release of the heat energy that is stored in dead leaves, grass and other forest litter waiting to burn when the weather conditions are suitable. The heat released is enormous; for example, (in the hottest areas) one metre of fire edge on Ash Wednesday 1983 gave out about 100 Mega watts of power, i.e. 5 metres of that fire front was equal to a 'Newport' power station and 60 metres was equal to Victoria's total electricity power consumption at peak load.

Where does this heat go? Two thirds of it rises as hot air into the atmosphere where it causes us no immediate concern; but the other third is emitted as heat radiation. Heat radiation travels in straight lines and can be deflected or absorbed by any solid object—and some non-solid ones, e.g. liquid water and water vapour. The maximum radiation intensity that falls on an object from a fully developed crown fire may be more than 100 kW per square metre, and that amount of radiation falling on exposed skin can cause death in seconds. However, the very nature of heat radiation is such that it is very easy to protect yourself against it. A solid object, especially the walls of a building, will provide the necessary protection during the five minutes of peak burning and flaming that occurs when the front is passing. After that it is very hot and unpleasant outside, but if one is in reasonable health one can survive quite easily.

Lists of essential steps that must be taken if caught in a bushfire are available; and knowledge and appreciation of such instructions can ensure almost certain survival. I believe that to educate the rural community to follow these vital steps should not be too difficult, and could certainly lead to a decrease in both life and house loss.

3. HOUSE PROTECTION

There are many ways to help a house survive a bushfire. Such house-saving steps can serve to increase the occupants' confidence, and encourage them to stay in their homes—where they themselves are the most effective protectors of their houses. They are much safer there, than when rushing along bushlined, overloaded country roads to uncertain destinations. All the suggestions which follow are based on the fact that most houses burn from the inside—under floor boards or in the roof space. Thus to be bushfire resistant, a house should:—

1. Be built on a concrete slab.
2. Have minimum roof space.
3. Be equipped with a ca. 1200 litre, gravity fed water-system to guarantee sufficient fire fighting water.
4. Have the ground well cleared back from the house for a distance of four to ten metres. It is not necessary to remove all trees; and many of the trees on a block can be retained and enjoyed, although the dead leaves and bark around them should be meticulously removed each spring, and during the summer months.
5. Have *metal* flywire *outside* the windows. Flywire cuts radiation by about 30% and will stop burning embers entering the house.
6. Have a static source of water outside, but near, the house, e.g. a swimming pool, hot tub, fish pond etc.
7. Be equipped with buckets, mops, dippers and wet towels when fire threatens.
8. Have a roof structure designed to withstand the cyclone strength winds that often accompany a bushfire.

These very simple suggestions will undoubtedly prove helpful. In addition, water sprinklers may be usefully installed around the house in the lawn about 4–5 metres from the house; these will decrease the heat radiation that falls on the house by absorbing the radiation passing through the air, by decreasing the radiation produced by the flames and by prewetting any fuels surrounding the house.

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Bushfires: What have we learned? cont. . . .

4. CONCLUSION

There are many more details that are important but my conclusions over two decades of research—and after Hobart in 1967, Gippsland in 1965 and Ash Wednesday 1983— are that, if the occupants are not elderly, but of normal health and over about 12 years old, then;

(a) the house is the safest refuge, and
(b) people who understand what can happen to them in a bushfire will not panic and will do all the right things.

Finally, if we put our mind to it by undertaking good fuel reduction in the large dangerous areas around us, (as well as our own house blocks), then we can minimise the impact of future Ash Wednesdays. But, if we do not do so, such disasters will be repeated, time and time again.

MAINTENANCE OF VEHICLE ELECTRICAL SYSTEMS

Reliability and performance of a vehicle is very much related to the state of its electrical system. Besides affecting engine starting and working characteristics, poor electrics will also degrade communications.

For these reasons it is essential that the following checks be made.

1. Check battery fluid level and top up as recommended for the particular battery. (When filling with fuel is often a convenient time.)
2. Clean battery terminals periodically, or when acid build up is noted. This should be done by disconnecting all lugs from the battery (earth side first, for safety) and by cleaning with a solution of 1 teaspoon carb soda per cup of warm water. Take care not to allow any of the solution into the battery. Lightly abrade the cleaned surfaces, smear with petroleum jelly and reassemble. This procedure if done carefully, will provide reliable and maintenance free battery connections for 2 years or more. The use of the conventional protective felt washer on the battery post will also be an advantage. Severely corroded components should be replaced.
3. Check earthing of battery. The earth connection from battery to body and motor is equally important as the live side. Clean the connection surfaces to bright metal to ensure proper electrical contact. Use a second lead if necessary to bond the battery earth to the motor. Do not rely on body conduction for this function, as excessive earth current may occur in auxiliary wiring during starting of the engine.
4. On petrol engines check plugs, points, spark plugs leads. These can be the source of poor engine performance and ignition noise on radio equipment. With FM radio equipment, ignition noise normally only becomes a problem when trying to receive weaker signals, but significant degradation can occur if the vehicle (or pump) ignition system is in poor condition or not suppressed. Replace doubtful leads and check that suppression type leads are fitted. Install suppression capacitors to earth at the coil (on the ignition switch connection), on the output terminal of the alternator/generator, and on the output terminal of flasher units driving warning lights.
5. All wiring "added" to a vehicle should include a suitably rated fuse, and be secured away from hot exhausts and sharp edges. The fuse installed should not exceed the maximum current rating of the lightest cable in the circuit.

Advice on special problems may be sought from C.F.S. Headquarters Communications Officer on (08) 297 6788.

Lions offer to brigades

FUND-RAISING OPPORTUNITY

The Lions Club of Mitcham Incorporated have made available as a fundraiser *free* to C.F.S. Brigades a quantity of bricks, plaques and cans of varnish—remaining from the Lions International-C.F.S. Brick Appeal, held on Saturday, 14th April.

The bricks came from the rubble of The Eagle on the Hill Hotel destroyed in the Ash Wednesday II bushfires of 1983 (refer The Volunteer Volume 20, Page 30).

At the recent appeal donors of $5.00 or more, were presented with a varnished piece of brick with an inscribed plaque, as pictured above.

Brigades wishing to take up this unique fund raising opportunity may collect their bricks, plaques and varnish from: Country Fire Services Headquarters, 20 Richmond Road, Keswick, contact Mr. David Critchley.

RECOGNITION FOR SAS 10 T.V.

The close association which has existed between SAS Channel 10 and the Country Fire Services over the years, was recognised recently when C.F.S. Director Lloyd Johns presented a small plaque to Channel 10's General Manager Kevin Campbell.

Mr. Campbell, left, accepts the plaque from C.F.S. Director, Lloyd Johns.

Mr. Johns said the C.F.S. greatly appreciated the help given by the station to the service. The assistance covered the C.F.S. public education and publicity programmes and many other areas of helping to inform the public.

Mr. Campbell said the Station had been pleased to give help where possible. He said the plaque would occupy a prominent position in the station's display awards and citations received over the years.

FIRE FIGHTING DRILL REGIONAL COMPETITIONS/STATE CHAMPIONSHIP

Certificates

Naracoorte C.F.S. competition team members (pictured above), returned home from the Millicent Region 5 (South East) Fire Fighting Drill Competitions with trophies, pennants and certificates totalling 20 in all, won in the events on 24th June 1984.

(Photograph reproduced courtesy Naracoorte Herald)

As this issue of "The Volunteer" goes to print, the State Fire Fighting Drill Championship is just weeks away (Sunday, 30th September at Balaklava).

All the C.F.S. brigades who competed this year in the Regional Competitions to earn a place at the Championship are to be praised for their dedication.

Your determination to win is the same spirit that earned our Aussie athletes "medals" at the XXIII Olympiad in Los Angeles.

The cadets too have turned out in force at each Regional Competition and are to be congratulated on their efforts.

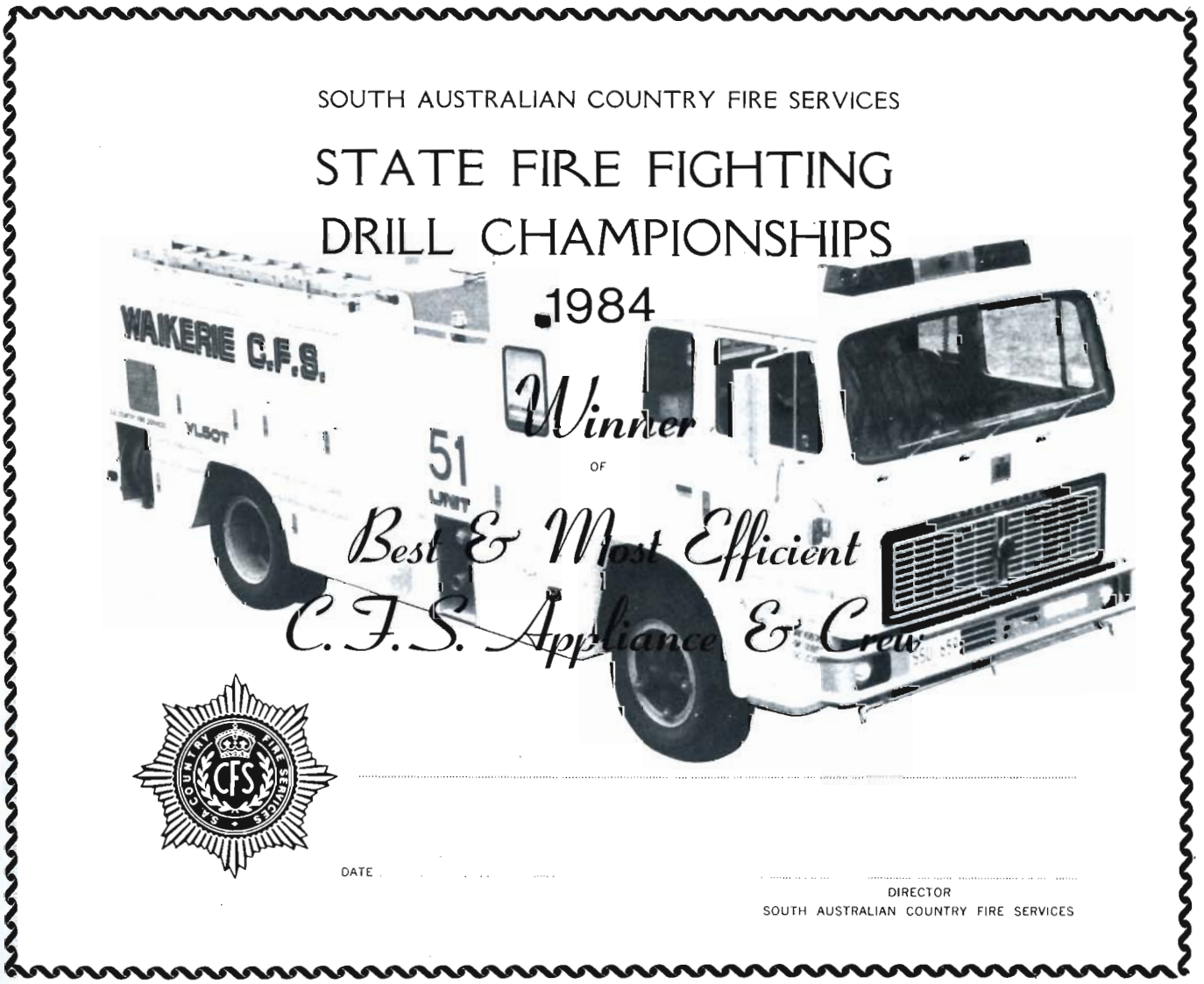
The skills being learnt by these young men and women can only strengthen our service for the future.

Those of you who have won a certificate at this year's Regional Competition(s) would have noticed that all the 1984 certificates feature a fire appliance. This replaces the picture of trophies used previously.

The fire truck featured is the Waikerie C.F.S. Appliance: 51, to acknowledge "The Best and Most Efficient Appliance and Crew" for 1983 award won by Waikerie C.F.S.

Will **your** *brigade receive that honor at the 1984 State Championship?*

Best of luck to all competitors in the forthcoming events . . .
Editor.



COMPENSATION

By N. J. Cooke, Superintendent of Administration.

An area of vital concern to anyone involved in the hazardous task of fire fighting is the protection afforded by way of compensation to that person and his/her dependants in the event of injury or death.

The legislators, recognising this very important issue, have made provision for compensation which is contained under S27 of the Country Fires Act. It is probably opportune at this juncture to quote from the Act, which reads as follows:

Section 27—Country Fires Act.
DIVISION VII—COMPENSATION

27. (1) This section applies to—

(a) a fire control officer or a fire party leader appointed under this Act;

or

(b) a member of a C.F.S. fire brigade, who receives no remuneration by reason of his office as a fire control officer, or fire party leader or by reason of his membership of a C.F.S. fire brigade.

(2) The Workers Compensation Act, 1971-1982, applies in relation to a person to whom this section applies as if—

(a) his functions and duties as a fire control officer, fire party leader or a member of a C.F.S. fire brigade constituted employment by the Board;

and

(b) his remuneration in respect of that presumptive employment had been at a rate equal to the prescribed percentage of average weekly earnings as existing from time to time during the period of that presumptive employment,

but in determining compensation payable by the Board under that Act—

(c) any actual remuneration of the person by or in respect of whom compensation is claimed (as distinct from the presumptive remuneration referred to above) shall be disregarded;

and

(d) the question of whether and, if so, to what extent a claimant is incapacitated from employment shall be determined by reference to employment in which he was otherwise engaged at the commencement of the incapacity or, if he was not then engaged in other employment, by reference to employment for which he was then reasonably fitted.

(2a) A reference to average weekly earnings is a reference to average weekly earnings for adults working ordinary time in full-time employment as determined from time to time by the Commonwealth Statistician in relation to this State.

(2b) A regulation prescribing a percentage for the purpose of subsection (2) shall, if it so provides, have retrospective operation.

The administration process by which the Board secures contracts in respect of its liability to pay workers compensation is not relevant to this article and has been omitted.

The question is often asked, "Who is covered by S27?"

Every Fire Control Officer and Fire Party Leader appointed under the Act holding office at the time of injury is entitled to compensation. Similarly, any registered member of a CFS Fire Brigade is also entitled to compensation.

CFS membership is defined within CFS Fire Brigade Constitutions and can include:

(a) Firefighters
(b) Junior Firefighters (16 to 18 years of age)
(c) Cadets (12 to 16 years of age)
(d) Ladies Auxiliaries
(e) Associate members.

Because no remuneration for CFS service is involved, members are often unsure as to the circumstances in which claims for compensation should be made.

Fire Control Officers and Fire party Leaders who are not fire brigade members usually require compensation cover when engaged in fire fighting operations.

However, registered members of CFS fire brigades undertake a variety of duties which are not actual firefighting operations. For example, training sessions, competitions, search and rescue tasks, fund raising social activities on behalf of the brigade and administration are all duties which may be required of a CFS member and naturally should be, and are, covered under the terms of S27.

The right to, and amount of compensation is an extremely complex area which is detailed at great length in the Workers Compensation Act 1971-1974, and provision exists under S27 for that Act to be applied to any person making a claim for compensation under the Country Fires Act.

In very general terms, compensation is paid for loss of income, hospital, medical and associated expenses which under the terms and conditions of the Workers Compensation Act are the areas of concern to CFS volunteers who are covered irrespective of whether the member is self employed or receiving wages in the course of his normal occupation.

Again, in general terms, the amount of compensation paid in respect of lost income is equal to the average weekly earning for adults in South Australia as calculated by the Commonwealth Statistician and adjusted every time there is Consumer Price Index movement (see S27(2)).

It should be noted that the acceptance of a claim for compensation is the prerogative of the insurer. The Industrial Court of S.A. has jurisdiction to hear and determine any question or dispute concerning any matter arising in connection with the liability to pay or the amount of compensation under the Workers Compensation Act.

The Board, to provide a facility and assistance to FCO's and FPL's and its volunteer members, has established procedures at CFS headquarters for handling claims for Workers Compensation.

Much of the initial detail can be passed over the telephone to our Correspondence Clerk who will commence the claiming process.

The actions necessary are as follows:

Either the injured member or a nominee (i.e. District Clerk, brigade secretary) should notify the administration section of the Country Fire Services headquarters (the officers to contact are the Correspondence Clerk or in his absence the Chief Clerk (08) 297 6788) as soon as practicable after the injury, preferably no later than 36 hours after the injury, with the following details:

Name of injured member
Address
Telephone number
Age
Nature of Injury
Details of how Injury occurred
Witnesses' names
Expected time to be lost from normal employment.

These details will immediately be transmitted to the insurer and at the same time an "Injured Workers" form will be despatched to the claimant.

This form must be completed and returned to headquarters as soon as possible, together with a medical certificate if incapacitated as a result of the injury and any accounts received for medical and/or hospital services.

If the claimant is unable to complete the form him/herself, a member of his or her immediate family or the person in authority at the time of the injury may complete the form on his or her behalf. In any case, the sooner the claim is lodged with the insurer the sooner the necessary payments can be made.

Continued page 11

COMPENSATION

THE VOLUNTEER FIRE FIGHTERS FUND

It is probably worthwhile mentioning the Volunteer Fire Fighters Fund, which is quite separate from the compensation provision of the Country Fires Act and which was established under its own Act of Parliament in 1949 to authorise the making of payments in respect of the injury or death of volunteer firefighters.

Since the inception of the Country Fires Act and because of its workers compensation provision for registered members of the CFS, the fire fighters referred to in the VFFF Act now relate primarily to what may be termed the "casual" fire fighter. That is, any member of the general public who offers assistance or is co-opted to assist during fire fighting operations and for incidental purposes. In the event of a claim against the Fund by such a person proof will need to be furnished that he or she was acting under the direction of an authorised Fire Officer (e.g. Fire Supervisor, FCO etc.).

The VFFF is administered by trustees appointed by the Governor and is a body corporate with perpetual succession. One of the trustees is a Special Magistrate, who is also appointed Chairman. A significant aspect of the VFFF which should be explained is that the trustees have an obligation to ensure that before payments out of the fund are made all other means of compensation or payment of one kind or another have been applied (e.g. insurance, medicare, social service benefits etc.). Nevertheless, the trustees have wide discretionary powers which they may exercise and in practice claims are examined individually and determinations are made on the merits of each particular claim.

The procedure for making a claim against the Volunteer Fire Fighters Fund is exactly the same as that described earlier in this article for registered CFS members, except that the form which will be forwarded to the claimant will be different. CFS members may need to assist "casual" fire fighters with initial advice about the Fund.

The health and welfare of the members of any organisation is an extremely important factor in maintaining morale and you can feel confident that the CFS Board and its officers will do everything within their powers to ensure that morale is maintained at its highest level.

If there are any doubts or questions about compensation please don't hesitate to contact CFS Headquarters or your Regional Officer.

Baby Boom at H.Q.!

CONGRATULATIONS TO THE PROUD PARENTS

S.A. Country Fire Services members and friends congratulate Joylene and Neil Ellis on the birth of a son, Ryan William. Born: 20th May 1984, at Flinders Medical Centre. Weight: 8 lbs 4 oz.

Neil Ellis is Deputy Group Captain at Happy Valley and a control centre operator at C.F.S. Headquarters.

To Elizabeth (Liz) and Kym Martin, a boy: Andrew Kym. Born: 28th June 1984, at Flinders Medical Centre. Weight: 3 lb 8 oz.

Liz worked at C.F.S. Headquarters as a typist/clerk.

Congratulations go to Paulette and Mark Thomason on the birth of their first child, a girl, Amanda June. Born: 9th July 1984 at Blackwood District Community Hospital. Weight: 7 lb 6oz.

Mark Thomason serves as a fireman in the Mount Barker C.F.S. (formerly of Belair C.F.S.) and is a control centre operator at C.F.S. Headquarters.

Chemical fires/spillages

HEED PROTECTION ADVICE

A chemical fire destroyed a shed near Milang on Thursday, 11th December, 1983. The fire caused $150 000 damage to the shed and contents. The shed contained petrol, gas cylinders, a vehicle, and liquid insecticide **Malathion** along with other chemicals Bravo 500 and Cencor.

Six C.F.S. Volunteers were treated in the Strathalbyn hospital for chemical poisoning as a result of contact with Malathion—being absorbed through the skin and through inhalation causes nausea and blurred vision in human beings and could in extreme circumstances cause heart failure.

A special C.F.S. Headquarters Hazards team "Hazteam" wearing protective clothing, helmets and breathing apparatus isolated some 60 containers of liquid insecticide Malathion and neutralised the site.

R.O. David Batten dressed in protective clothing removes empty burnt cans of insecticide from the fire scene at Milang.
(Photograph reproduced courtesy "The Advertiser")

Other chemical spillages have since occurred, one of the most recent being a chemical leak at Tintinara on Thursday, 2nd August 1984.

The area was sealed off when a 200 litre drum of **Formaldehyde** on a truck leaked on to a service station forecourt releasing toxic fumes. The drum was one of 19 on the truck.

"Hazteam" personnel used protective clothing and breathing apparatus to remove the drum and decontaminate the area.

In the spillage involving Formaldehyde, a concentration of 2 parts/million is sufficient to effect the human body.

These incidents further emphasise the need for brigades to follow standard procedures as set out in "The Volunteer" Volume 20, page 13: "Responding to a Hazardous Materials Incident."

It is most imperative that fire fighters stay up wind of any such incident.

Pictured above, Balaklava C.F.S. members familiarise themselves with the Compressed Air Breathing Apparatus equipment, while cadets look on.

OBITUARY

Senior C.F.S. Officer dies

Tribute to Mr. Raymond Donald Orr

Mr. Ray Orr, O.A.M., J.P.

The S.A. Country Fire Services pays tribute to the memory of the late Mr. Raymond (Ray) Donald Orr., O.A.M., J.P., MLG of Mount Barker, member of 15th A.I.B., 2nd of A.I.F., Member of Mount Barker R.S.L. sub-branch, and Group Captain of Mount Barker C.F.S.

A pioneer of S.A.'s volunteer fire fighting services and a leading figure in local government, Mr. Ray Orr, Mayor of Mt. Barker, aged 59, died suddenly on Friday 25th May, 1984.

Mr. Orr had been a councillor for 21 years before being elected the district's first mayor in 1981, and held this office until his death.

His involvement in the fire service spanned 36 years dedicated service beginning in the early days of the Emergency Fire Service and was active both at local and state level.

Mr. Orr was Deputy to the Chairman of the Board of the Country Fire Services, a position he had held since its inauguration in 1977.

For his service to the community, local government and fire fighting, Mr. Orr was awarded the Order of Australia Medal (O.A.M.) in January, 1979.

During World War II, Mr. Orr saw active service in the 15th Australian Infantry Battalion in Bougainville, attaining the rank of sergeant.

The funeral service was held on Tuesday 29th May, in the Uniting Church, Mt. Barker and was concluded in the W. A. Norman Memorial Chapel, Centennial Park Crematorium.

At the funeral service tributes were paid to Mr. Orr, by Acting Mayor of Mt. Barker, Cr. Joan Kreiser, C.F.S. Board Chairman, Professor Peter Schwerdtfeger and Mr. Chris O'Connor on behalf of family and friends.

The Mount Barker fire siren was sounded in tribute as the cortege left for Centennial Park Cemetery. The service was attended by over 300 people, C.F.S. personnel and civic leaders.

A Mount Barker C.F.S. fire truck preceded the hearse and members of the local C.F.S. unit formed a guard of honour.

Mr. Orr is survived by his 22 year old twin children, David and Dianne. He was predeceased by his wife, Val.

"A MAN OF THE PEOPLE"

Tributes have come from far and wide to the late Mt. Barker's Mayor and C.F.S. identity, Mr. Ray Orr.

Speaking at his funeral service acting Mayor Cr. Joan Kreiser said Mr. Orr was "essentially a man of the people who served his country and the district to the end.

"The magnitude of his service to local government leaves a lasting impression on us all" she said.

Professor Peter Schwerdtfeger, Chairman of the C.F.S. Board paid tribute to him as a "founding father" of the C.F.S.

"In spite of his having been elevated to the Board in 1977, Ray continued as an active fire fighter and commander.

A lesser man would have chosen a less stressful life style", Professor Schwerdtfeger said.

Mr. David Wotton, Member for Murray described Mr. Orr as "the epitome of what we all recognise in total dedication to a community".

"He was totally involved, totally committed and totally dedicated in everything he did."

"His commitment to organisations such as the C.F.S. was complete . . . involving service at the local, district and state levels", said Mr. Wotton.

Mr. Chris O'Connor, speaking at the funeral on behalf of family and friends, described Mr. Orr as a human man who always had time to listen and help, despite his many commitments.

"He was a man who cared and who had simple dignity" Mr. O'Connor said, "He devoted his life to others".

"Ray's passing is a tragic loss. Happy memories, however, of a man who won the respect of all, will be remembered and treasured for many years to come." God Bless Ray Orr.

Acknowledgement is made to the Mount Barker Courier, for the tribute paid to Mr. Raymond Donald Orr.

(Photograph reproduced courtesy The Courier, Mt. Barker)

OBITUARY

Mr. Kenneth Raymond CLARK
Smithfield C.F.S.

The Volunteer pays tribute to the memory of Kenneth Raymond Clark who passed away on 11th July, 1984.

Ken was Captain of Smithfield Country Fire Services and a respected friend of all brigade members.

His dedication to duty set a fine example for all to follow.

To Mrs. Joy Clark and Jeff and Dawn we extend our sincere sympathies.

Mr. James Creswell FRY
Lenswood and Forest Range C.F.S.

The members of the Lenswood and Forest Range Country Fire Service pays its respects to the memory of Jim Fry who passed away on 29th May, 1984.

Jim was active in district affairs, notably in the Lenswood and Forest Range C.F.S. He was a foundation member and in 1982 was awarded life membership of the C.F.S. in recognition of his service.

A highly respected member of the community Jim Fry will be sadly missed by his family and fellow C.F.S. members and friends.

Mr. W. T. (Bill) HENDERSON
Hindmarsh Valley C.F.S.

A devoted brigade and community member Bill Henderson "father of the C.F.S. in the Victor Harbor district", passed away on 27th April, 1984.

Bill was an active member of the Hindmarsh Valley Association since its formation having served as a committee member and Fire Control Officer for many years.

He was presented with the National Medal and bar in 1979 for 29 years service.

For many years prior to 1979 and up to his death Bill was Deputy Supervisor for Hindmarsh Valley and carried out this responsibility with a seemingly uncanny knowledge of fire fighting.

Bill will be sorely missed as a friend and fire fighter in the Victor Harbor district.

As a mark of respect to this man, C.F.S. personnel and Rotarians formed a guard of honour for the late Bill Henderson at the funeral. Zero 3, the fire unit of the Deputy Supervisor, led the hearse followed by sixteen fire fighting vehicles representing the C.F.S. within the district and surrounding areas.

Mr. Leo SCHAEFER
Buckleboo C.F.S.

The Buckleboo Country Fire Service and district of Kimba pay tribute to the memory of Leo Schaefer, who passed away on 8th May, 1984.

Leo was a tireless community worker and member of local government, Justice of the Peace, member of the Buckleboo C.F.S. and a Fire Control Officer.

At the time of his death he held the honoured position of Chairman of the District Council of Kimba and the Eyre Peninsula Local Government Association.

The loss of one of Kimba's finest sons will be held forever in the hearts of fellow C.F.S. members and friends.

Throughout his life Leo Schaefer helped and touched the hearts of many people. The friendship made was reflective of the six hundred attendance at the memorial service at the Kimba Institute on Friday, 11th May, 1984, for the late Mr. Leo Schaefer.

C.F.S. "Smokey" flies interstate continued . . .

MASCOTS WORK FOR FIRE PREVENTION

Hobart Airport Rescue Fire Fighter Mr. Roger McMaster showed "Smokey The Koala" and "Willy the Wombat" correct use of an extinguisher for an airport fire, during Smokey's interstate fire safety education trip. Tasmanian fire fighter Willy the Wombat (State Fire Commission character) later introduced Smokey to school children on the Eastern shore. The two mascots educated the children on fire protection and bushfire safety.
(Photograph reproduced courtesy The Mercury, Hobart.)

MARRIAGE . . . AND MEDAL

Pictured above from left: C.F.S. Headquarters personnel Mrs. Lesley Peacock (nee Wallace) admires the Wang Australian Marathon Medal won by Mrs. Jill Crump.

Lesley our Receptionist/Telephonist married Mr. Edward Peacock at One Tree Hill Uniting Church on Saturday 1st September 1984.

Jill entered the Wang Australian Marathon held in Sydney on Sunday 10th June and against international competitors completed the run in a time of 3 hours 22 minutes 23 seconds. Her personal best was 3.36.

"Australia's Olympians Robert De Castella ("Deek") and Lisa Martin a resident in Gawler S.A., have been my inspiration," said Jill.

Congratulations ladies . . . Editor

REGIONAL NEWS

Region 1

Fire Fighter's Training School 1984/85

A series of Weekend Schools have been arranged for Fire Fighters interested in furthering their skills in Theory and Practical Fire Fighting.

The Courses are open to Officers and Fire Fighters of the C.F.S., within Region 1.

All courses will be held at C.F.S. Headquarters in Adelaide.

Dates of Schools:

Stage I	September 21st, 22nd & 23rd 1984.
Stage II	March 8th, 9th & 10th 1985.
Stage III	May 31st, June 1st & 2nd 1985.
Stage IV	October 18th, 19th & 20th 1985.

By now all Brigades in Region 1 would have received nomination forms. Please indicate which stages nominees wish to attend. An early reply would be appreciated as the numbers will be restricted to 35... *R.O. Russell Grear*

Footnote:

Due to the excellent response to the September Stage 1 training school an additional Stage 1 school has been scheduled for May 3rd, 4th and 5th 1985.

Hills C.F.S. officer achieves high honour

Mr. David McGowan, Grad I. Fire E

An Adelaide Hills Country Fire Services officer is the first C.F.S. volunteer to become a graduate of the Institution of Fire Engineers (U.K.).

Mr. David McGowan, Captain of the Basket Range C.F.S. Brigade for the past three years, achieved the honour through a correspondence course and by sitting for a lengthy examination earlier this year.

Mr. McGowan, who has been a member of the C.F.S. for 14 years, said the impetus to undertake the course had come from a desire to help equip other C.F.S. volunteers with similar academic and practical qualifications as provided for by the Institution of Fire Engineers (I.F.E.).

"It is my intention to study and sit for the Membership Examination next year, and to encourage other C.F.S. volunteers throughout the State to undertake the course.

"The I.F.E. examinations are a long-accepted part of on-going training for members of the Metropolitan Fire Service, and I think it is meaningful for us to show that C.F.S. volunteers can achieve similar qualifications," he said.

C.F.S. Director, Mr. Lloyd Johns, in extending the Board's congratulations, said Mr. McGowan's willingness to encourage other C.F.S. volunteers to do the course showed his esprit-de-corps to his fellow members.

Mr. McGowan, a teacher, said the I.F.E. course covered the academic area of mathematics, science, and technical drawings, while in the area of fire fighting the subjects encompassed fire appliances and equipment, and methods of fighting various types of fires.

The international course related to fire-fighting methods for both urban and rural areas, but he personally believed that with South Australia being one of the highest fire-prone areas in the world, the training techniques taught to C.F.S. volunteers were, by necessity, ahead of the rest of the world.

Region 1 continued . . .

He took the course by correspondence through the New South Wales Department of Further Technical Education, which, to his knowledge, is the only educational institution in Australia with the I.F.E. course in its curriculum.

Formerly a volunteer with the St. John Ambulance, David McGowan in 1978 gained Membership of the Institute of Ambulance Officers of Australia. At the time there were only five officers in S.A. who had achieved this qualification.

Footnote:

Two C.F.S. Headquarters Officers, Mark Thomason, Control Centre Operator and R.O. Bruce Hogan, Training Officer have also been honoured with a Graduate Diploma of the Institute of Fire Engineers (U.K.).

"Super" Pumper

Eden Hills C.F.S. took delivery of their new fire appliance (pictured above) on Friday, 20th July, 1984.

SPECIFICATIONS:

- Cab Chassis-Ford Louisville LN 8000
- Engine-Caterpillar 3208 157KW NA V8
- Transmission-Allison Automatic MT 653 5 Speed
- DIFF/RA No Spin RA

PUMP:

- Darley JMP 400 2 Stage Series/Parallel
  Performance 1800L at 700 KPA
  700L at 4000 KPA
- Darley 1½ AGE B/S
- "Feecon" around the pump foam proportioner.
  (Foam and wetting agent available from all outlets.)
- 2 × 90M × 25 MM H/P Hose Reels, with task force nozzles.
- Tank 2200 LT.

EQUIPMENT:

- 1 Large Variable Monitor, Gear Type.
- 4 Breathing Apparatus Sets.
- 390M of Delivery Hose.
- 8 Knapsack Sprays.
- Hand Extinguishers/Hand Tools etc.
- Ladders × 2.

APPLIANCE BUILDER:

- Carey Gully Engineering.

Continued page 15

REGIONAL NEWS

Region 1 continued . . .

C.F.S. Volunteers—fine tuning Communications Network

The Country Fire Services is revamping its state wide communications network.

The service wants each of its 7 regions to establish their own communications advisory committees by Christmas 1984.

The committees will comprise of C.F.S. communications officer R.O. Trevor Conlon, the area's full-time regional officer and one person from each council district covered by the individual regions.

"Such a committee would play a vital role in updating the service's state-wide communications network and monitoring and solving any problems affecting individual regions," R.O. Conlon said.

He said the long term goal was to set up a state committee with representatives from every region.

Region 1, which includes the Adelaide Hills, Murray Bridge and Strathalbyn held its inaugural communications conference/meeting at the Belair C.F.S. station on Thursday 26th July.

All of the 15 district councils were represented by a delegate and a senior operations officer, and representatives from National Parks and Wildlife Service. "A 100% attendance".

The communications conference focused on problems with inter-district communications which hampered firefighting crews on Ash Wednesday.

Another topic discussed was the setting up of forward command posts in fire areas, to keep units fully informed of the changing situation.

Ways to maximise the potential of the manpower and resources available, are now being looked at.

"The attitude of the conference attendees was enthusiastic and progressive and will certainly place Region 1 in a strong position for future development of communication programmes within the region".

"The situation now is that the Ash Wednesday disasters have further highlighted the need for improved communications and new technology.

"We were more prepared for Ash Wednesday II than Ash Wednesday I and the advisory committees will hopefully correct any current communication problems and improve our efficiency in handling any future disaster," said R.O. Conlon.

Region 2

Tea Tree Gully Unit commissioned

The Tea Tree Gully C.F.S. new R.F.W. Heavy Pumper, Model CAIA 4×4, 17 tonne fire appliance was commissioned at the Tea Tree Gully Civic Centre on Friday 20th July.

Pictured above the Tea Tree Gully new R.F.W. with Detroit Diesel, 6V-53T (develops 168 k-225 hp) Transmission: Allison MT-653 DR Automatic 5 speed constant 4 wheel drive with automatic power divider, two speed rear differential. Main pump: Darley HM350 driven VIA A Chelsea power takeoff by the main truck engine with pump and roll facility, max. volume 1800 lpm (396 gpm), max. pressure 2100 kPa (300 psi). Second pump: Twin cyl. onan petrol engine coupled to a Darley 1½" AGE pump, max. vol 500 lpm. (110 gpm), max. pressure 2100 kPa (300 psi); electric primer.

Region 2 continued . . .

Tea Tree Gully unit continued . . .

Hose reels: 2 Hannay electric rewind each holding 60 m (197 ft) high pressure hose and T.F.T. nozzles. Hose points: 4 body mounted, fixed 2 m (6½ft) high pressure hose and T.F.T. nozzles, spray bar, 2 sets draeger B.A., canvas delivery hose 150 m (500 ft)×64 mm dia. (2½" dia), canvas delivery hose 150 mm (500 ft)×38 mm dia. (1½" dia.), suction hose 4 off 2.5 m (8'6")×64 mm dia. (2½ dia.), hydraulic rescue equipment, foam branch and foam compound, chainsaw, knapsacks, ladder and hand tools. The unit cost approx. $130 000.

Official guests at the commissioning were Mr. John Tilley, Mayor of Tea Tree Gully, Mr. John Klunder, Member for Newland (representing government), Mr. Scott Ashenden, Member for Todd, Mr. Ron Hunter, Town Clerk T.T.G. and Mr. Lloyd Johns, C.F.S. Director.

The Mayor in his welcome speech reflected back on Ash Wednesday II, destruction of the T.T.G. fire unit Mobile 14 and how the brigade had to go through the last bushfire season, with one unit short. Thankfully 1983/84 did not turn out a very hot summer and the existing C.F.S. equipment was sufficient to quell fires that occurred.

Presentation of life membership certificates and badges were made to Mrs. Ronda Goodes and Mr. Gordon James Sandford by Mr. Johns. "Awarded for service devoted to saving of life and property from fire."

In presenting the keys to the new unit Mr. John Klunder M.P. spoke of the debt of gratitude the state owed to all Country Fire Services brigades involved in Ash Wednesday II.

Mr. Klunder said,"The new Tea Tree Gully fire fighting vehicle is an expression of gratitude from the community and government and a vote of confidence in the Tea Tree Gully C.F.S. brigade, which has a membership of 53."

Mr. Johns officially commissioned the appliance and Group Captain Dean Sandford accepted the vehicle keys.

In his acceptance speech Mr. Sandford spoke of the support received from the community and from Northfield C.F.S. Group Captain Barry Chapman, officers and men, who over the past 18 months have been the T.T.G. brigade's backup unit.

Tribute was also paid to the Police, St. John, local State Emergency Service and S.A. Metropolitan Fire Service.

T.T.G. President and Deputy Group Captain Mr. Ray Goodes responded on behalf of the brigade.

"The people of South Australia will remember Ash Wednesday II, 1983.

"The C.F.S. volunteer members will never erase the memories of that holocaust.

"Tea Tree Gully C.F.S. lost a fire appliance—this was publicised.

"What is known to only a few, is that 14 Tea Tree Gully C.F.S. crew members almost perished near Range Road South on that day, whilst protecting lives and properties.

"This replacement appliance, made possible by the South Australian Government, Community Services and the general public has incorporated the latest in fire fighting technology and crew safety.

"The appliance was designed and built to include the S.A. Country Fire Services Board Heavy Appliance Specifications for "Urban Standards of Fire Cover."

The RFW cab chassis and high pressure pump was selected by the brigade to ensure maximum fire fighting capacity was available to protect the lives, homes and properties of our community, and the C.F.S. crews operating the appliance.

The design features the ability to totally enclose the crew working area of the vehicle," said Mr. Goodes.

Mr. Goodes then gave an impressive account of the brigade's fire fighting record. In 1982/83 Fire calls totalled 82, man hours 4658, and man hours in training was 2162. In 1983/84 Fire calls attended were 48, man hours 1047, man hours in training 2364 while Red Alert and stand by situations totalled 226 hours.

Continued page 16

REGIONAL NEWS

Region 2 continued . . .

Kapunda well protected

Pictured above the Kapunda C.F.S. International ACCO 1710, 4×2 Type 1 appliance. Tank capacity is 2200 litres. Appliance builder was Carey Gully Engineering. The unit meets the Heavy Appliance Specifications.

Kapunda C.F.S. new $58 318 fire unit was officially commissioned by Dr. Bruce Eastick, M.P., Member for Light, on Sunday 17th June. Mr. Peter Swann, Kapunda C.F.S. Group Captain accepted the keys on behalf of the brigade.

The offical party was Dr. Bruce Eastick M.P., Member for Light and Mrs. Eastick, Mr. I. H. Tralaggan, Mayor of Kapunda and Mrs. Tralaggan, Mr. Colin Kupke, President, Kapunda C.F.S., Mr. Peter J. Swann, Group Captain, Kapunda C.F.S. and R.O. Brian Menadue, C.F.S. Region 2 officer.

The unit's new rescue equipment consisting of a two speed hand pump and cutter (bought from donations by Kapunda organisations) was demonstrated prior to the commissioning. A foam branch and 2 new sets of B.A. are among equipment items on the new appliance that will assist in protection of Kapunda and neighbouring areas this summer.

Region 3

Regional Training

A Stage 1 C.F.S. Regional Training School was held at Port Vincent on 1st, 2nd and 3rd June.

The training programme involved the development of skills in hose and branch work through the application of the practical hydraulics of pumping water.

The students were divided into two groups. While one group operated a Darley pump set up on the Port Vincent jetty, the other tested the various patterns of water used for fire suppression.

Other subjects covered were knots and lines, ladder work, first aid procedures and the theory of fire fighting strategy and tactics.

Twenty-three C.F.S. brigade personnel attended. They came from Port Wakefield, Kadina, Yorketown, Stansbury, Ardrossan, Price, Maitland and surrounding districts.

New fire truck enters the ranks

Region 3 continued . . .

New fire truck continued . . .

Pictured above, local signwriter Mr. Ron O'Brien puts the finishing touches to the new Kingscote fire truck, before the commissioning. The Hon. Ian Gilfillan MLC commissioned the new Kingscote and American River fire units at the opening of the Kingscote Emergency Services building on Friday 3rd August.

It was noted that all funds for the refitting of units were raised locally.

(Photograph reproduced courtesy "The Islander")

Region 4 profile

Region 4 in the mid north extends south to cover the Snowtown, Blyth and Clare councils; east to Burra, Hallet and Peterborough councils; north to Hawker council and west to cover the Port Augusta council.

The area is protected by 52 registered Country Fire Services brigades with 57 fire appliances, within 21 District Councils.

Some of the pastoral country in the north-east is also protected by 4 C.F.S. brigades.

The region has a communications group and a group committee was formed at Georgetown earlier this year.

Main productivity is wheat and barley cropping, while further north sheep grazing abounds.

Following the Ash Wednesday II bushfires at Clare, brigades within the region have established new fire units and equipment.

C.F.S. Brigades who have recently taken delivery of, or commissioned new fire appliances are: Narridy, Pt. Broughton, Crystal Brook, Clare, Sevenhill/Penwortham and Jamestown.

Other brigades in region 4 have upgraded their existing units with new pumping equipment.

Fully operational this season

The Sevenhill/Penwortham C.F.S. will be fully operational for this bushfire season with a new fire unit and a new fire station to their credit.

Pictured above the new fire station and vehicle bay (nearing completion) is being measured for size by the new Sevenhill/Penwortham C.F.S. truck.

The building of the truck commenced in June 1983 just three months after Ash Wednesday II, and was completed in May 1984. Twenty local volunteers built up the back of the vehicle on an International 4 wheel drive cab chassis costing $3000. A further $8000 was spent on conversions to the unit and a Darley pump and 200 gallon water tank.

The brigade's first fire call with their new unit came in early June and 10 members were "ready to go."

About 20 local residents are active members, supported by another 30 members of the Committee.

Continued page 17

REGIONAL NEWS

Region 4 continued . . .

Fully operational this season continued . . .

The new Fire Station being built on the side of the existing Madonna Hall is the result of a grant from the Community Employment Programme (C.E.P.) for $32 000, leaving the committees to meet the materials cost of $25 000.

Eight unemployed personnel are working on the project. The completion date has been set for 21st September 1984.

The brick fire building will house the C.F.S. unit, toilets and showers plus a radio room and training area.

There is no reticulated water supply so the brigade have sunk a bore and are constructing two overhead tanks behind the new fire station. The tanks will hold approx. 3000 gallons of water.

The existing hall is also under going renovations under the C.E.P. grant. Once completed the hall will have a dual purpose. It will be used for local activities or fund raising programmes involving the brigade and can double as an emergency centre in a disaster situation.

Sevenhill/Penwortham C.F.S. President, Mr. Ron Wilkins, believes the new fire station will be the incentive for local "blokes" to become more involved in the brigade.

WINCH FOR SALE

Sevenhill/Penwortham have a P.T.O. winch from an International C13D For Sale

For further information contact:
Mr. Ron Wilkins (Telephone 7HI (088) 43 4217)
c/- Sevenhill/Penwortham C.F.S. S.A. 5450

"Ernie" in first attack

Clare C.F.S. new "first attack" Ford F350, 4 wheel drive fire appliance pictured above with brigade captain John Donnelan has been christened Ernie—the fastest Golden North Milk Carton in the North.

The honour was given in recognition of Golden North's support of the brigade on Ash Wednesday II.

The unit also proudly displays the Lions Club International Badge, in acknowledgement of their generous donation of $8000. Other sponsors were the S.A. Council on the Ageing; S.A. Baptist Union and people of the Clare district, with the vehicle body being built up by the C.F.S. crew members.

Back-up protection for the new Ford F350 and for the brigade comes from their Dodge fire truck with 500 gallon tank (being refitted with a Darley high pressure pump); a 4 wheel drive Nissan Patrol vehicle, with a Rex 10 pump and 130 gallon tank and a Ford F600 V8 (1960 petrol motor), with a Coventry climax godiva pump—used mainly as a town fire unit.

Region 4 continued . . .

Multi purpose vehicle

Narridy C.F.S. recently took delivery of a new fire unit, pictured above which replaces their 1964 Bedford and provides better protection for the area. The replacement unit is a second hand International 1976 D1610 4×4, with a 400 gallon tank, Darley Champion HE1465 Fire Pump fitted with an electric primer and 2″ inlet.

The unit built to medium size C.F.S. specifications by Carey Gully Engineering contains rear crew compartment protection and is complete with all the necessary fire fighting equipment for rural fires.

Area protected by the Narridy C.F.S. is farming land, predominantly grain growing, while in the northern and southern boundaries sheep graze on hilly ground that requires a 4 wheel drive vehicle for access. The main road carries hazardous loads; both chemical and fuel . . . and vehicle accidents. And to the north is the Perth to Sydney railway line where in recent years the brigade has attended a series of fires along the line.

Narridy C.F.S. covers the southern part of the 100th of Narridy and acts as a backup for neighbouring brigades within the Georgetown D/C area. The brigade was established in 1956.

Members consist of farmers and farmers sons from the local community and number 15. The nucleus of the crew are experienced men, having their own farm fire fighting units.

Narridy C.F.S. members pictured above, on the back of their new unit. Top step: Michael Kelly; centre: Brian Kelly, President; Robert Hosking, secretary and bottom: Regional Officer George Polomka.
Footnote: Both Messrs Brian and Michael Kelly have successfully completed the Stage 1 to Stage 4 Regional Training School Courses.

Continued page 18

REGIONAL NEWS

Region 4 continued . . .

Cadet Course—School Elective

Gladstone High School has for the past two years allowed a C.F.S. Cadet course to be run as a school elective.

A certificate is awarded to those students who pass the course.

Should they wish to develop the training skills learned, students are then encouraged to join their local C.F.S. brigade as a Cadet.

Establishment of the C.F.S. school Electives Syllabus at Gladstone High School came about through an approach made to R.O. George Polomka by the then school councillor Mr. Tony Wege, strongly supported by the School Principal Mr. Burfield.

Once the first programme was developed Mr. Wege transferred to Nuriootpa. Involvement in the cadet programme then fell squarely on the shoulders of Technical Studies teacher, Mr. Martin Smith, a member of the Laura C.F.S.

Courses: In the Junior course (Year 10) cadets cover subjects on: Fire ground terminology, Physics, Fire extinguishers, Rural and general fire prevention/protection, Attack and extinguishment, Hoses/branches and hydrants, Forest and scrub fire suppression, Radio communications, knots and lines, Map reading and elementary rescue methods. The programme also involves practical work and a written examination is held at the end of the 13 week course.

Of the 50 or so year 10 students at school, 26 have now completed the cadet course. Approximately one third of the cadets are girls who are in the "top 10" of their classes.

Cadets who passed the Junior course were eager to further their knowledge, so the Gladstone high school have allowed a 3 hour/week—13 week *Senior* Course to be included in the school electives during the last term of 1984.

The Senior Course (Year 11) expands on the subjects covered in the junior course and also includes Ladders, Hose drill, Hydraulics, Country Fires Act, Protection and Survival and Search and rescue—both theory and practical.

At the commencement of the courses, junior and senior cadets are issued with a book containing all lesson precise and on completion of each section a work sheet (contained) is done. A written and practical examination is held at the end of the course.

Footnote:

Messrs Burfield and Smith will have completed Stage 4 of the Stage 1 to Stage 4 C.F.S. Brigade Officers Training School by the time this issue goes to print.

ROPES AND KNOTS

Pictured above, Gladstone High School Cadets demonstrate types of knots learnt in the ropes and knots course elective subject. From left—back row: Mark Amie, Craig Renolds, Anthony Lyons, Teacher Martin Smith, Peter Swore, Jane McKerly, Craig Wilson, Dale Smith and Joanne Schmidt. Front row: Anthony Cross, Leon Piggott and R.O. George Polomka.

Region 4 continued . . .

"With the commencement of news from Region 4, in this special Regional News section, it is hoped that all brigades will in future send in information on brigade news—covering commissionings, service award presentations, technical articles, stories . . . for publication." R.O. George Polomka.

Region 6

Voluntary donations and labour

THE RESULT!

Two Country Fire Services units, one provided completely by people in the district and the other rebuilt with voluntary labour were comissioned at Charlton on Sunday 6th May.

The Lincoln District Council was unable to provide a fire fighting appliance for Charlton in the short term, so the locals got together and provided their own by donations and voluntary work.

The Charlton C.F.S. bought an ex-Army four wheel drive truck and fitted the cab and chassis with sides and a pump. The truck was built to C.F.S. specifications at an all-up cost of around $11 000.

Secretary of Charlton C.F.S., Mr. John Hammat, praised the co-operation received from other brigades in the district and from Regional Officer Kevin May.

Captain of Lincoln C.F.S., Mr. Garry Kennedy, said, "His crew decided to rebuild their 'top heavy' four-wheel drive Landcruiser to make it a safer appliance."

"Team members designed the modifications. Some fabrication was done by Port Lincoln High School students with the work being finished by members on a voluntary basis."

The conversion cost of the quick attack go-anywhere vehicle was met by money earned by burning-off operations in Port Lincoln. $6500 had been spent on modifications.

Service awards were presented at the commissioning to: Messrs T. Secker, P. Sheridan, G. Woodroffe, P. Dawes, M. Hurrell, G. Johnson and G. Kennedy.

Passes inspection—with honours

Pt. Broughton's new fire truck is pictured above under-going close inspection by Council personnel, locals and brigade members.

The fire appliance, a Mercedes Benz L911 four-wheel drive cab chassis was purchased by the Council in June 1983, and Carey Gully Engineers built the body work to C.F.S. specifications. Total cost of the unit was approx. $62 000.

Pt. Broughton Council have installed V.H.F. and U.H.F. radio systems in both the Pt. Broughton and the Wards Hill C.F.S. fire appliances.

Wards Hill C.F.S. purchased a replacement unit 3 years ago and Mundoora upgraded their unit 2 years ago. The Pt. Broughton Council area is now well serviced.

The Pt. Broughton and District Lions Club also presented a cheque for $1450 toward the cost of the radio systems for Pt. Broughton C.F.S.

The brigade's existing unit has been retained as a back up and Council has applied for an unemployment grant to construct a new fire shed to house both units.

(Photograph and extracts from article reproduced courtesy of "Yorke Peninsula Country Times")

BOOLEROO C.F.S.— Fire fighting role was acknowledged in a mural painted on the fire station wall by Booleroo Centre High School teacher Mr. Andrew Chambers with help from school students.
(Photograph reproduced courtesy The Transcontinental.)

BRIDGEWATER C.F.S.— Commissioned station's newest fire truck on Sunday 29th April. Official guests included Member for Fisher, Mr. Stan Evans and Chairman of Stirling Council, Mr. Lloyd Leah, and brigade life members Messrs Allan "Grandpa" Moller, Harold Bowles and Charlie Rosewarne. Life membership certificates and badges were presented to Captain Dave Moller and Mr. Allan Braham.

BRUKUNGA C.F.S.— "Modern brick" fire station was officially opened before 200 people by Member for Murray, Mr. David Wotton. Building features two parking bays, radio room, amenities and control room. The new "scout" vehicle was commissioned by C.F.S. acting deputy director Mr. Tony Keay. Brigade president Mr. Mike Franson and Mr. Michael Skey were presented life membership badges and certificates.

FORRESTON C.F.S.— "First" fire station is nearing completion. The shed of besser block construction will cost $30 000. Features include an office, radio room, vehicle bay, toilets and showers. The shed is strategically placed near the edge of the Mount Crawford forest to protect the district north of Gumeracha. Over 1200 man hours in labour has been carried out by C.F.S. volunteers and members of the community. The land was generously donated by the Mundy family. The brigade "youngest" in the district has 20 active members and 10 reserves.

GOOLWA/CURRENCY CREEK/HINDMARSH ISLAND C.F.S. — Deputy Supervisor, Mr. Roy Galpin of Goolwa has been honoured with the Medal of the Order of Australia in the January 1984 Australia Day Honours list. Mr. Galpin's O.A.M. recognises service to local government and to the community. An original member and early president of the Currency Creek C.F.S. Mr. Galpin was appointed deputy supervisor in 1953 and has retained that office. Service performed for local government and community—Port Elliot and Goolwa District councillor, appointed to deputy Chairman then Chairman. Awarded the Silver Jubilee Medal in 1977. Past Chairman of Southern and Hills Local Govt. Assoc., active member and office bearer of local Agricultural Bureau branch, member of board of South Coast District Hospital, past president of local school hall committee. Justice of the Peace and original member of South Coast Lions Club.
(Photograph reproduced Courtesy Victor Harbor Times)

The S.A. Country Fire Services congratulates Mr. Roy Galpin, O.A.M. on the recognition of his valuable contribution to the community and government of South Australia.

KEITH C.F.S.—Have within its brigade 13 members with first aid certificates, seven trained to fireman second class and one officer trained at the Region 5 training centre. The brigade hosted the Region 5 fire fighting drill competitions.

KIMBA C.F.S.— Received a $2000 donation from Kimba Community Hotel towards the purchase of Radio Equipment and Breathing Apparatus.

MT. BARKER C.F.S.— Plan to extend their station to accommodate another two bays for fire units which will double the station's size. Additions will include showers, toilets and improvements to the kitchen.

MT. PLEASANT C.F.S.— Through district support have raised over $19 000 towards their new Ford F350, 4 wheel drive fire unit costing $30 000. A cheque for $500 towards the unit's cost was donated by the S.A. Field and Games Association.

MEADOWS C.F.S.— Have established a permanent "market-handicraft" shop to sell home products, clothing and crafts to raise funds.

MIDDLETON C.F.S.— New $35 000 fire station was officially opened by the Deputy Premier, Mr. Jack Wright, on Sunday 27th May. Finance for the building was through The Department of Labour under the Job Creation Scheme (C.E.P.), the Port Elliot and Goolwa District Council and Middleton C.F.S.

MILLICENT C.F.S.— Raised funds door knocking in the June '84 Red Shield Appeal to support the Salvation Army. C.F.S. personnel from the Millicent and District Fire Fighting Association paid tribute to the "Salvos" for their help at fires and accidents.

MOBILONG C.F.S.— Communication system has been updated and improved with the purchase of new 20-channel solid state synthesised microcomputer controlled radios, replacing the 25 year old valve type six channel operation radios. Donations received from Mobilong Rotary Club ($50), Murray Bridge Apex Club ($1500) and Murray Bridge & Districts Community Club ($2000).

NEALES FLAT C.F.S.— Had a successful and somewhat unique "fund-raising" programme on July 7 and 8, when large quantities of food was sold to spectators and riders at the "24 hour motor cycle trial"—that passed through the area. The Committee was kept busy for 38 hours non stop.

OWEN C.F.S.— Awarded life membership certificates and medals to Messrs Norm Bowyer and Fred McPharlin.

TINTINARA C.F.S.— Have obtained 314 ratepayers signatures out of the local population of 500, accepting the proposal to levy a special rate of 0.7 cents in the dollar to help pay for a new C.F.S. unit. The brigade is now looking towards the purchase of a 4 wheel drive cab-chassis.

WILLUNGA C.F.S.— Officially opened their new $45 000 fire shed and commissioned the new $78 000 fire truck. The shed was constructed through the job creation scheme and provided work for 13 people. Council contribution was $13 000. The Willunga unit was the second to benefit from the Willunga District Council's 13 year improvement programme for C.F.S. vehicles to ensure no truck in the area is over 20 years old. McLaren Vale C.F.S. received a new truck in 1983, and Aldinga Plains is listed as next year's recipient. Southern District's Lions Club presented a cheque for $850 for the purchase of a new two way radio.

WILMINGTON C.F.S.— Work has been carried out on the "Old Council Chambers" to house the fire units in the main street to ensure a fast-turnout. A new radio room is also planned, thanks to a donation from the local Rodeo Club.

New Product

SINTRONIX WATER LEVEL INDICATOR

A new water level indicator called the "Sintronix" is now available on the market.

Designer and builder Mr. Geoff Sinclair, member of the Waikerie C.F.S. said, "fire fighting appliances must have a reliable, visible indication of water tank contents for safe operation. The new "Sintronix" water level indicator designed specifically for fire appliances, at a reasonable price meets this need."

"The unit has all solid state circuitry with L.E.D. indicators for reliability and long trouble free service. It offers five (5) level indications from full to empty, with a flashing indication to warn that the tank has less than a quarter of its capacity remaining.

"The indicator has two parts, a control unit and a sender unit and the control unit can be mounted directly to the sender or remotely in any convenient location, even in the cabin," reported Mr. Sinclair.

Additional features claimed by the manufacturer are:

(1) Suits any tank—metal or fibreglass, with water or foam to any depth up to 1.2 metres. (Greater depths to order).
(2) 12 volt positive battery operation. (vehicle).
(3) Low current drain—less than ½ amp. maximum.
(4) Switches on with ignition.
(5) Separate "Test" switch.
(6) Remote "Low" indicator facility-optional.

Further information can be obtained from the manufacturer—contact: Geoff Sinclair "Sintronix", 3 Thompson Street, Waikerie S.A. Telephone (085) 412 578 *or* Carey Gully Engineering, Telephone (08) 390 3520.

C.F.S. TRAINING, RESEARCH APPLICATIONS

Open to Volunteers

The S.A. Country Fire Services Training and Research Foundation is now calling for applications from C.F.S. volunteer fire fighters for 1985 grants under the Foundation Trust.

Application forms for the 1985 grants are *now* available from the Campaign Office of S.A. Great Committee, 121 Greenhill Road, Unley S.A. 5061.

FORMATION:

The C.F.S. Training and Research Foundation was established in 1983 by the "S.A. Great Committee" with the $107 000 proceeds from the special lottery conducted after the Ash Wednesday II bushfires. The C.F.S. Board boosted the total capital with contributions made direct to the service; to $134 000.

The grants are provided from the interest generated from the capital investment.

RULES:

For the Making of Grants under the Foundation's Scheme.

(1) ELIGIBLE APPLICANTS

(A) Grants for Training:

Applications will only be considered from registered members of the S.A. Country Fire Services.

(B) Grants for Research:

Applications will be considered from registered members of the S.A. Country Fire Services or from other persons where it can be demonstrated that the results of the research will be of direct benefit to the S.A. Country Fire Services and/or the public of South Australia in areas protected by S.A. Country Fire Services brigades.

(2) GENERAL CONDITIONS

(A) Training:

Grants will be considered for attendances at training courses as follows:

(i) For certain courses conducted by the Mount Lofty C.F.S. Training Centre where the applicant resides outside C.F.S. Region One.

(ii) For courses at a recognised educational establishment where it can be demonstrated that successful completion of the course will be of benefit to the applicant in his/her position as a volunteer member of a C.F.S. Brigade and/or of benefit to the Brigade of which he/she is a member and/or will be of benefit to the Country Fire Service in general.

(iii) For specialised training courses conducted by other establishments or organisations both within South Australia and outside South Australia where it can be demonstrated that successful completion of the course will be of benefit to the applicant in the same manner as sub-paragraph (ii) above.

(iv) Unsuccessful applicants may re-apply in succeeding years provided their applications fall within Foundation guidelines.

(B) Research:

(i) Grants will be considered to fund or partly fund research projects where it can be demonstrated that the results of the research will be of direct benefit to the S.A. Country Fire Services and/or the public of South Australia in areas protected by S.A. Country Fire Service Brigades.

(ii) Applicants need not be registered members of the Country Fire Service but must be permanently residing in South Australia.

(iii) Grants may be made for the development of prototypes; testing of same, the production of scale drawings, mathematical models; laboratory instruments and materials, travel associated with a particular research project and notwithstanding the foregoing for any purpose the Trustee considers may be necessary to fulfil the requirements of the project.

(iv) Where the result of a research project funded by the Trustee leads to a commercially viable development the Trustee at its discretion at any time may require all or part of the grant made to the applicant to be repaid to the Trustee by the Applicant.

(v) Unsuccessful applicants may reapply in succeeding years providing the application falls within the guidelines set down by the Foundation.

(C) Reporting:

(i) Successful applicants shall furnish to the Trustee a written report (including details of financial expenditure) of the research project and/or the training undertaken pursuant to the terms of the grant within six months of the grant and/or upon completion of the research project and/or at such time as may be stipulated by the Trustee at its discretion.

(ii) Reports submitted by successful applicants shall become the property of the Trustee who may use, publish or disseminate any of the information contained in the report or incidental thereto in any manner the Trustee deems appropriate. Successful applicants are free to disseminate and/or publish any such report upon receipt of the consent of the Trustee.

(iii) Copyright and all rights of patent in any works and/or inventions arising from a research project and/or training course shall vest in the applicant.

(iv) In consideration of the Foundation's grant the successful applicant hereby grants to the Foundation such consent and/or licence to permit the Foundation and/or its nominee to use such works and/or inventions for the purpose of fire prevention and fire fighting as defined by the Country Fire Services Act 1980 as amended *and* the successful applicant shall promptly do and execute all such acts, documents and things deemed necessary by the Trustee to give effect to such consent and/or licence.

(v) Upon completion of the research project and/or training course or upon the research project and/or training course not being completed within a reasonable time the Trustee may at its discretion require the successful applicant to refund to the Foundation the balance of moneys (if any) comprised in the grant and not expended by the successful applicant.

All eligible registered C.F.S. volunteer members are strongly urged to apply. After all the Foundation Trust was set up to directly assist the C.F.S. . . . Editor.

SEE YOUR FIRE ESCAPE ROUTE— EMERGENCY LIGHTING

by R.O. Mike Gent, Fire Prevention

Many buildings where people gather have no emergency lighting. The escape routes may be well planned with fire extinguishers provided and a good fire alarm system, yet if lighting fails during a fire escape, routes become a mystery maze and people tend to panic. At best the evacuation time is lengthened.

Your local hall needs emergency lighting. Imagine the building plunged into darkness by a small fire in overloaded fuse boxes during the Christmas stage play. A hall designed and even licensed for 200 people is often swollen to 300 at such times. You awake in your own home to the smell of smoke at night, (hopefully you are woken early by your smoke alarm) your first thought will be to get the family safely out of the house. But the lights don't work. There is a strong smell of smoke. You can hear the crackle of fire. You have a torch but where is it?

I hope the two situations above give you a picture of the problems compounded by lack of light in a fire emergency. I'm sometimes told, "but we only work here during the day." I point out that the "day" sometimes includes dark hours when doing jobs like stocktaking etc.

Having recognised the need for emergency lighting, the next step is what types are available and in what situations would each be used.

(1) Hand held battery powered torches

Keep these by your bed at home, get children to use them for a trip to the loo at night, then you know the torch is always in working order, and in an emergency they know instinctively where the torch is. Larger lamps particularly the rechargeable type are ideal for office use and small business premises.

(2) Automatic selfcontained

These emergency lights are individual units, they consist of a battery powered globe or fluorescent tube with a small battery charger built in. They are wired to the normal lighting circuit to provide power for the charger. The unit senses a power failure in the normal lighting circuit and switches on. When power is restored the unit switches off and the batteries are recharged through the charger.

This type of emergency lighting is now most commonly used for premises where large numbers of people gather e.g. hospitals, institutions etc. The same principle applies to "exit" signs, but they are kept in the permanently on position.

(3) Centralised Battery Systems

A bank of rechargeable batteries in one position, with fire rated wiring running to lights through the building forms an entirely separate lighting system. The batteries are recharged by trickle charger. The system senses a power failure and switches on automatically.

This system was the earlier model of the previous self contained system described above, and is still cheaper to install where many lights are required in spite of the wiring costs.

(4) Emergency Generator

An emergency generator can provide power for other electricity needs besides lighting and can be installed to operate automatically on power failure. This system is not currently acceptable to Australian Standards for emergency lighting because of the time delay in restoring lighting during a power failure. A five-ten second delay for a surgeon in the middle of an operation might be fatal for the patient.

Emergency lighting is necessary in all places where sudden darkness might cause injury or panic, it is an important aspect of fire prevention work.

How about an emergency light in the fire station? A power failure in the town prompts people to use candles in unsafe holders. One candle knocked over causes a fire but firemen trying to turn out the fire unit in the *dark* are delayed.

"See and be safe"

Smokey's Fire Safety Education Programme

FOR CHILDREN

With the aid of a story board panel from the bushfire pantomime, "Smokey The Koala" teaches young children fire safety and not to play with matches.

Fire Weather Season—South Australia 1983/84

by Bureau of Meteorology, Regional Office S.A.

INTRODUCTION

In comparison with the devastation produced in South Australia in the previous fire weather season (1982/83), the 1983/84 season was relatively mild. There were few fires which caused major damage. Apart from December, where temperatures were about or slightly above normal, most of the fire weather season was characterised by generally cooler than normal conditions.

With the good winter and spring rainfall, pasture growth was again good, but the curing rate was slow due to the somewhat cooler than normal conditions at the start of the season.

The fire weather forecasting service for the season commenced on 1st November 1983 after close liaison with the Country Fire Services (C.F.S.) and the first ban was issued on 6th November 1983.

The fire season closed on 18th April 1984 in the South-East and on 25th April 1984 in the remainder of the State. The somewhat late closure was due to a prolonged spell of fine and dry weather. The last fire ban was issued on 24th March 1984.

The worst fires of the season were at Hinks Conservation Park (15 000 ha destroyed); Mount Remarkable (1538 ha); Mount Pleasant (1600 ha) and Canunda National Park (320 ha).

SERVICES

The daily fire ban decision was made available to the media for broadcast at 7.00 am and was also disseminated via telex to other interested organisations.

The number of bans issued for various districts are listed in the attached Table 1.

Fire danger ratings for the 15 fire-weather districts were issued twice daily with the 5.30 am and 5.00 pm issues of district forecasts. Specific forecasts were given for seven forestry areas twice daily and to the C.F.S. and National Parks and Wildlife Service for the Mount Lofty Ranges and Kangaroo Island area twice daily.

Operational forecasts for on-going fires numbered 68—a marked reduction on the previous season.

As in previous years, exchange of information—district forecasts and fire weather estimates, occurred between Adelaide and Melbourne R.F.C's at least twice daily.

FACILITIES

Additional observations were implemented for the duration of the fire season as follow:

(i) Bureau Network—

0600	0900	1200	1500
Elliston	Meningie	Keith	Meningie
Cleve	Yongala		Yongala
Loxton	Kimba		Kimba
Meningie	Hawker		Hawker
Murray Bridge			
Yongala			
Kimba			
Hawker			
Stirling			

(ii) Woods and Forests Department Network—

Penola	0900	1500		
Mt Burr	0600	0900,	1500	
Bundaleer	0700	1500		
Wirrabara	0700	1500		
Mt Crawford	0600	0900,	1200,	1500
Kuitpo	0700	1500		
Second Valley	0700	1500		

An SSB radio link was maintained with Cape Borda in case the need for special hourly reports arose and was very useful for timing of changes. National Parks and Wildlife Service and C.F.S. provided additional observations for some going fires. Every effort should be made to assist development of further means by which a meso-scale network can be activated during periods of severe weather, using these and other organisations.

FIRE BANS

Fire bans were imposed by the duty forecaster or shift supervisor acting on authority from the Chairman of the Country Fire Services Board, pursuant to Section 42 of the Country Fires Act 1976.

Ban decisions were distributed to the media prior to 7.00 am for broadcast from 7.00 am.

Fire bans remain in force until midnight.

The number of bans issued for various districts are listed in the attached Table 1.

Close liaison continued between Woods and Forests, National Parks and Wildlife Service and the Country Fire Services (C.F.S.)

METEOROLOGICAL ASPECTS OF THE 1983/84 FIRE SEASON

November

Rainfall was variable. Thunderstorms boosted some district averages to above normal. Mean monthly temperatures throughout the State were generally near average.

Fire bans were issued for various districts on the 6th, 11th, 13th and 29th days. On 13th November 8300 ha of scrub near Ceduna were burned.

December

Thunderstorms and showers accounted for very variable rainfall distribution. Heavy rain damaged crops in some cereal and fruit-growing areas. Extreme December rainfall totals were recorded at Alawoona and Coonalpyn. A cool spell affected much of the State from the 6th to 10th, which was followed by a very hot spell on the 17th to 20th December. Mean monthly maximum temperatures were about 1°C to 3°C above normal.

Fire bans were issued on the 12th, 14th, 17th to 20th, 23rd, 24th and 27th to 29th days.

Bushfires were reported in the Central districts and the Upper South-East on the 12th, 18th, 19th, 20th and 23rd days. A "Red Alert" day was declared on 19th December 1983.

January

Flood rains were reported from the north of the State during mid-January. Some stations received amounts exceeding their average annual totals. Cold spells occurred on the 16th to 21st and 25th to 31st January and there were no significant hot spells. Mean monthly maximum temperatures were mainly about 1°C to 3°C below normal.

Fire bans were issued on the 5th, 11th to 14th, 23rd to 25th and 28th days.

Fires burned from the 9th to 14th January at Mount Remarkable, destroying more than 2000 ha of bushland. Other fires broke out at several districts in the settled areas on the 3rd, 11th, 13th, 14th, 23rd and 24th days.

February

There was little or no rain in South Australia and all district rainfall averages were below normal. Mean February maximum temperatures were about 1°C to 2°C above normal in northern and western districts but were less than 1°C above normal over the remainder of the State. A hot spell was experienced on the 2nd to 6th days and there was a cool spell on the 27th to 29th days.

Fire bans were issued on the 3rd to 6th, 11th to 13th, 18th to 22nd, 26th and 27th days.

Small fires were reported from Mannum, Ardrossan, Bordertown, Warooka, McLaren Flat, Cowell and Mt Crawford Forest. They were quickly extinguished.

Continued page 23

Fire Weather Season—South Australia 1983/84 continued . . .

March

March rainfall was below normal except in the South-East, Lower Murray Valley, Adelaide Plains, Kangaroo Island and the Mount Lofty Ranges where most falls were above normal. Gales with wind gusts of up to 117 km/hr affected most coastal regions of South Australia on the 25th to 27th days. Mean monthly maximum temperatures were within 1°C of normal at most centres. Cold spells were experienced on the 1st and 2nd, 13th to 15th and 25th to 28th days. They were partly offset by hot weather on the 5th and 6th days.

Fire bans were issued on the 5th to 7th, 10th, 16th, 23rd and 24th days. Small fires were reported from South End, Penola, Parndana, Warooka, Cummins, Millicent, Port Clinton and Cowell.

April

Rainfall was above average in the Upper North, Lower North and the pastoral districts. It was close to normal in the Western Agricultural district, County Light and the Lower Murray Valley and was below normal over the remainder of the State. Cool spells occurred in most parts of the State on the 6th to 9th, 19th to 21st and 24th to 27th days. A warm spell was experienced on the 10th to 14th April. Mean monthly maximum temperatures were within 1°C of normal over most of the State. Exceptions occurred over northern Eyre Peninsula (from Ceduna to Port Augusta), the Riverland, Barossa Valley and the northern Mount Lofty Ranges.

No fire bans were issued in April and the fire season closed on 25 April 1984.

SUMMARY OF NUMBER OF BANS ISSUED IN S.A. 1983/84

Month

District		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Total
Pastoral	NWP	-	3	11	8	13	3	-	38
	NEP	-	-	10	8	12	6	-	36
Western Agricultural	LEP	-	-	5	2	6	3	-	16
	EEP	-	3	9	7	8	3	-	30
	WC	-	3	6	7	9	3	-	28
Northern Agricultural	MN	-	-	7	6	9	4	-	26
	F	-	1	11	9	13	5	-	39
Central	IA	-	-	2	-	-	-	-	2
	MT L	-	-	7	6	6	4	-	23
	YP	-	1	7	6	7	3	-	24
	KI	-	-	3	1	4	2	-	10
Murray	M	-	1	7	5	7	3	-	23
	R	-	1	7	5	6	5	-	24
South-East	USE	-	-	6	5	5	5	-	21
	LSE	-	-	4	2	4	5	-	15

Effects of Heat Stress Being Determined

STUDY GIVES SAFER GUIDELINES FOR FIGHTING BUSHFIRES

Studies by University scientists of fire fighters in action over the past two summers are, for the first time, providing comprehensive data about heat stress in bushfires.

The studies will eventually provide firmly based information about the physiological and psychological stresses these men experience, which will be a basis for safer and more effective management of fire crews.

Associate Professor Grahame Budd, of the Environmental Health Section of the University Commonwealth Institute of Health, led a team of eight Institute staff at the height of summer on a field trip to a forest at Nowa Nowa near Lakes Entrance in Victoria. There they studied fire fighters at close quarters as part of Project Aquarius, the most comprehensive investigation of bushfire suppression yet undertaken in Australia.

The previous summer the team studied fire fighters working in the jarrah forests of Western Australia, near Nannup. Further studies are planned for the next few summers. Project Aquarius, is a combined venture involving CSIRO, Forestry and fire fighting departments and the Commonwealth Institute of Health. The Institute's involvement in the project was instigated by the state fire fighting bodies because of concern about the toll among fire fighters during each year's bushfire season.

In North America and in Australia a great deal of research on fires has been carried out, much of which has provided guidelines for fire fighting. However, according to Professor Budd there is still much to be learned about Australian bushfire behaviour and about the physiological and psychological stresses bushfire fighters experience.

The main purpose of Aquarius is to compare the cost-effectiveness of large air-tankers with conventional bushfire fighting techniques.

The project involves many organisations led by CSIRO's Division of Forest Research. Professor Budd was invited to carry out parallel research in medical problems associated with bushfire suppression.

Professor Budd said that results to date from two field seasons indicated that a lot of the stress fire fighters experience is not directly related to the fire itself, but to a number of factors.

Much of the time, stress is due to the sheer physical exertion of the work these men do. This is exacerbated by high summer temperatures and the thermal burden of protective clothing.

Prior studies have shown the way protective clothing can bottle up heat and increase the likelihood of heat exhaustion. We have also tested different types of protective clothing and found significant differences.

"For example," he says, "the plain cotton or proban overalls" recommended by the C.F.S. appear to be appropriate.

In the field we made precise measurements of the physiological responses of fire fighters in the extreme work and environmental conditions of fires. We found, for instance, that they sweat as much as a litre and that their body temperatures can rise significantly.

The W.A. group were forest workers whose work included fire fighting: the Victorian team (which went by the name of the "Bruthen Hot Shots") were all volunteers and "all very fit young men".

In both W.A. and Victoria the fire studies took place in special forest areas of about 100 hectares, set aside and divided into blocks in which experimental fires could be lit.

Professor Budd and his team worked alongside the fire fighters, gaining subjective experience about the nature of their work while gathering data for their study.

They measured the three sources of heat load—the weather, the radiant heat of the fire and the heat produced by strenuous exercise.

Continuous recordings were made of the radiant heat of the sun, the heat of the bushfires (aided by the infra-red film taken by CSIRO's Fokker F27) and of air temperature, humidity and wind speed.

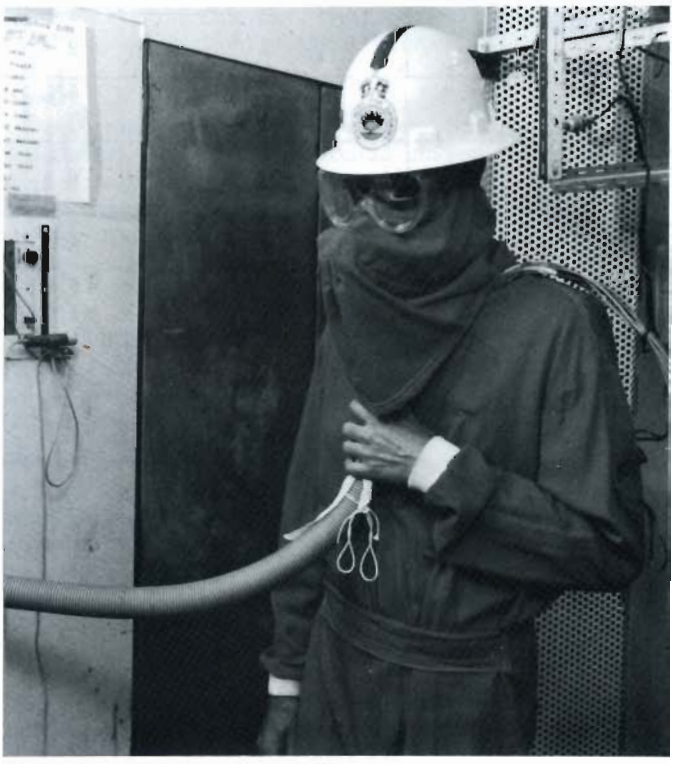
During fire fighting and other tasks, recordings were made of the rate at which the crews worked and the physiological changes that took place.

Deep body and superficial temperatures were recorded, as well as heart rate and sweat rate. Carbon monoxide levels were also measured.

During fire fighting operations scientists stopped individual fire fighters every five to ten minutes to record physiological data and to ask questions about how the men were standing up to the stresses from smoke, heat and sweating.

Everything the men ate, drank and excreted during the day was measured as part of a fluid balance study to determine sweat loss and dehydration rates.

Professor Budd and his colleagues acted as a control group, taking measurements of their own physiological and psychological responses to compare with those of the fire fighters.



Pictured above fire fighting apparel is tested by the wearer C.F.S. Research Superintendent Mr Tony Crichton, in the climatic chamber at the Commonwealth Institute of Health. The tests were conducted by the University's Associate Professor Grahame Budd.

(Photograph reproduced courtesy Mr. Alan Chaplin, C.I.H.)

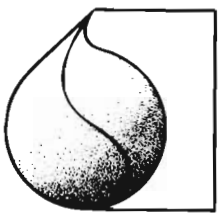
Continued page 25

Effects of Heat Stress continued . . .

Local community health centres, at Nannup and Nowa Nowa, co-operated with the Aquarius team, providing facilities for assessments of physical characteristics, work capacity and heat tolerance.

A psychologist, Mr. Mel Henderson, who joined the team recently, gave invaluable support to last summer's field study, says Professor Budd. Mr. Henderson has worked with foresters in Tasmania and is currently completing his PhD on risk assessment among Tasmanian hardwood tree fellers.

The information collected about fire fighters so far over the past two summers has provided a wealth of information which will assist the training and management of fire crews in the future. However, because the last two summers were exceptionally cool and wet, Professor Budd and his team hope for a long, hot summer at the end of this year so that their next field study will give them results that represent the other end of summer's environmental spectrum.



NCRFR

THE NATIONAL CENTRE FOR RURAL FIRE RESEARCH

Chisholm Institute of Technology

RESEARCH MISSION

To provide a scientific rural fire research effort which will evaluate and improve the fire prevention and suppression capabilities of all Australian Fire Services, Federal and State Government Departments, Private Industry and the community in general.

INTRODUCTION

On February 16, 1983 South Australia and Victoria were once again ravaged by bushfires, which resulted in the loss of 71 lives and more than $400 million worth of destruction of forests, farmlands and property. The combination of high temperatures, low humidities, strong winds and dry fuels will occur again and *unless* steps are taken to reduce the quantities of fuel, educate people in survival procedures, and provide protection for buildings and property, there will be more "Black Fridays" and "Ash Wednesdays" in the future.

A sustained and productive research effort into the bushfire problems of Australia must be the primary requirement of any serious attempt to mitigate the disastrous results of major bushfires.

The Chisholm Institute of Technology in Victoria is providing an opportunity for such a research effort to be mounted, but it needs the support of Federal and State Governments, all Australian rural fire authorities, industry and commerce and the community.

THE NATIONAL CENTRE FOR RURAL FIRE RESEARCH with the C.S.I.R.O.'s Division of Forest Fire Research can provide a scientific research effort to support the "on ground" researchers working with fire authorities and other organisations.

NCRFR continued . . .

SCIENCE WORKING WITH NATURE

Fire is a natural part of the Australian scene.

Flora and fauna have been designed by nature to survive reasonable intensities of fire. Man can also, if he is prepared to understand fire and use it to his advantage.

Scientific research can provide that understanding.

During the 1960s and up until 1975, Australia built up a very productive research effort, emanating from groups based in C.S.I.R.O. and supported by a number of research officers employed by State Forest services. Though small in number (some 22 professionals) their work was acclaimed throughout the world and there is no doubt that the practical application of their work into fuel reduction, fire behaviour and fire intensity resulted in the implementation of more effective fire prevention measures, improved fire suppression operations and greatly reduced losses of both life and property.

Western Australia has not had a serious bushfire for 20 years because it has learned to "use fire to control fire".

If man wishes to live in the Australian bush, or place into the Australian countryside unnatural flora and fauna, he must learn how to survive in that habitat and how to protect his property.

The information and data from a national scientific research effort can be applied by the practical researchers to reduce fuel quantities, to better predict adverse weather conditions and to make our homes and properties a safe refuge against the ravages of a bushfire.

PROJECT AQUARIUS—CENTRE ESTABLISHED

In 1981 the Commonwealth Government funded the C.S.I.R.O. to research the feasibility and effectiveness of using large aircraft to suppress forest fires in Australia.

This research is known as "Project Aquarius". Part of the project was allocated to a part-time fire research group led by David Packham and based at the Chisholm Institute of Technology.

Aquarius constitutes the only national scientific fire research effort currently operating in Australia. The research is providing much useful data on the behaviour of forest fires, their intensity and energy output.

The National Centre for Rural Fire Research has been established to maintain, with the C.S.I.R.O., an Australia-wide scientific research effort, now "Project Aquarius" has ended (June 1984).

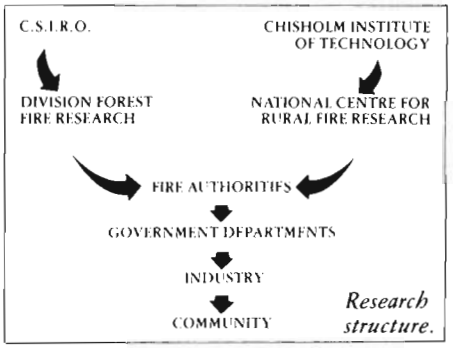
STRUCTURE

The most effective model for research into a practical area such as bushfires is for it to have a three tiered structure.

On the ground is a practical and empirical research and development team that identifies the problem areas and applies the scientific information and data to produce solutions.

At the centre of the structure are the scientists, chemists, physicists and mathematicians.

On the third tier are the academics and the specialists who need to be constantly referred to in order to maintain the highest quality of "on ground" and scientific research.



Research structure.

Continued page 26

NCRFR continued . . .

Good communication must flow freely throughout this integrated structure and it should be considered unproductive and uneconomical for any one level to try and duplicate the work of another or work independently of one another.

The National Centre for Rural Fire Research has been established as a "Centre of Excellence" with the School of Applied Science at the Chisholm Institute of Technology and incorporates the original fire research group working on "Project Aquarius" for the C.S.I.R.O.

It has a "Board of Management" and is serviced by the Institute's administration system through its manager, Mr. G. Chester Nevett.

Mr. David R. Packham, the Centre's Director (Research) is one of the scientists who worked on "Project Aquarius". The Centres four other scientists were engaged on that and other work.

The primary objective of the Centre will be to provide a scientific research effort for the member organisations of the Australian Association of Rural Fire Authorities. It will also, as resources permit, provide a service for Federal and State Government departments, industry and the community in general.

The Centre has on-line data links with American fire research organisations. It maintains contact with scientists working on fire research projects in Universities and tertiary institutions throughout Australia to ensure economy of effort and maximisation of benefit to the Australian community.

The Centre prepares an ad hoc report each quarter which contains research results in a partially edited form to enable researchers and others to determine the progress of different projects with a two to three week relay. Each six months a more formal but briefer report is prepared to inform top management of the progress of research. Institute staff also publish details of significant research in the scientific literature and attend and give papers at relevant symposia, nationally and internationally.

CURRENT/FUTURE RESEARCH

Project Aquarius continues to provide much useful data on fire behaviour, the use of aircraft, fire retardants, detection and mapping systems and fuel reduction techniques.

Research currently being undertaken by the Centre is aimed at saving lives and homes. It is conducting a survey to establish whether occupancy at the time of a bushfire is a determining factor in house survival. Heat loads placed on window structures is being assessed and ways of providing better protection for people caught in motor vehicles.

OTHER AREAS REQUIRING ATTENTION ARE:

- ☆ *Updating research projects carried out in the 1960s and 70s, in particular the studies on heat production by the C.S.I.R.O., which is the basis of all survival advice now offered.*
- ☆ *The development of a computer model of the heat regime experienced by structures, vehicles and people in various bushfire situations.*
- ☆ *Fire weather forecasting, including drought prediction.*
- ☆ *Cost effectiveness studies of liquid fire retardants for first attack fire appliances.*
- ☆ *The analysis of fire history to determine economical levels of State preparedness.*
- ☆ *The production of a real time fire danger meter.*
- ☆ *Improving the suppression capacities of fire fighting appliances, including the protection of the crews manning those appliances.*

FUNDING

Research is expensive – wages and salaries making up some 75% of a research budget. This expense is justified so long as the savings and profits made as a result of the research outweigh the costs.

Aggressive and progressive research always pays and the application of scientific research by the practical research team will enhance the quality of the results and yield substantial savings in time, money and effort.

In 1984 the cost of research is about $80 000 per professional scientist per year. By being based with the Chisholm Institute of Technology and its extensive and modern facilities, the Centre can offer a high powered and dedicated research team and consultancy service for a considerably lesser amount.

Initially, the Centre will require a maximum of five scientists, who will require total annual funding of about $250 000 to achieve maximum output. The Centre is asking the member organisations of the Australian Association of Rural Fire Authorities to provide about half of this amount and Federal and State governments to provide the balance. The Centre will seek and accept grants from Trusts and other sources to enhance its resources.

THE AUSTRALIAN ASSOCIATION OF RURAL FIRE AUTHORITIES

The National Centre for Rural Fire Research is an associate member of the Australian Association of Rural Fire Authorities.

This Association includes all Australian rural fire services, all Australian forest services and all Australian national parks and wildlife services.

The objectives of the Association are to exchange views on matters of mutual concern in the promotion of effective fire management and to make recommendations to persons and bodies in the promotion of effective fire management throughout Australia.

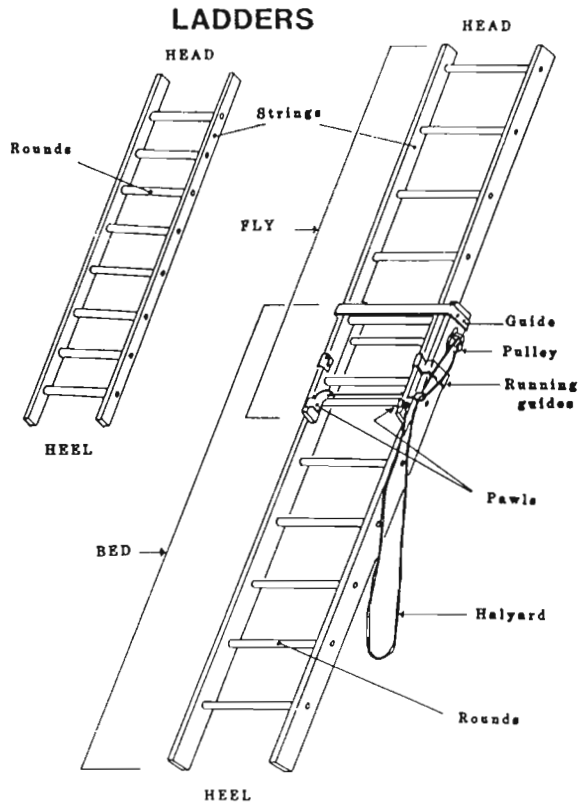
The Centre has been given, along with the C.S.I.R.O.'s Division of Forest Fire Research the responsibility of providing a scientific research effort for the member organisations. The Association will set up a committee to select research projects and periodically review progress reports on behalf of the members. Providing all members contribute towards the funding of the Centre the cost of this research will be covered by those funds.

The Centre will liaise closely with the operational staff of all member organisations, be represented at conferences, seminars and training exercises and, where possible, observe fire suppression operations.

As an extension of its research effort and with the co-operation of the Chisholm Institute and the Association, special courses in advanced fire science are planned for fire service personnel in the very near future.

TESTING OF LADDERS

by R.O. Bruce Hogan — Training.



If a ladder failed during operational use the outcome could be quite dangerous. The chances of someone being injured (possibly yourself) would be fairly high.

To stop the likelihood of a ladder failing, it should be *examined* and *tested* quarterly, after operational use, and on such other occasions as considered necessary.

1. Examination (All Ladders)

Ladders should be examined for any movement of the timber, for looseness of bolts or rivets in the fittings, for loose wedges and to see that the shoulders of the rounds fit closely up to the strings. Riveted and screwed joints of metal ladders should be examined to ensure that they are tight, and welded joints of metal ladders should be examined to ensure that there are no cracks.

With extension ladders special attention should also be paid to the following points:

(a) that moving parts are clean and adequately lubricated;
(b) that the halyard is correctly rove and runs freely through the various pulleys.
(c) that ladder pawls are operating correctly;
(d) that anchorages for the halyard are secure.

NOTE: When extension ladders are placed on the appliance the mountings and securing gear are to be examined to ensure that they fit and function correctly.

2. Tests.

In the following tests the reference to the jumping of rounds applies only to wooden ladders. The rounds of metal ladders should *not* be jumped. In order to test the top rounds of wooden ladders which cannot be jumped, a line should be made fast at the centre of the top round of the upper extension by means of a round turn and two half-hitches. The weight of two men should be applied to the line and should then be released. This test should be repeated on the second, third, and such other rounds that cannot be tested by jumping.

(a) Extension Ladders

Each ladder should be pitched to its full working height with the head resting against a building. A line should be made fast to each string between two adjacent rounds at the centre of the overlap of the two sections of the ladder, and should be so arranged that the weight of the three men in all can be applied as nearly as possible, equally to the two strings. When released, the ladder should resume its normal shape. The line must not be made fast to a round only. After this test a man should ascend the ladder and jump the rounds.

The halyard should be tested by applying the weight of two men. The ladder should be pitched without being extended against a wall or building; the weight of two men should then be applied to the halyard as for extending the ladder as low as practicable, while another two men apply their weight to the extension to prevent it moving. The remaining part of the halyard should be tested by applying the weight of two men as before but with the ladder fully extended.

Note: It may be convenient for this latter part of the test to be carried out while the ladder is still extended after jumping the rounds.

(b) Short Extension and First Floor Ladders

The sections of short extension ladders should be tested separately. Each ladder should be pitched at a working angle with the head secured, and as many of the rounds as possible should be jumped. The ladder should then be reversed and the remaining rounds should be jumped.

3. Jumping Of Rounds

Jumping rounds

The proper method of testing the rounds by jumping is to transfer the weight sharply downwards from each round to the next with feet separated as far as the strings will permit. The height of the jump should not be increased nor should a jump be used to deliver a violent blow to the round. When jumping rounds the fire fighter should grip a round firmly with both hands.

CSIRO SURVEY IN VICTORIA

HOUSE SURVIVAL IN BUSHFIRES

Lessons learnt from the 1983 Bushfire Season are now being published. We start what may develop into a series of articles with a report prepared by Dr. Caird Ramsay of CSIRO Division of Building Research. His report is introduced by a brief discription of the Ash Wednesday bushfires, prepared by Mr. Neville McArthur. These articles are reprinted with acknowledgement to CSIRO Division of Building Research.

INTRODUCTION

On 16th February 1983 (Ash Wednesday) a number of large bushfires devastated a quarter of a million hectares of Victoria.

These fires occurred at Cudgee and Branxholme (near Warrnambool), around Macedon, in the Dandenongs, and along the Otways.

In several of these fires, large numbers of houses were destroyed, while a similar number had seemingly miraculous escapes. It has been the task of the fire section to try and determine why some of the houses burned and, perhaps more importantly, why others didn't.

We moved in two directions. Some of us in cooperation with the Country Fire Authority research unit, examined all the major fire zones gathering information on a selective basis. The others concentrated on the Otways fire, far the greatest in terms of house loss, attempting to obtain an in-depth statistical coverage of every house in the fire zone.

The table gives some statistics for the fires. You will notice that there is no correlation between the area burnt, the loss of life, or the number of houses destroyed.

	Destroyed Area (km²)	Deaths	Houses Lost
Cudgee/ Branxholme	600	8	83
Macedon	300	7	450
Cockatoo	18	6	290
Belgrave	110	20	180
Otways	400	3	729

The loss of life in the Belgrave fire was higher than that in other areas because of the death of 12 fire-brigade personnel.

The grouping of these fires under the heading "Ash Wednesday fires" implies that they were all the same in character. In fact this was not the case.

The Cudgee fire, near Warrnambool, was a typical farmland bushfire with patchy burning through sparse grassland. It started about 2 p.m. Another fire, of suspicious origin, started soon after at Ballengeich, to the north. These fires spread under the influence of a strong north wind, and when the wind changed, joined up and swept eastwards. Because of the drought, the grass cover on some paddocks was not enough to sustain the fire, and only three quarters of the area inside the perimeter was actually burnt. In places, the higher grass on the road reserves carried the fire for up to a kilometre past the bare paddocks until it reached heavier growth.

The Macedon, Belgrave and Cockatoo fires can be grouped together, all having wide local variations in fire intensity and showing similar damage patterns. The countryside varied from thickly timbered slopes to open paddocks, and the fires varied from trickling grass fires to a fully developed crown fire.

The Otways fire was different in that the fire was uniformly severe. In the ranges, huge tracts of forest were burnt, and, along the coast, the low scrubby vegetation carried an intense fire, which in some areas removed all the ground vegetation and sterilised the topsoil.

Horrendous as all these fires were, I would ask you to forget much that the media said about them. They spoke of firestorms and walls of fire, causing houses to explode. Whilst in some areas the fire spread with astounding speed and violence, many of the houses seem to have burned down after the fire front passed—sometimes two, three or four hours after. The burns have usually been slow in build up, and many homeowners who returned to their houses shortly after the fire had passed saved them, with minimal effort, by putting out small spot fires such as those on the eaves and on the doormat.

I'm not saying that the fires weren't bad. They were severe, and fast, and burnt up huge areas. People caught in the open at the fire fronts had a good chance of dying. The point that I want to make is that they were physically understandable fires, with nothing supernatural about them. More than 40% of the houses in the fire zones survived.

(Photographs reproduced courtesy The Advertiser.)

HOUSE SURVIVAL IN BUSHFIRES

Advice on building houses in bushfire prone areas is provided by many organisations and authorities. Unfortunately, there is a lack of statistically sound data to validate much of this advice. Surveys to gather such data were conducted after the Beaumaris (Victoria) fires in 1944 by CSIRO, and after the Hobart fires in 1967 and Blue Mountains (N.S.W.) fires in 1968 by the Experimental Building Station (Commonwealth Department of Housing and Construction). However, these surveys had a limited data base and yielded conclusions which conflicted in some respects.

Continued page 29

C.S.I.R.O. SURVEY IN VICTORIA
HOUSE SURVIVAL IN BUSHFIRES

In the wake of the "Ash Wednesday" fires of February 16th, 1983, the Division is conducting a survey of the Otways (Victoria) fire area with the help of the Geelong Regional Commission. Over 1100 houses are being surveyed: about half were destroyed and the rest survived with little or no damage. Data are being gathered from a number of sources—on-ground surveys, examination of building plans, questionnaires to owners, and personal interviews—and collated for computer analysis.

Some 85 data elements are being analysed. A primary analysis of the data has been carried out which shows the composition of the sample and reveals some data elements which are likely to be of importance.

However, more work is required to evaluate the significance of this analysis and to determine the relative importance of the elements or groups of the elements. There are still some gaps in the data to be filled and these could modify some of the trends observed in the first analysis.

DATA EXAMINED—SOME OBSERVATIONS

Examination of the data for extent of damage showed that most houses were at either end of the spectrum: either untouched or completely destroyed. Only 10% of the houses were "damaged but repairable". Two thirds of the houses were of one storey and there was little difference between the survival rate of one and two storey houses.

The amount and type of elevation of houses was examined and, except for the case where the elevation was in a "wedged" configuration due to the slope of the land, "elevated houses" did not appear to be more susceptible to destruction than houses on a normal height stumps.

Houses clad in clay brick, or concrete bricks or blocks, appeared to survive better than timber or asbestos cement clad houses. However, the colour of the cladding did not appear to affect the survival.

Several aspects of roofing were examined. Houses with steel deck roofs survived more often than those with corrugated iron or asbestos cement roofs but the pitch of the roof did not appear to affect survival. Light coloured roofs (apart from unpainted steel or iron) appear to lead to lower survival rates than darker roofs.

The amount and type of vegetation around the house was an important factor. The survival rate decreased as the vegetation became thicker and the proportion of trees over bush and grass increased.

Two thirds of the houses were unoccupied on the day of the fire and very few people actually stayed with their houses during the fire. However, those who returned to their houses after the fire front had passed were able to improve the chances of the survival of their houses and diminish the damage sustained.

(Photograph reproduced courtesy Sunday Mail.)

MODES OF IGNITION

During the course of gathering data for the survey, much evidence has been documented concerning the modes of ignition of houses during the fires. There are three possible means of ignition—radiation, direct flame contact and embers lodging on combustible material.

Evidence of the modes of ignition comes mainly from surviving houses and the majority of such evidence is for ignition by embers. The embers can gain entry to a house through broken windows or gaps in and around the wall or roof cladding and then ignite the contents. Embers lodge on and ignite horizontal timber in decks, steps and window sills, or are blown up against and ignite timber used at ground level for stumps, gap-boards, posts and steps.

Radiation may crack windows, allowing ember entry, heat the building and contents, facilitating ignition by embers or flame, and, in extreme cases, ignite external timber or combustible contents near windows. However, to date, we have not had evidence for the latter effect of radiation. Evidence for flame contact is difficult to find and apparent evidence such as charred wood, may be the result of radiation or the ignition of vegetation growing against a house.

The survey has found no authentic cases of houses spontaneously exploding due to the heat of the fire front. Many small fires starting within a house building up to a conflagration and/or the action of the high winds, accompanying the fires, may explain the observations made by some people.

Wind played a significant role in damaging houses, breaking windows, blowing off roofs and carrying debris. In some cases the wind did more damage than the fires.

People played a significant role in the survival of houses by extinguishing small ignitions before they became unmanageable. In many cases they were able to do this after returning to houses some hours after the fire front had passed.

ATTITUDES—ADVICE

The survey is also documenting people's attitudes to incorporating the present recommendations, for improving the survival of houses, into the houses they are rebuilding. Unfortunately, there appears to be a reluctance to do this and a variety of reasons are put forward.

Further data are being collected for the survey by way of questionnaires to owners, and personal interviews. These will strengthen the data base and allow more detailed analysis and assessment of statistical significance.

From this survey, information on the validity of advice currently being given for building in bushfire prone areas will be obtained and new aspects of house survival uncovered.

SITEING/BUILDING PROTECTION GUIDELINES

Based on C.S.I.R.O. research and our own research division surveys the C.F.S. in conjunction with the Department of Environment and Planning are preparing a booklet on "Guidelines for safer siteing and building of houses in bushfire areas."

The booklet is to be released early in October 1984.

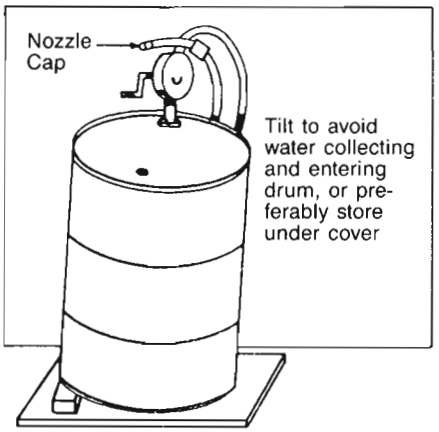
SOME FACTS ABOUT DIESEL FUEL

by Malcolm Oscroft, Fire Protection Officer
Bush Fire Council of New South Wales

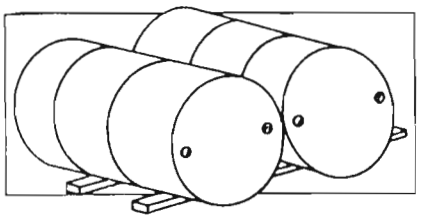
Introduction

The rapid growth in use of diesel fuel has resulted in increased use of waxy, indigenous Bass Strait crude oil. For satisfactory performance from diesel engines, operators need to know how to handle the fuel and how to avoid problems from solidified wax if the fuel is cooled below critical temperatures.

Fuel storage



Correct arrangement for a diesel fuel drum from which fuel is to be extracted. The bungs are at the 3 and 9 o'clock positions, and the drum is tilted to keep any water away from bungs.



Correct method for storing drums on their sides. Note the position of bungs at the 3 and 9 o'clock positions.

For safety, above ground or on the ground tanks should be located 7.5 m from buildings—at least 3 m in the case of underground tanks.

Above ground or on-the-ground tanks should be fitted with water/sediment drain valves. Underground tanks should have a sump drainage pump permanently connected.

Galvanised steel and copper should not be used due to the effect on fuel of oxidation and catalytic action. Drums should be stored as shown in the diagrams with bungs kept tight.

The nominal storage life of diesel fuel may be taken as 12 months. This normally allows a safety margin before deterioration occurs. (Allow 24 hours before using drums that have been filled or moved, as water and sediment settle out slowly.) Owing to minute clearances, the injection system of a diesel engine is prone to damage from fine dirt particles.

Cold Weather

At very low temperatures small wax crystals form in the fuel. These crystals can coagulate and eventually block filters and obstruct fuel flow. The temperature at which wax crystals start to become visible in cooling diesel fuel is termed the "cloud point".

The "cloud point" of winter-grade diesel fuel in southern and eastern Australia is normally around −1°C or −2°C. The "cloud point" of summer grade fuel held and used in winter is around 5°C.

The lowest pourable state of fuel—the "pour point"—is usually about 3° to 5°C lower than the "cloud point". As summer grade has a higher "cloud point" than winter grades, problems can occur when stocks of summer grade are held and used in winter months.

Cold weather continued ...

The use of "pour point depressant additives" is discouraged as they do not reduce the cloud point.

In areas of low ambient temperature, with frost or snow conditions, wax separation from diesel fuel may clog filters and fuel lines resulting in fuel starvation.

"Heating oil" (with a cloud point of −25°C) may be blended at 25% to 50% of heating oil with diesel fuel (1:3 to 1:1 mixtures) to depress the cloudpoint.

Caution

If too much heating oil is added, fuel viscosity is greatly reduced leading to possible fuel pump and injector wear. In very cold weather this is unlikely to happen; even so, no more than 50:50 mixture should be used.

Apparently there is no technical objection to mixing up to 50 per cent of heating oil with ordinary diesel fuel, though normally 25% is sufficient and will meet the requirements of diesel engine manufacturers. If in doubt check with the vehicle manufacturer's agent.

It may be possible to fit an auxiliary tank containing the blended fuel, and switch to this tank 5 minutes before engine shutdown, thus priming the fuel system to assist with cold engine start-up. The necessary valving and return lines would be required.

Do not use lighting kerosene or petrol as substitutes for heating oil, as such substitutes do not effectively reduce cloud points but do create safety hazards due to low 'flash point'.

Heating equipment

If diesel equipment is frequently used at low air temperatures, a number of techniques can be used to prevent wax from forming. These include provision for heated fuel tanks, insulated lines, heated filters or other devices to keep fuel warm. These systems may not be cost-effective in temperate Australian climates where they may be needed only a few days of the year.

It is difficult to correlate Australian conditions with those of the USA because of milder conditions here. While engine block, sump and fuel heaters are available from USA sources, they are relatively expensive. Furthermore, they are usually designed for a 110 volt electricity supply. Historically, they have not been used in Australia except, perhaps, in the high snow country.

Preparation for severely cold conditions

The most effective way to overcome fuel problems brought on by severely cold weather is to use special techniques or equipment available (from overseas sources if necessary). It includes the use of one, or a combination, of the following:

- **Fuel Filters.** Blockage of fuel filters by wax at or below the cloud point of the fuel may be minimised by moving externally mounted fuel filters into the engine compartment or by the installation of heated fuel filters.
- **Fuel Lines.** Blockage of fuel lines may be minimised by insulating fuel lines or by the installation of fuel line heaters.
- **Fuel Tanks.** Some truck fuel systems have their initial filtration stages which are easily blocked by wax crystals, in the fuel tank. This problem may be minimised by fuel tank insulation or the use of fuel tank heaters.
- **Fuel Heaters.** Installation of a fuel heater at some point in the fuel system will raise the average temperature of the fuel at all subsequent points. Various on-board types have been developed: electrical, exhaust gas, engine-coolant and return fuel mixer systems. External fuel heaters, attached to the fuel system during shutdown periods, have also been used successfully where temperatures are severe. Any fuel heating device should have controls, preferably automatic, permitting it to be turned off in warm weather, and some means of thermostatic control to prevent fuel from overheating.

Article reproduced courtesy of the "Bush Fire Bulletin" official journal of the Bush Fire Council of New South Wales, from information supplied by the Australian Institute of Petroleum Ltd.

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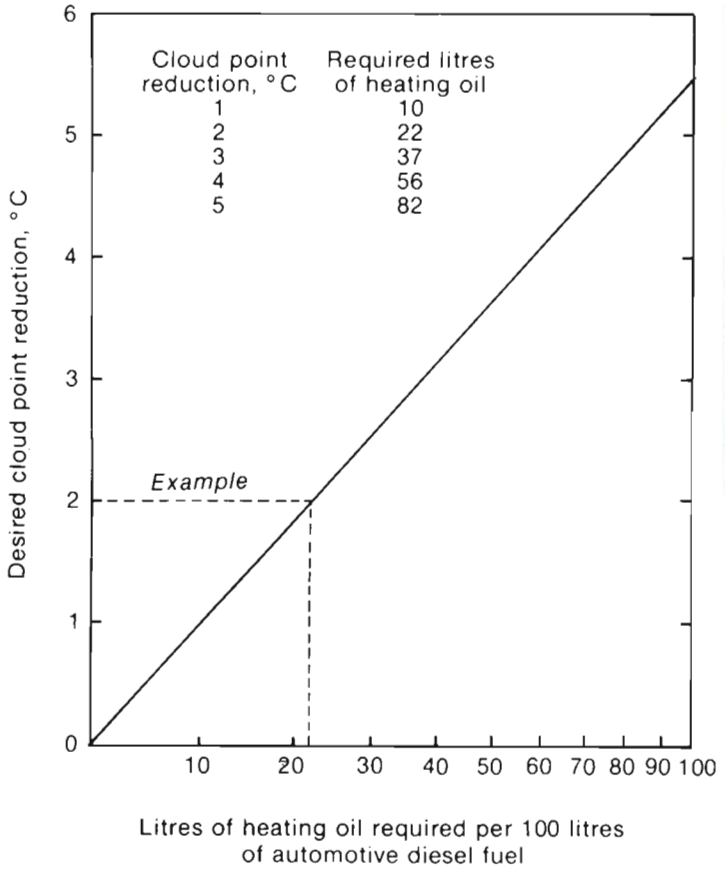
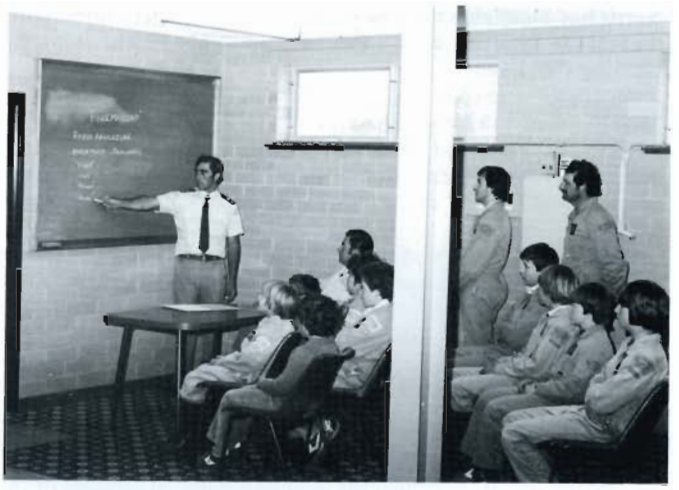
SOME FACTS ABOUT DIESEL FUEL

Heating oil blending chart



Litres of heating oil required per 100 litres of automotive diesel fuel

VIRGINIA CADETS WELL TRAINED



The Virginia C.F.S. have for many years held training sessions for their eager cadet members pictured above.

The cadets' skills and knowledge is reflected in their performance at the annual Regional Fire Fighting Drill competitions.

ALL FIRED UP

Members of the Tailem Bend C.F.S. brigade have submitted the cartoon featured below as a mark of respect to Mrs. Marlene Wendelborn (Secretary Bray C.F.S.) and R.O.'s Murray Sherwell and George Polomka following the recent Region 5 regional training school held at Wrattonbully.

A campfire (illustrated) set from half green Mallee boughs and some dry leaves does not a damper make . . . so the story goes.

Planning a burn off?

A recent incident involving a burn off at Sevenhill in the Mid-North has highlighted the need for property owners throughout the state to be made more aware of, and to heed "The Rules for Burning Off Land".

Sevenhill— Penworthams' new C.F.S. unit with three Clare C.F.S. appliances attended the call.

The fire turned out to be a burn off of lavender bush, left unattended. The property owner had deliberately lit the fire to make an access track to the block for a bulldozer to clear the rest of the land.

Fire Control Officers deemed the fire a hazard and put it out.

Should the Rules for burning off bush and stubble not be followed then the Burn Off could quite easily become a "Burn Out" . . . of property, livestock, fences, homes . . .

Know and Heed!

Rules for Burning Off Land

The rules for burning off land are as follows:—

(1) Before the fire is lighted the land adjoining on all sides of the whole of the land to be burnt off, throughout the whole length of every such side, must:—

(a) for burning off standing grass, be ploughed and cleared of all flammable bush, grass and other material to a width of at least two metres or be cleared of all flammable bush, grass and other material to a width of at least four metres;

(b) for burning off bush, be cleared of all flammable bush, grass and other material to a width of at least four metres;

(2) Not more than seven days and not less than four hours before the fire is lighted, the owner of the land on which the fire is to be lighted shall cause notice of intention to burn off the land stating the date and probable time at which the fire is to be lighted, to be given to the owner or person in charge of any land adjoining the holding whereon the burning off is to take place, who resides within eight kilometres of that holding. If notice as aforesaid cannot be given to a person to whom it is required by this paragraph to be given, by reason of his absence from his place of residence or any other cause, the notice shall be given to the member of the police force stationed nearest to the holding whereon the burning off is to take place;

(3) If the land to be burnt off is within an area, notice as aforesaid must also be given to the clerk, or a member of the office staff, of the council of the area in which the said holding is situated and to the fire control officer of that area who resides nearest to the said holding;

(4) If the land to be burnt off is within two kilometres of a government reserve, notice as aforesaid must also be given to the person in charge of that government reserve;

(5) At least four persons who are able and available to assist in controlling the fire must be present at the fire, from the time it is lighted until it is completely extinguished;

(6) The fire must not be lighted before twelve* o'clock noon and where the burning off is confined to standing grass, the fire must be completely extinguished before nine o'clock in the evening of the same day.

**CENTRAL STANDARD TIME.*

(7) The fire must be first lighted from the leeward side of the land to be burnt off before it is lighted from the windward side of the land.

For burning Off Bush, the following additional rules must be carried out:

(8) If the bush to be burnt off is more than 200 hectares in area and is within the area of a council at least 14 days before the fire is lighted notice of intention to burn off the land must be given to:—

(a) the council of the area;

(b) the owner or person in charge of any land adjoining the holding whereon the burning off is to take place who resides within eight kilometres of that holding.

If notice as aforesaid cannot be given to a person to whom it is required by this paragraph to be given by reason of his absence from his place of residence or any other cause, the notice shall be given to the member of the police force stationed nearest to the holding whereon the burning off is to take place;

(9) If the land to be burnt off is within two kilometres of the boundary between the area in which it is situated and another area, notice as mentioned in paragraph (3) must also be given to the council of that other area;

(10) A person shall not burn off an area of more than 200 hectares of bush except in accordance with the conditions of a permit issued under Section 45 in the form of Schedule No. 14.

District Councils are authorised to make temporary variations to the fire danger season before the prescribed day, to enable land owners to take advantage of suitable conditions for burning off. These variations can only be made to the period of the first 14 days of the fire danger season and/or the last 14 days before the prescribed day.

Also, certain authorised officers of the Council may issue permits to burn off on certain days before the prescribed day, and on fire ban days after the prescribed day, provided special safety precautions are complied with.

Further information on Rules for Burning Off, fire danger season, prescribed day and permits required is covered in the C.F.S. Fire protection circular "Burning Off—Bush and Stubble", Circular RD2/84—available from your Regional officer, District Council or C.F.S. Headquarters.

For details on any local variations or permit applications check with your local District Council Office.

THE CLEAN AIR ACT

From 6th August, 1984 the Clean Air Act regulates backyard burning in towns and cities throughout the State.

The general intent of the regulations is to control the backyard burning of material which emits offensive odours and smoke.

Local Councils will be responsible for administering the Act, and enquiries on its operation should be directed to your District Council Office.

The controls are designed so that there should be no interference to any of the current operations, procedures or training exercises of C.F.S. Brigades. Indeed the use of fire for instruction in methods of fire fighting and the prevention or control of bushfires is expressly exempted from the regulations covering non domestic burning. A non domestic fire in the open is one on any land outside the local government boundary of any city or township. A non domestic fire is also one on any bare block of land or around any house on land exceeding one hectare in area inside a township boundary.

Additionally for both non domestic and domestic burning the provisions of the Country Fires Act overides the regulations of the Clean Air Act, on fires in the open.

This means that burning off operations carried out by Brigades will not be affected and any clearance order issued by a local council under the Country Fires Act will not be regulated by the Clean Air requirements on the material to be burnt or the hours of burning.

Should any Brigade require any further information or experience any difficulties with the Act, contact the Research Division at C.F.S. Headquarters or your Regional Officer for assistance.