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FOREWORD

RURAL REFLECTIONS ON ASH WEDNESDAY 1983

The rural community of South Australia has always been aware of the consequences of uncontrolled fire. However, 80% of this State's population lives in a small fraction of 1% of the total area. For this compact majority, bushfires have usually made for nerve tingling newspaper reading and brief, if gripping television reporting. With the second Ash Wednesday following hard on the heels of the first, even before the scars had healed andthis time with a significant area of the State's scenic, forest and farmland resources destroyed, the catastrophic damage became obvious to even the most apathetic.

At this time there is an opportunity to take stock and realize that while the losses in terms of both human life and property have been appalling, an even greater catastrophe was averted through the timely shifting of the wind direction on the 16th February. Those spared should realise that they have been luckier than any meteorological forecaster could ever hope to be. Unless the community radically changes its ways, the turn of many other as yet unburnt areas will inexorably come.

Near Adelaide on the slopes of Mt. Lofty, amongst many other houses, nine of the original larger, historic residences were destroyed, only four of these old homes are currently being rebuilt and but one of them looks even marginally near completion. The surrounding gardens are now practically non-existent. As a result, one of S.A.'s important tourist routes has been wiped off the map. On the main route across the Ranges, the historic Eagle-on-the-Hill Hotel was burnt out and during October, the ruins were bulldozed into the ground. almost immediately after the fire, an impulsive Highways Department team callously cut down one of the largest and oldest trees which had been a well-loved landmark on the highway near to the hotel for over a century. It had been singed but like its lesser neighbours which are still standing, still living. How much more history and scenery can a State looking for new tourist business afford to sacrifice? This tale of woe can be easily repeated in several parts of the country.

What has happened since the fires of last February which might inspire more confidence in the future? For several reasons, as you might guess, I am as interested to know as anyone but I am afraid that I have nothing reassuring to report.

The Electricity Trust appears to be attempting to ease its conscience by doing that which the organisation might well have done before last summer. Now that the horse has bolted it is cutting trees within sight of its power-lines with a vengeance but not sparing a moment to inquire whether newer supply technologies which have long since been adopted in other advanced countries might not be applicable here. My own experience is that under-grounding of power-lines by environmentally concerned consumers has been and still is being discouraged. This is unfortunate because underground electricity supplies could be maintained, often when most needed for emergency facilities during fires.

If organised on a community basis, rather than by isolated property owners, the cost per connection would be greatly reduced. Even greater economies in this direction would be achieved if fire-damaged above-ground lines were to be written off and a fresh start made without the hypothetical impediment of an existing capital investment being wasted. Evidence is mounting from individual case histories that the Trust's estimates of the costs of under-grounding 240 volt supply lines is grossly exagerated. Indeed, it is almost certainly cheaper if the erection of additional and costly stobie poles is avoided. Greater problems certainly may be expected with 11,000 volt lines but here the costs need to be carefully off-set against not only the constantly recurring expenditure of tree trimming and felling but also the risk of causing ignition as well.

Individual property owners need to realize that if they are threatened by larger bushfires, they cannot possibly expect scarce and strategically deployed fire appliances to concentrate exclusively on protecting their home and land. Every house needs to have a built-in fire-fighting facility to protect it. How many homes rebuilt since February include such defences? You might well ask whether Council regulations or insurance rebates provide for any inducement?

National Parks have received quite unwarranted criticism following the February, as indeed many other fires. While Parks certainly transmit fires, the first flames rarely emanate from them. Blaming Parks by some community elements is in most circumstances like blaming a neighbour for spoiling your favourite hedge when his house is burning down after being ignited by his other neighbour's incinerator, inadvertently lit of course on a total fire-ban day!

The community needs to exercise more discipline on fire-ban days. Spend more money on developing and installing safer technologies and develop an awareness of the irreversible damage that fires can cause to S.A.'s rapidly vanishing historic and environmental heritage. For a State that is holding high hopes for the future tourists' dollars, and investing heavily in international airport facilities and hotels, it is preposterous to assume that foreigners will linger in admiration over singed and eroding landscapes.

An address to the United Farmers and Stockowners Association, Bordertown, October 1983.

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

EDITORIAL

IS THERE A LIGHT AT THE END OF THE (CFS) TUNNEL?

One would almost be ready to believe that the Country Fire Services has committed some unpardonable sin for which punishment is the eternal shortage of funding and equipment!

For several years now we seem to have been involved in the 40 year war of the "hoses".

But I think we are winning in that the cries for better equipment and more adequate funds are no longer falling on completely deaf ears.

However, nothing will come easy, and a great deal more work must be done to identify our real equipment needs and to establish a replacement programme which is both realistic and achievable.

At CFS Headquarters we need your continued support and assistance in establishing equipment replacement programmes acceptable to you and which meet the need of the risks you protect.

The objective of the total exercise is to best serve the Rural Community of South Australia. Let's **all** work together to achieve it.

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

EDITORIAL INDEX

DON'T HANG UP WHEN CALLS ARE DIVERTED IT COSTS YOU NOTHING

WHEN SEEKING INFORMATION AND ADVICE FROM A C.F.S. REGIONAL OFFICER AT A C.F.S. REGIONAL HEADQUARTERS DON'T HANG UP IF THE R.O. IS OUT OF THE OFFICE AS YOUR CALL WILL BE DIVERTED TO C.F.S. HEADQUARTERS, AND IT WILL COST YOU NOTHING.

C.F.S. HEADQUARTERS SERVICING THE VOLUNTEERS WHO PROTECT OUR STATE.

Ash Wednesday Fire

Thick black smoke,
Red high flames,
People losing houses,
Yelling,
Screaming,
Crying,
People dying.
People dying,
Pets being burnt.
Running
Children
Fire trucks
Sirens
Water
Hoses
Radios
Scared people
Roads closed.

Vicki Kowald
Year 7
Springhead Trinity Lutheran School

Front Cover:

Heed Fire Warnings

South Australia's bushfire danger period is upon us and with it comes a message to the public in the form of Fire Warning Penalty Posters — same as the one being "put up" by Deputy Group Captain Russell Grear of the Mitcham Hills C.F.S.; pictured being helped by Scott Hogan aged 3 years of Seacombe Heights.

The public, including those travelling through the State are reminded of their responsibility to check for fire ban information each morning and heed the warnings.

Fire ban broadcasts commenced on Tuesday 1st November, 1983 and warnings are issued daily by the Bureau of Meteorology under authority from the Country Fire Services Board.

Issued at 7 a.m. each morning and broadcast over radio and television the fire bans may apply to one or more of the State's 15 fire ban districts.

In addition to the State fire bans, many local councils have their own fire restrictions and bans which must be complied with.

In the northern pastoral areas which are outside local government areas, a total ban on the lighting of fires in the open was imposed from 1st November, 1983.

Information on fire bans is now available through local councils, C.F.S. headquarters and Regional Offices, or by phoning 1196 in the greater metropolitan area.

Front Cover photograph supplied courtesy The News. Photographer Mr Ken Sellick.

***BRIGADES/COUNCILS*—Please note:**

Stocks of the above mentioned "Fire Warning Penalty" posters have been issued to all Fire Fighting Associations and C.F.S. Regional Officers will supply District Council requirements.

FOOTNOTE: Master Scott Hogan is no stranger to the C.F.S. as his dad Bruce is the C.F.S. Headquarters Regional Officer responsible for Training Programmes for C.F.S. volunteers. Scott's elder brother Chris is also an ardent C.F.S. supporter.

Thank *you* for helping the bushfire victims.

On "Ash Wednesday" 16th February, 1983 bushfires ravaged the Clare Valley and the Adelaide Hills and bush and forest fires raged in the lower South-East of South Australia.

The Ash Wednesday II bush and forest fires claimed 28 lives in South Australia, scores of people were injured, 385 houses were destroyed or damaged, 3,200 properties were affected by fire, 8,500 kilometres of fencing destroyed, over 257,000 stock died and 208,400 hectares of bush, grass, pasture, orchard land, forests and National Parks reserves were burnt.

Financial support given to the bushfire victims by hundreds of thousands of South Australians; from other States of Australia and from overseas countries has resulted in $11,793,303 being received from Bushfire Relief Appeals, to October 31st, 1983.

As of 31st October, 1983, the Premier's consolidated Appeal Fund was made up of $6,122,479.70 from the Premier's Appeal; $2,475,000 from the Lord Mayor's Appeal; $2,711,600 from NWS Channel 9 Appeal and $418,840.39 of interest earned.

These gifts have been used in the following ways:

1. $906,115 for immediate emergency financial assistance to families and individuals (from Day 3) (provided regionally).
2. $27,000 for assistance with funeral arrangements.
3. $415,250 for relocation assistance to those whose residence was destroyed or substantially damaged.
4. $8,318,923 for grants to those who suffered property losses due to bushfires.
5. $780,600 for pain and suffering, grants in recognition to those who were hospitalised and badly burned in the bushfires.
6. $698,000 for payments to the families and dependants of those killed in the bushfires in recognition of their short and long-term needs.
7. $627,595 for urgent and outstanding needs over the next few months. (Residence destroyed grants.)
8. $19,820 for community facilities.
9. The fund was wound up on 31st October, 1983.

To the firefighters who fought so bravely, to all the supportive services and the public and business houses who contributed generously with money, clothing, offers of shelter, donations of fodder and stock and assisted with the clearing up of devastated properties, erected new fence posts or made available land for the grazing of stock from fire-affected areas . . . A sincere thank you.

Firemen support fellow firies

The Australian High Commissioner, Mr Jim Webster, centre, accepts two cheques from the New Zealand Fire Service. The Service gave $40,000 to Australian brigades who suffered losses in the bushfires earlier thisyear and the presentation brought New Zealand's total donation to the Australian Bushfire Relief Appeal to $330,000. The Fire Service donation was made up from individual donations from professional and voluntary firemen throughout the country.

Others at the presentation were, from left, Phil Elmore, senior station officer, Auckland; Lindsay Smith, Australian High Commission information section; Colin Hill, secretary, United Fire Brigades Association; Mr Webster; Bill McArthur, secretary, Central Regions Fire Brigades Union; Commissioner Ivor Wesley, New Zealand Fire Service; Gordon Walker, president New Zealand Fire Brigades Federation; and Max Robinson, volunteer third officer, Carterton.

(Photograph reproduced courtesy Dominion.)

"FIRE AWARENESS KIT"

A Teacher's lesson/resource kit

The Salisbury Education Centre in conjunction with the South Australian Country Fire Services, S.A. Metropolitan Fire Service and the Local Councils has produced a "Fire Awareness Kit" for issue to schools throughout the State.

The Kit is designed to make available to teachers the most up-to-date information on fire prevention and hazard minimization. It contains visual aids and project material so that teachers may incorporate the course into their regular programmes.

Fire Awareness Kits were officially issued to schools throughout the State on Wednesday 26th October, 1983, during Fire Prevention Week.

The Director of the Salisbury Education Centre, Mr Rick Coy, said "It is important that this information is presented to the students before the coming bushfire season. Many fires are started through carelessness, ignorance or culpable negligence and therefore the schools and the community have a responsibility in the area of education and fire prevention.

If the use of the Kit helps to prevent one bushfire or minimise the effects of any fire, then the project will have been worthwhile."

The Kit contains a teachers' book, two sets of slides which illustrate the lessons and a collection of pamphlets mainly from the C.F.S. The teachers' book, which was written in consultation with the C.F.S. Research Division, has sections on the causes and types of fire, common fuels, the prevention of fires, the science of fire, the spreading of fire, the effects of fire on people, buildings and the environment, survival techniques during fires and preventing and extinguishing fires in the home.

For further information contact:
SALISBURY EDUCATION CENTRE
P.O. Box 433, SALISBURY 5108
TELEPHONE (08) 258 8477.

REGIONAL OFFICERS/OFFICES 'INTEGRAL' IN C.F.S. PLANNING

S.E. Regional H.Q. opened

Regional Officers were an integral part of the Country Fire Services state-wide operation, said C.F.S. Board Chairman, Professor Peter Schwerdtfeger, during the official opening of the C.F.S. new South East regional headquarters and co-ordination centre at Caves Road, Naracoorte on Thursday, 29th September, 1983.

The Chairman said regional officers were essential to help gauge regional reaction as well as tailor advice for local requirements and assess needs, which should be made known to headquarters.

He added that the dividing of the State into seven regions had been made to ensure a proper focus of activities away from headquarters in Adelaide, with officers being permanently based in three of the more distant areas: the South East; the Mid-North and on Eyre Peninsula.

Pictured above following the official opening of the C.F.S.'s new regional headquarters building at Naracoorte (in background) with R.O. Murray Sherwell (far left) are C.F.S. Board members from left: Back row—Messrs John Pratt (Woods & Forests), Leo Dwyer (Insurers), Professor Peter Schwerdtfeger (Board Chairman). Front row—Leon Murray (F.F.A.), Arch McArthur (F.F.A.), Keith Treloar (F.F.A.), Michael Arnold (F.F.A.) Mel Prior (Local Govt), Lloyd Johns (C.F.S Director) and Ray Orr (Deputy Chairman & Local Govt representative).

A new building at the corner of Caves Road and Arthur Street, Naracoorte combines the regional headquarters and co-ordination centre for the South-East.

The building includes an office for Regional Officer, Murray Sherwell (pictured above with his wife, Rita), a radio room and a larger room which doubles as a co-ordination centre in the event of a major fire and as a meeting room for regional activities.

Part of the project has included the upgrading of the C.F.S. radio network for the whole of the South-East, and improved radio communications with C.F.S Headquarters in Adelaide.

During the ceremony at the new Region 5 regional headquarters the first fire truck owned by the Bool Lagoon C.F.S. brigade was commissioned. Previously, units attached to this brigade were privately owned, and the new unit, worth $25,000, has been made possible through a generous donation by the Adelaide-based wool processors, G. H. Michell & Sons Pty. Ltd.

The unit can carry three fire-fighters, has a tank capacity of 900 litres. It is fitted with a high pressure pump and 130 metres of hose.

C.F.S. BOARD IN SOUTH EAST

Country Fire Services Board Members made a detailed inspection of parts of the South East during a four-day visit from Tuesday 27th to Friday 30th September, 1983.

The visit enabled the Board to discuss matters of mutual interest with S.E. bodies; including the aftermath of the disastrous Ash Wednesday II fires, preparations for the coming fire season, subsidies and equipment.

The Board held discussions with South east councils, firefighting associations and C.F.S. brigades extending from Bordertown to the Victorian border; to Naracoorte, Penola, Millicent, South End, Beachport, Robe and Kingston.

Other programmes involving the Board were: hear an address by noted national fire protection authority Mr Phil Cheney of Canberra, attendance at the United Farmers & Stockowners seminar, Bordertown, with the seminar officially opened by Professor Schwerdtfeger; holding of the September board meeting at Bordertown; officially opening the new regional headquarters building at Naracoorte, and commissioning the Bool Lagoon fire appliance.

MINISTER INSPECTS OPERATIONS

The Minister of Agriculture, Minister responsible for the Country Fire Services, Mr Frank Blevins paid a visit to Country Fire Services Headquarters on Wednesday 7th September, 1983 to become acquainted with the staff officers and their administration and operations functions.

Pictured above, Mr Blevins (right) inspects a regional resource board in the operations room/control centre with C.F.S. Director Mr Lloyd Johns (centre) and Acting Deputy Director Mr Tony Keay.

Clothing and Heat Protection for Rural Firefighters

By R.O. John Lloyd, Research Division

This article is prepared from papers presented to a seminar entitled "Firefighters Clothing and Heat Protection" conducted by the CSIRO Division of Textile Physics at Ryde in June 1980 and additional material prepared by Associate Professor, G. M. Budd of the Commonwealth Institute of Health and N. P. Cheney, Senior Research Scientist with Division of Forest Research CSIRO.

In 1983, for the first time in nearly 30 years CFS fire fighters died during fire fighting operations. As a result of these deaths some doubt has been raised of the effectiveness of clothing as a protection from heat and burns. In particular, concern has been expressed that the standard cotton overall adopted as a CFS working uniform is not "safe" enough.

Evidence available suggests that there is a greater risk to fire fighters from heat exhaustion and heart strain than from any inadequacies in the level of heat protection of their garments. Also, enquiries to date have not shown any case where a fire fighter was burnt to death as a result of ignition of his clothing, in circumstances which would otherwise have been regarded as escapable. However, some fire fighters suffered second degree burns to skin beneath a single layer cotton overall, even though the garment itself suffered little more than surface singeing.

It is important therefore to understand what the fire fighters' standard clothing must be able to do for the wearer and also what it cannot do!

Fighting fires is hard work. The metabolic heat or body heat produced during that work is great, and if not removed from the working muscles via the skin can cause incapacitation and possible heat stroke within 20 to 30 minutes. Removal of this heat is dependent on adequate cooling of the skin. Sweat secretion and the subsequent evaporation is an important factor in skin cooling. So the clothing must allow sufficient air movement and water vapour transfer to enable free evaporation of sweat. Research work has shown that even the wearing of a belt can reduce ventilation, allow less evaporation of sweat and cause more discomfort to the wearer.

Additionally, tight fitting of outer garments particularly around the neck can reduce the amount of air pumped through the clothing by movement of the wearer. Of course "water proofing" of the fabric will also eliminate the free outward flow of moisture (sweat).

At the same time the clothing must be capable of providing protection from possibly intense radiant heat which if absorbed by the skin, together with the trapped metabolic heat, will cause a rapid rise in deep body temperature, placing near maximum stress on the heart and circulation. Finally the clothing must protect the fire fighter from burn injury which might arise from the heat, and be reasonably resistent to direct flame contact.

No single item of clothing can successfully fulfil all these requirements. Certainly a single layer cotton or woollen overall should not be regarded as a "fire proof" suit or a total protection system from heat.

Tests conducted at the CSIRO Division of Textile Physics on selected fabrics including cotton and wool, have clearly shown that the protection provided by a single layer fabric against radiant heat is related to its thickness and is independent of fibre type or flame retardant treatment. Likewise, the test to show the relationship between thickness of fabric and the time taken to transmit sufficient heat to cause second degree burns to underlying skin, showed that it was the amount of fabric available (thickness) rather than fibre type which determined the duration of protection.

The protective performance of a multi layer fabric construction was significantly greater than that of a single layer fabric of equivalent thickness.

This is because a two layer construction results in greater total thickness and traps an air layer between the fabrics, which increases overall thermal resistance.

All the fabrics employed in the test program were regarded as 'flame resistant' in the sense that they were not readily ignitable. The danger from the flammability of them was considered "of academic value only" because the heat necessary to produce combustion if it were possible would cause burn injury to skin beneath them.

The conclusion to be drawn from this is that the clothing worn by rural fire fighters must be considered as a system, of which the overall is only the outer layer providing an additional, layer of protection. Greater emphasis should be placed on the role of undergarments. In particular, underwear or clothing worn under overalls should have long legs and sleeves and be of a natural fibre, wool or cotton. The concept of a multiple layer garment system and being able to add or take off layers as the situation requires, i.e. the use of a turnout or bunker coat, provides great flexibility both in regard to climate and heat protection. However, the use of several layers of clothing can be overdone and the danger exists that with too many layers or bulk, the wearer will lose flexibility or the heat output of the body cannot be dissipated. **Also as Dr. Barry Holcombe of CSIRO points out, it is essential not to place too high an emphasis on protection from burns when considering the overall design of the protective system.**

A garment system which provides one hundred seconds protection from heat capable of burning exposed skin in one second is greater than necessary if the hands and face are unprotected. Most burn injuries occur on parts of the body not protected by clothing. Gloves and balaclavas can be used, however, they must be comfortable to wear and work in under all conditions, at all times. There is little point in keeping such items in the truck, just in case. If there is time to return to the appliance in an emergency situation the protection afforded by a properly equipped high sided truck is far greater than any clothing.

Budd and Cheney consider that part of the face should always remain uncovered to serve as a radiation monitor to warn of the approach of intolerable conditions. The normal reaction is to withdraw from the pain of such heat and this natural reaction should not be ignored.

Clothing can only provide protection for a limited time and the wearer must be able to sense when to withdraw from extreme conditions. The danger is that the fire fighter may become over confident of the capabilities of his clothing to protect him unless aware of external conditions.

The fire fighters lost on Ash Wednesday died in "forest fire" conditions in areas of very high fuel loads and subsequent extreme heat output. It would appear that none of them was able to take protection behind any solid screen or material, and in such conditions it is doubtful that clothing alone would have saved them.

Further research is required on both the thermal environment in a forest fire burning under summer conditions and the stresses imposed on fire fighters working in this environment. Some of this is being carried out as part of "Project Aquarius", an outline of which was reported in volume 13 of 'The Volunteer' by Superintendent T. P. Crichton. Tests on some overalls and clothing are also being carried out during this summer by staff of the Commonwealth Institute of Health. The types being tested include a suit currently being advertised as "12½ times better than the present regulation suit". Until the results of such tests are available brigades may be wiser to consider the findings presented above and look to "upgrade" the present standard overall by using better undergarments and greater skin coverage, rather than spend large amounts on untried "new" protected clothing which may prove uncomfortable to wear and provide only minor additional heat protection.

Continued page 7

Clothing and Heat Protection continued....

It is also appropriate to comment on two practices sometimes used and promoted to provide more protection in emergency situations. Saturating clothing with water should be avoided, if possible **unless** that water can be replaced by continuous hosing. The radiant heat protection provided is only marginally better than that of an equivalent dry garment. However because water is a far better conductor of heat than the air it replaces in the fabric, there is greater danger of steam burns if the wearer contacts very hot objects. Wet clothing is also heavier (up to three times its original weight) and increases the work load on the wearer.

Carrying "space" type blankets to use as emergency shelter or as a shield is not recommended. The material of which they are made will fail when exposed to direct flame contact. Because the material will also rapidly reach high temperatures before failure, burns can also result from any contact with it. There is also the previously mentioned danger of the fire fighter being given a false sense of security by using such "protection" and thus placing himself in a far more dangerous situation than would normally be wise. These blankets give exposure protection and are designed to keep in body warmth in a cold environment, not as a protection from heat.

Finally, whilst the saving of life and property are always the primary objects of all fire fighters and fire fighting, brigade officers should remember at all times that they bear the heavy responsibility of also protecting the lives of their own fire fighters.

Undoubtedly situations will occur again in high fire hazard areas where normal protective clothing and equipment will not save human life. Experience and training are needed to make all fire fighters aware of their own limitations and those of their equipment.

References:
R. Postle "Textile Materials and Heat Transfer".
B. V. Holcombe "The Evaluation of Protective Clothing" Seminar papers CSIRO Division of Textile Physics.
G. M. Budd and N. P. Cheney "Bushfire Safety and Physiological Stresses on Fire Fighters."

The 10 second "Key to Survival"

"With a grass fire, if you can survive for 10 seconds you are O.K."

That is the advice given by Mr Phil Cheney of the C.S.I.R.O. Division of Forestry Research.

Mr Cheney is head of the Project Aquarius team which is assessing the effectiveness of "water bombing" in fire control. He said any fire, even a grass fire, could be impossible to stop, as Ash Wednesday showed, but stopping a fire and surviving it were two totally different objectives.

Each type of fire was different, Mr Cheney said, and survival in high-fuel situations such as forest fires was far more difficult than in a grass fire.

It was vital that the general community came to understand what a fire was really like.

From a distance a grass fire appeared much worse than it was.

Fire was a line phenomenon, and, in the case of a grass fire, there was nothing behind it.

That was readily demonstrated by throwing a match into some grass.

The fire burnt outwards in a line from the starting point, leaving bare ground behind it.

That burnt ground could be safely stood on as soon as the fire had passed; that was the key to survival in a grass fire.

The "residence time" of a fire — the time it burnt at any one spot — depended on the type of fuel available to it.

In fine grass it was five seconds, in coarse grass 10 seconds. Fire burnt for 100 seconds in pine needles, 130 seconds in eucalyptus litter and for more than 600 seconds in logging slash.

The depth of fire depended on the fire's rate of travel, but at 5 km/h a grass fire was just five metres wide.

That was not to say that any fire should be taken lightly, he said, because heat release at the fire front was fierce.

However, people could readily survive a grass fire if they protected themselves from the heat until the fire passed.

And any grass fire passed in a very short time.

Every man, woman and child had to be convinced that if they could survive for 10 seconds in a grass fire they would be all right.

B.A. UNITS PRESENTATION

The cigarette manufacturer, Phillip Morris Ltd. donated six self-contained Breathing Apparatus units to the Country Fire Services to replace B.A. units lost by three Adelaide Hills brigades during the Ash Wednesday II fires.

The presentation was made by Philip Morris' Director of Corporate Affairs, Mr Phil Francis, who travelled to Adelaide for the function held on Thursday, 15th September.

Philip Morris Ltd. handed over six B.A. units to the representatives of the Carey Gully, Cudlee Creek and Tea Tree Gully brigades. The units are worth $1,065 each, and each brigade accepted two units and spare cylinders.

The units replace those lost by the brigades during the disastrous Ash Wednesday II bushfires last February.

In presenting the units Philip Morris' Corporate Affairs Director, Mr Phil Francis, said the Company had decided some time ago to offer practical assistance following the bushfires.

"We felt the best way was to help re-equip the frontline of bushfire protection — the firefighters. We sought the advice of the C.F.S. and it was agreed that we should supply the B.A. units."

Addressing the representatives of the three brigades, Mr Francis said: "Gentlemen, when you return with these sets to your brigades please convey our thanks and respectful comments to your colleagues and may this coming summer prove less horrendous than the summer of 1982-83."

C.F.S. Acting Superintendent of Operations, Mr John Fitzgerald, acknowledging the gift, said the generosity of Philip Morris once more reflected the practical concern shown by the community at large — companies, organisations and the public — to offer help and give recognition to C.F.S. brigades for their efforts during the widespread fires.

Mr Fitzgerald said the six B.A. units would provide the three brigades with better equipment for the future.

"Breathing Apparatus units are an all-year round necessity for many brigades. As urban development spreads into areas protected by C.F.S volunteers, the need for brigades to be equipped with items such as these, becomes vital.

"We are being called on to fight fires and meet other emergencies, such as spillages and leakages of toxic gases and substances, which require adequate protective equipment. Many of today's modern manufacturing materials, whether they be for industrial, domestic or even motor vehicle production, can give off potentially dangerous fumes when burning, and we must know that our brigades have this protective equipment available," Mr Fitzgerald added.

Pictured above from left: C.F.S. Acting Superintendent of Operations, Mr John Fitzgerald is presented payment of the breathing apparatus by Philip Morris Corporate Affairs Director, Mr Phil Francis of Melbourne.

Carey Gully C.F.S. member Gordon Badenoch (centre) tests out a B.A. unit watched by Tea Tree Gully C.F.S senior fireman Geoff Herbert and Gumeracha District Fire Supervisor, Ross Schlein.

At the presentation Mr Fitzgerald said "the B.A. units were an all-year round necessity for many brigades. Many of today's modern manufacturing materials can give off potentially dangerous fumes when burning, and there are other emergencies such as spillages and leakages of toxic gases and substances," Mr Fitzgerald said.

COUNTRY FIRE SERVICES BOARD *"SPECIAL FUND"*

I am pleased to advise that the Country Fire Services Board has set aside the sum of $30,000 from general donations made following the Ash Wednesday II fires.

The money thus set aside will be known as the "CFS Board Special Fund" and interest earned from the investment of the money will be used to assist the dependants of CFS brigade members who die for any reason whilst actively involved in CFS duties.

In essence the $30,000 will be invested in Australian Bonds. The interest earned on the investment will be deposited in an "at call" savings account.

The interest earned on the investment will be applied by way of a cash grant to the dependants within 48 hours of the tragic event.

Only the dependants of **Registered CFS Members** will be eligible for the benefits.

The maximum cash payment will depend on the availability of funds but will not exceed $1000 in respect of any one payment provided that the CFS Board may, from time to time alter the maximum cash payment in line with inflationary trends.

The maximum cash payment shall be dependant upon monies available in the "at call" savings account and in the case of multiple payments for any one event or events a pro-rata payment shall be made.

The original investment of $30,000 shall remain invested in perpetuity.

The accounts of the Fund shall be subject to annual audit and the audited accounts will be included in the Board's Annual Report.

The tragic events of the 16th February, 1983 have highlighted the urgent and pressing financial needs of the dependants of fire fighters immediately following the death of the firefighter.

The grants will be a "no strings attached" payment and will in no way affect worker's compensation benefits or any other payments made as the result of the death of the member.

Lloyd C. Johns
Director, Country Fire Services
October 1983

Fire Bodies Meet

The Australian Conference of Rural Fire Authorities was held on 9th to 13th May, 1983 at Coolangatta in Queensland, where representatives from fire organisations including the Country Fire Services discussed matters of mutual interest and concern.

Reports were given on the Ash Wednesday II fires by Country Fire Authority Chief Officer Mr Ron Orchard and Country Fire Services Director Mr Lloyd C. Johns and Bureau of Meteorology Officers discussed weather forecasting and problems experienced on 16th February, 1983. A general discussion was held on the adoption of Mark V Grassland Fire Danger Meter as the Australian standard unit, where the Mark V took into account fuel loading.

National Training Course for Arson Investigation: Mr L. C. Johns spoke on the need for a proper course for the training of Arson Investigators. *"It was agreed that the Australian Government be approached with the request to establish a National Fire Investigators Training Course."*

Computerisation: With a mutual interest expressed in sharing knowledge, concepts, programmes, operational links and administration procedures being developed in computerisation. *"members agreed to the need for a free interchange of ideas with the appropriate authorities."*

Fire Research: With the importance of fire research in Australia to the future saving of life and property and following discussions on the use of aircraft in fire suppression, *"it was resolved to have the Executive press the Australian Government to make increased funding available for rural and bushfire research at a national level."*

Infra-red scanning equipment: *"The Association supports the development of infra-red scanning equipment to monitor wildfire."* Delegates acknowledged its advantages to fire control officers.

Mr Stan Duncan, Forests Commission of Victoria (C.F.A. member) was elected Chairman of the Association for the next 2 years with Mr Lloyd Johns, C.F.S. Director being appointed the Executive Officer.

The next biennial meeting of the Association will be held in Perth, Western Australia in 1985.

A cost saving proposal

BULK BUYING FOR BRIGADES . . .

by R.O. David Batten (Region 3)

For many years C.F.S. brigades have asked why C.F.S. Headquarters could not have some form of *Bulk Buying System.* Such a system can now be set up!

As this article goes to print tenders have been called to supply any C.F.S. brigade on a demand basis, for a period of eighteen (18) months ending 30th June, 1985, for the following equipment:

1. 30m x 64mm non percolating hose complete with lightweight couplings.
2. 30m x 38mm non percolating hose complete with lightweight couplings.
3. 30m x 38mm percolating hose complete with lightweight couplings.
4. 16 litre knapsacks.
5. 9 kg Dry Chemical stored pressure fire extinguisher.
6. 9 litre water stored pressure fire extinguisher.
7. 9 litre A.F.F.F. stored pressure fire extinguisher.
8. B.C.F. fire extinguisher in two sizes.
9. Fire fighting pump to the light specification.
10. Fire fighting pump to medium specification.

Should a C.F.S. brigade require any of the above equipment, then it is a simple matter of going to the appropriate supplier (refer list enclosed) to obtain the item(s) at the bulk buying price(s).

C.F.S. H.Q. will not handle any transaction or equipment. Through a bulk buying system, substantial savings can be made by Fire Fighting Associations, C.F.S. brigades and District Councils.

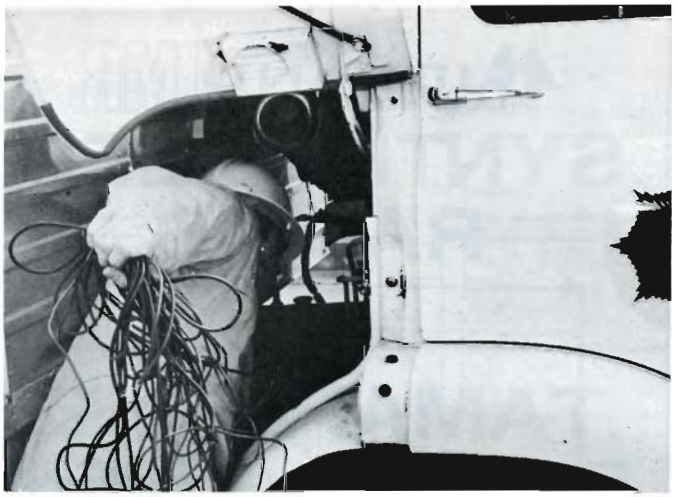
If savings can be made on EQUIPMENT, then why not on NEW FIRE UNITS TOO.

It has been calculated that at least a 10% saving could be made on new fire units if, ten (10) C.F.S. brigades or more combined to issue tenders for their required cab/chassis, body work etc.

Any brigades planning to purchase a new unit next year (after 1st July 1984) should contact either Regional Officer Russell Grear or David Batten, C.F.S. Headquarters, telephone (08) 297 6788.

WITH BRIGADE SUPPORT A BULK BUYING SYSTEM COULD BE SET UP.

COMMUNICATIONS CHECK LIST



Vehicle Wiring check?

The fire danger season is with us.
Check your readiness from this list.

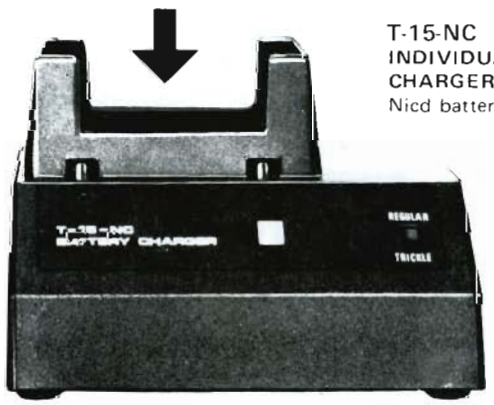
* All radio sets pre-season checked by qualified technician.
* Vehicles inspected for wiring and battery connection faults.
* Vehicle battery tested for full charge and condition.
* All back up supplies in place and tested by full system operation for a number of hours.
* Portables with rechargeable batteries "cycled".
* Control Centre checked for current telephone number listings, pens, pencils etc.
* Call sign list prepared (to new standard if practicable).
* Operating procedures and practices reviewed and understood by officers and new members.
* Preplanning for dealing with key equipment breakdown.

Some of the checks suggested are more easily done than others. Should more details about the checks be required please contact Regional Officer Trevor Conlon at CFS Headquarters.

MIDLAND LAND MOBILE RADIO LMR

SYNTHESIZED RADIOS

TAMAPHONE Portable Radio



T-15-NC INDIVIDUAL CHARGER for Nicd battery set

The intelligent choice in 2-way business communications.

The MIDLAND SYN-TECH® radio was designed to provide the most versatile, practical, and effective communications capability available in the world today. The local reprogrammability of this series of radios, its broadband capability, up to 36-channel capacity in all LMR bands, and wide selection of field-plug-in options provides a communications product which can be easily tailored to present needs and allows incorporation of options as requirements change.

Trunk-mount installation

The control head of the trunk-mount version of the MIDLAND SYN-TECH® radio is one of the smallest and lightest in the world at 352 cc (21.5 cu. in.) and 0.8 kilograms (1.8 lb.). The speaker is equally small and light: only 770 cc (47 cu. in.) and 0.7 kilograms (1.5 lb.). The trunk-mounted mobile itself is the same size as the dash-mount version. The cable uses gold-plated connectors, which require no soldering.

Dash-mount installation

Extremely compact, the mobile models are ideal for installation in today's smaller vehicles: The dash-mount mobile is only 65 mm high, 185 mm wide and 280 mm long (about 2½″ × 7¼″ × 11″). Also, it incorporates a built-in front-firing speaker; no room has to be found for a separate speaker.

Easily field-converted from one mobile mount version to the other.

By simply removing four screws, the front panel of a dash-mount MIDLAND SYN-TECH® unit can be replaced by a trunk-mount front panel, control system, cables and remote speaker. This unique feature is particularly useful in larger mixed-mount fleets because it can substantially reduce the number of spare radio units kept in stock for installation or replacement.

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TS TRANSCEIVER SERVICES PTY. LTD.
Incorporated in South Australia

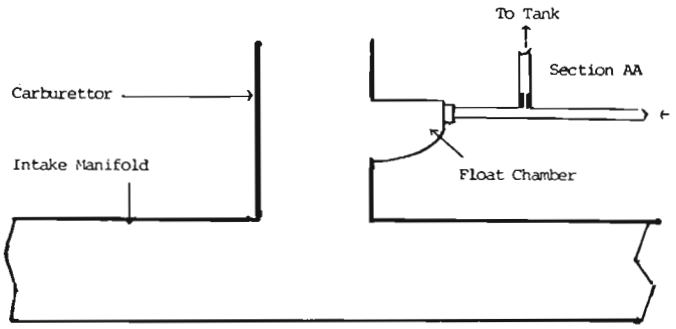
Petrol Vaporisation in spark ignition engines.

By R.O. Russell Grear, Region 1 and Fire Appliances

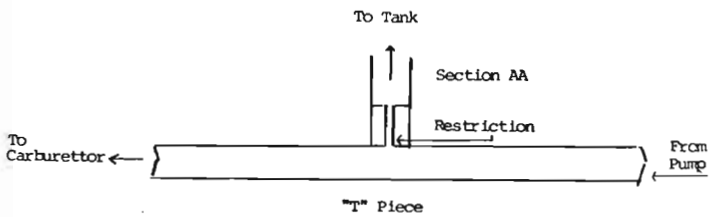
Petrol will start to boil at a temperature as low as 30°C. When considering that most normal running temperatures of spark ignition engines is between 75°C and 90°C and the engine compartment temperature being not much cooler, it is not surprising that the petrol may boil in or before reaching the carburettor.

If the flow rate of the fuel was to be increased then this would serve to cool the fuel lines as the engine coolant does for the engine.

The simplest way to achieve this is to re-circulate the fuel back to the tank. This can easily and economically be brought about by fitting a 'T' piece into the fuel line adjacent to the carburettor re: Figure I.



Into the 'T' piece a restriction must be fitted to ensure sufficient fuel pressure at the carburettor. A simple way to make sure the correct sized restriction is fitted, a float valve seat suitable for the particular carburettor can be soldered into the return line re: Figure II.



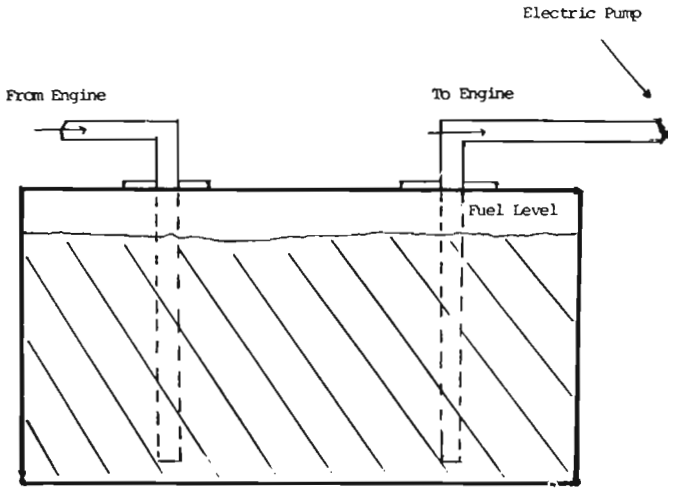
An electric fuel pump should be fitted to by-pass (or the removal of) the mechanical pump where applicable. The electric pump should be of a solid state design to eliminate the possiblity of contact breaker failure resulting in pump failure. The pump should be fitted as close as possible to the fuel tank.

The return line should be open to the bottom of the fuel tank to eliminate petrol splashing into the tank resulting in excessive vapours being created re: Figure III.

All fuel lines should be lagged with fibreglass insulation and relocated away from heat areas.

Figure II the restriction should let a litre of fuel per minute return to the fuel tank, therefore a 1.5mm hole would be sufficient. Fuel pumps on trucks should supply at least 2 litres per minute at approximately 30kPa.

Under no circumstances should motor spirit and distillate be mixed when used for internal combustion engines either petrol or diesel.



Explanation

(a) The flash points of both fuels differ considerably (motor spirit −30°C and distillate + 72°C). By mixing the two fuels the flash point is predominantly controlled by the flash point of the more volatile fuel in this case the motor spirit. Even by adding say 90% of distillate to motor spirit the flash point will be close to −30°C.

(b) A petrol engine is designed to run on motor spirit. There is a right relationship between octane rating of the motor spirit and the compression ratio of the engine. by adding distillate to the motor spirit you disturb this relationship and lower the octane rating.

Results can be disastrous, pinging, causing stress on mechanical components of the engine, incomplete combustion, spark plug deposit built up or wetting of the plug, lubricating oil dilution cause the oil to thin down resulting in bearing failures, increased maintenance costs etc. etc.

One of the worst that will happen is not being able to start an engine when the fire vehicle should relocate itself due to surrounding dangers.

Technical Information—

1. C.S.I.R.O. Division of Mechanical Engineering, Melbourne.
2. A. S. Paterson A.I.A.M.E., South Australia
3. Detrac, Adelaide.

Fire weather forecast

During a fire, the services of the Bureau of Meteorology are always available for the provision of forecasts of expected wind speeds, weather and of any expected changes.

However, it is stressed that wind speeds given in these forecasts are in **kilometres per hour** (k.p.h.) (knots are only used in nautical and aviation forecasts). Also, these forecasts are the general expectation for the area and cannot take into account the local topography or winds produced by the fire itself. Should a weather forecast for a going fire be required at any time, the Control Centre Operation at C.F.S. HQ can obtain it (this is the preferred method) or a direct call can be made to the Bureau on (08) 42 6601.

When calling for a forecast, be prepared to give details of existing conditions at the fire, including wind speed and direction (k.p.h. again!) temperature and cloud cover, as best can be estimated.

On receipt of a fire call in the Bureau, the above information is logged, together with the location of the fire and a call back telephone number is taken in case additional important information becomes available.

The next forecast given by the forecaster, is usually valid for the next six hours, with an outlook for the following six hours. So that the best advantage can be taken of the Bureau's forecasting services, an update of the forecast near the end of the first six hours is advisable.

Weather observations are done throughout Australia every three hours (except for midnight in SA/NT and the eatern States and 9 p.m. in WA). Optimum times to ring the Bureau, when the most weather information is available are: 5.30 a.m., 11.00 a.m., 5.15 p.m. and 10.30 p.m. Calls can, of course, be made at other times. However, near the above times, the forecaster has much more information available to him to assess how a particular weather situation is developing.

Remember that the wind forecasts given by the Bureau are in **kilometres per hour** (k.p.h.) and that timing of wind changes (when given) will be as a range (say, 5 to 7 p.m.).

Controlled Burning

Burning off operations getting out of control are recognised as a major cause of fires in South Australia and controlled burning with the aid of the Bureau of Meteorology Forecasting Services is strongly recommended.

Enquiries should be made to the Bureau regarding the likelihood of suitable conditions for burning off. Depending on the situation, forecasts may be possible for up to two days ahead. A further check of the forecast should be made before lighting up to ensure that conditions are not likely to change.

Note that forecasts given are for general conditions over the area and do not take into account effects from local typography etc. which can affect wind speeds and direction in particular.

Out of Control

Should a fire get out of control the Bureau's facilities are always at your service and special forecasts and reports from key stations in our emergency network can be made available. These services can be obtained direct by telephone to 42 6601 (24 hour service) or through the Bureau's Field Offices at Ceduna and Mt Gambier, who may remain on duty, when requested until such time that special forecasts or advices are no longer required. When a fire is under control advice would be appreciated so that our efforts can be concentrated on other fires which may be out of control at the same time.

IMPROVING WEATHER REPORTING FOR FIRE-FIGHTING PURPOSES

A programme to improve weather reporting as it affects fire conditions during the Summer bushfire season is being initiated jointly by the Country Fire Services and the Bureau of Meteorology.

C.F.S. Director Mr Lloyd Johns said there were a number of measures involved.

The C.F.S. is developing a series of automatic relay stations at the service's 15 remote radio link sites located throughout the State.

The relay stations, where some units will be put in during the next two years, will feed down through the radio links information about temperatures, wind speed and direction, relative humidity, and hopefully, barometric pressure.

The information will be fed into C.F.S. Headquarters and the Bureau of Meteorology about every 10 minutes.

"We also hope to develop a cold front detection programme, as it is essential that firefighters be aware of when the cold fronts are moving through the State.

"At the moment, about the best we can do is to learn of them at a minimum of half an hour and at the worst, at up to two or three hours," the Director said.

He said the Great Australian Bight was almost void of a regular reporting system. Passing ships and some surface sonar equipment provided infrequent information.

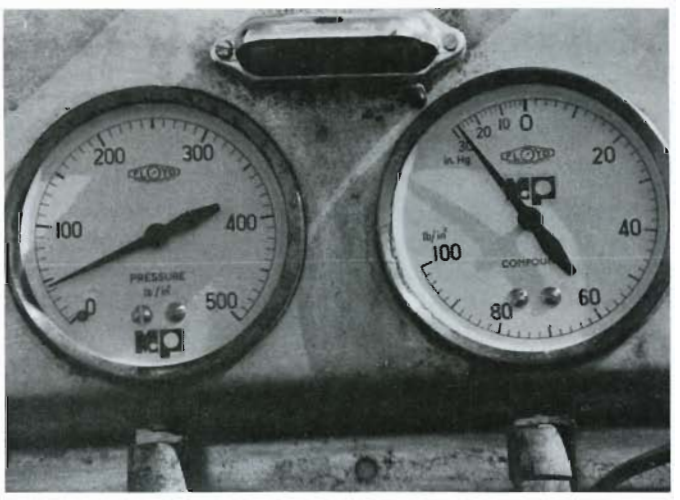
The other major measure planned is to have an aircraft fly out into the Bight on Red Alert days to locate and track cold fronts moving across the Continent, and, where possible, to determine the speed of the front, the potential wind direction, and whether it was accompanied by rain.

The information will be collated and analysed by the Bureau of Meteorology at Kent Town and relayed to C.F.S. Headquarters.

"This is another essential ingredient in our programme to ensure that we can predict any changes in fire patterns, due to weather conditions and changes in weather patterns," the Director said.

COMPOUNDING THE PROBLEM

by R.O. David Batten (Region 3)



This is a classic example of the way gauges must be fitted to all fire fighting pumps.

The pump involved in this case was a Darley 2BE, lifting sea water some 2 metres and pumping the water through 90 metres of 64mm hose, with a 12mm nozzle at the branch end.

As you can see the gauges tell us that all is not as it should be.

What is the problem and what would you do to overcome the situation?

ANSWER:

The strainer was blocked by seaweed, creating a high vacuum and low pressure.

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5	163.210	CLEVE — LOXTON — PARINGA — STIRLING — WAIKERIE
6	163.270	BEACHPORT — KANYAKA/QUORN — MILLICENT — SALISBURY — TEA TREE GULLY — STIRLING NORTH
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8	163.150	ELLISTON — KAROONDA/EAST MURRAY — MEADOWS — PORT ELLIOTT & GOOLWA — STRATHALBYN — WAROOKA — YORKETOWN
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13	163.165	DUDLEY — FRANKLIN HARBOUR — KINGSCOTE
14	163.285	TUMBY BAY — VICTOR HARBOR — WILLUNGA — YANKALILLA
15	163.195	NARACOORTE — PENOLA — BURRA BURRA — CLARE — HALLETT — LINCOLN — SPALDING
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Fire Management & National Parks

by Nicholas Newbold
National Parks and Wildlife Service.

The National Parks and Wildlife Service is concerned that C.F.S. volunteers and general members of the public may not fully understand the Service's attitude to fire in parks. Also the Service is concerned that people are not aware of the extent of fire prevention works that are undertaken on a continuous basis in fire prone parks in various areas throughout the State. Community concern is reflected through Letters to the Editor, television programmes and other forms of media publicity which do not necessarily give a true picture.

It is important for the community in general and C.F.S. personnel in particular to understand and accept that the basic objective of the National Parks and Wildlife Service is to preserve inperpetuity representative examples of flora and fauna throughout the State. Obviously this task is difficult to undertake given the varying types of impacts placed on areas by the visiting public, the weather, pressures for other uses such as grazing, wood cutting and mining, and of course aspects of park protection including fire, weeds and vermin. In the objectives of management spelled out in Section 37 of the National Parks and Wildlife Act, the service must in one objective preserve "features of geographical, natural or scenic natures" and in another objective "ensure prevention of bushfires and other hazards". Invariably it is difficult for both these objectives to be achieved easily without a clearly defined strategy. Given the Service's responsibilities under the National Parks and Wildlife Act, it is fundamental that certain fire prevention measures generally practised on agricultural lands are not relevant to national parks and reserves.

The Service is well and truly in the business of preserving the natural systems within parks many of which, by their very nature are highly flammable and present a real potential for bushfires of major proportions. Also it is generally recognised that insidious changes to vegetation caused by regular burning of natural areas is a problem that park managers must recognise and accept in any management regime for fire prevention within a reserve.

It has been common practice in forestry operations to control burn within natural forests for the purposes of protecting tall standing timber from wild fire. In many cases these forested areas superficially appear attractive and unaffected by these practices. However it has become increasingly apparent that such control burning practices within areas contained for their intrinsic natural value rather than the production of timber are not often appropriate. Of course the community has its share of people that like to remind the National Parks and Wildlife Service of its responsibilities for ensuring that both the flora and fauna of the park remain untouched by any human activity including the effects of fire.

This sector of the community can have strong lobbying powers with Government, and it is easy for a confrontation to develop between this point of view and the point of view of those who would wish to see a major control burning programme instituted in parks on a general basis. So we have two ends of a spectrum; those who would wish to handle fire management in parks with a fire stick and those who would wish to have as little impact as possible on the park. Somewhere in this spectrum, the Service must seek to find a compromise which meets the needs of both the community and the Government.

I believe it is reasonable to say that the community in general wants to see natural areas preserved in parks and those natural areas managed for future generations. The gradual increase of areas set aside as parks and reserves in South Australia is a general reflection of the community's point of view. The National Parks and Wildlife Service must face the difficult task of imposing the necessary management regimes on parks to meet the needs of the community but at the same time not allowing a problem such as fire in parks to reach major proportions.

A significant sector of the community believes that national parks are areas that, once acquired by the Service, are fenced off and closed to the public. this is an illusion. The Service does what it can to manage its areas in the most appropriate way including provision of protection from the ravages of fire. The Service's Field Management Policy document, which is freely available to the public, indicates the Service's commitment to establishing progressively in each manned reserve or ranger station, self-contained and effective fire control and suppression resources consistent with the needs and manpower levels in the area. The document provides for the establishment of aids for fire suppression including provision of access tracks, dams, spotting towers and the like. The policy document allows the Service to determine which areas of a reserve can be burnt, and with what frequency. Also fires might be prescribed for habitat modification as well as fuel reduction purposes. Perimeter burns will generally be undertaken where local ground fuel is at a high level and wild fire is likely to endanger life or property on adjacent lands. The Service has a policy of establishing boundary access tracks around all parks as funds permit. These access tracks generally will be constructed to a minimum width of five metres unless local conditions indicate that a greater width is required. Each year the Service places priority on the preparation of both spring and autumn prescribed burning programmes. Current prescription burns are being carried out in Belair, Cleland, Morialta, Black Hill, Para Wirra, Mt. Magnificent, Kyeema, Nene Valley Conservation Park, Penola C.P., Mt Scott C.P., Jip Jip C.P., Kelvin Powrey C.P., Gum Lagoon C.P., Big Heath C.P. and the Ngarkat Conservation Park.

There has been some suggestion in the past that relationships between the National Parks and Wildlife Service and the Country Fire Services are not what they ought to be. The community should realise that all National Parks and Wildlife Service fire units are registered brigades within the C.F.S. organisation and conform as far as possible to C.F.S. requirements. Both Services maintain close liaison with each other throughout the year. Each organisation has a radio system compatible with the other and the National Parks and Wildlife Service has made officers available to serve on sub-committees within the C.F.S. associated with legislation review and fire research.

continued page 16

An Open Invitation to all C.F.S. Members . . .

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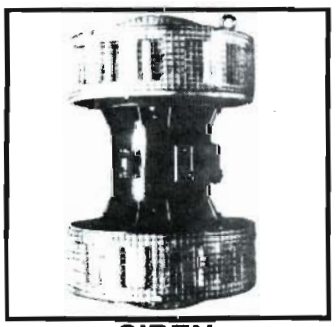

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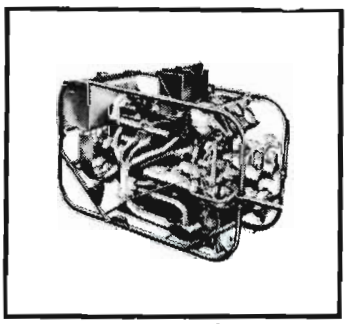
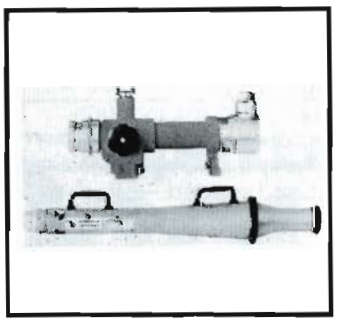


PUMPS



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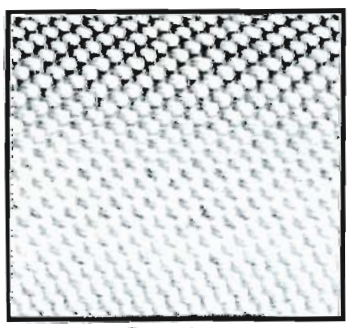

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Fire Management & National Parks continued

C.F.S. regional officers maintain close contact with the Service's district rangers throughout the State and the regional management structure. Both organisations conduct training sessions together and it is intended that these sessions be increased in the future. The Westpac State Rescue Helicopter receives part of its operating funds from both organisations and is used on a regular basis as a moving platform for fire control purposes.

The National Parks and Wildlife Service provides assistance and support to the C.F.S. for fires outside parks especially during working hours when C.F.S. volunteers are often otherwise occupied. The spirit of cooperation between the two Services goes even further in the Athelstone District where the Athelstone C.F.S. unit is being kept in service by contribution of a subsidy payment from the National Parks and Wildlife Service.

In summary, it is hoped that this article will assist the reader to appreciate the position in which the National Parks and Wildlife Service finds itself in relation to fire in natural areas and will perhaps help the reader to understand why certain decisions are made and actions taken in relation to methods of fire suppression used in parks and the attitude of the Service towards some of the more traditional aspects of fire management including back burning, fuel reduction burning on a wide scale and the width of fire breaks. The Service very much hopes that the growing relationship being established between its officers and those officers at C.F.S. headquarters can be expanded to National Parks and Wildlife Service country staff and C.F.S. volunteers in the field.

PARKS DISASTER

National Parks and Wildlife Service have already had a "major disaster" with a recent bushfire that burnt for five days in the Hincks Reserve, located west of Wharminda and Verran (Eyre Peninsula). The fire that burnt into the part destroyed 15,000 hectares of the 66,000 park.

"It would take 35 years for the vegetation in Hincks Reserve to completely recover," said Port Lincoln National Parks and Wildlife Service Officer.

The Minister for Environment and Planning, Dr Don Hopgood told Parliament that in the past two years the N.P.&W.L.S. had spent $30,000 developing fire breaks and tracks in the Hincks Reserve.

He said the fire believed to be a burning-off operation had been lit in 38° heat with 45 to 50 km/h winds and a 10 per cent humidity factor. It was extraordinatry that anybody could light a fire on a day like that and it was inevitable that it would get out of control.

Strain shows on the face of Mr Reg Phillis of Tumby Bay, who travelled to Brooker to help fight the Hincks Reserve fire. C.F.S. crews and National Parks officers and private farm firefighting units worked from 2pm Wednesday (26th October) to 3am Thursday without a break and then started again after only a few hours sleep. Eye witnesses spoke of the fire burning in scrub land on a 2 to 5 kilometre wide front with flames leaping about 10 metres in height.

(Photograh supplied courtesy Port Lincoln Times.)

Of Banksias, Birds and Bushfires

by Neil Stevens

Wherever a piece of land has been set aside for the preservation of native flora and fauna, there is someone to condemn it as a fire hazard. The reasons and motives behind the accusations are many and varied but they have one thing in common — they are unjustified.

Fires are started by careless people, by faulty machines and by lightning strikes. None are started by nature reserves.

Certainly a reserve contains an accumulation of fuel for fires but the same can be said of a field of ripening wheat. Some will say that a field of wheat has a market value and that a reserve has no market value. On the other hand, it is possible to buy a field of wheat but not even the most affluent member of our society can buy a nature reserve. The fact that it has no market value does not necessarily mean that it is worthless — it may be priceless.

Many fires start in reserves and some people claim that the only way to eliminate these fires is to open the area to agriculture and so dispense with the problem of campers, hikers and picnickers. This would be treatment of the symptoms rather than the disease. Replacing a nature reserve with crops and pastures would not make people more careful or spark arresters more efficient. It would simply force them to go somewhere else. The number of glowing embers from campfires, faulty vehicles and cigarettes butts would not be reduced. They would continue to glow in other reserves and on other roadsides.

The argument is sometimes advanced that reserves are subject to lightning strikes and that resulting fires can burn unchecked until they reach the edge of the reserve. By this time the fires have such a hold that it is impossible to prevent them spreading to adjoining crops and pastures. Opening of the land to agriculture would not reduce the number of lightning strikes. The only difference would be that the fires would start directly in crops and pastures instead of coming to them later.

Trees, far from being fire hazards, in themselves, can be valuable aids to fire control. Wherever ground winds are reduced by windbreaks, firefighters have a better chance to control fires.

The question of fire prevention and protection for large reserves is a complex one, involving public education, mechanical improvements and large scale protective measures.

It is unfortunate that the typical private nature reserve is a patch of scrub at the edge of the property, usually adjoining a road.

Roadsides are places where fires start — from cigarette butts, matches, faulty exhausts, barbecues, fallen wires and traffic accidents. The swathes of easily ignited annual grasses which have established themselves along most of our roadsides provide ideal conditions for fires to become established quickly.

A private reserve near a road is in constant peril from every passing person and vehicle. If fire spreads from the roadside into the trees, the reserve itself will threaten the rest of the property. Burning trees will shower sparks across firebreaks into adjoining crops and pastures. The chances of this happening can, of course, be reduced. Firebreaks between the roadside and the reserve may stop the fire. Close grazing in the reserve would reduce the chances of the trees igniting — but also reduce the number of valuable bird species it would support. For example, the Blue Wren, will eat 80 cockchafer larvae per day, provided he has shrubby undergrowth in which to make his home.

There is, however, a simple solution to the problem of fire protection for private nature reserves. If the reserve is situated in the centre of the property, surrounded by the crops and pastures, it cannot become a threat to the property instead of an asset. Fires can still burn their way into the reserve, but only after they have destroyed crops and pastures. Fires can still start in the reserve, but the landholder has only his own actions and machines to worry about.

A central nature reserve presents few problems in fire protection and general management. It also places birds in the best position to control insect pests throughout the property.

FIRE—DON'T LET IT BURN!

HILLS AREA FIRE DANGER "VERY HIGH"

The Adelaide Hills only needs a week or so of continuing warm to hot weather, without rain, to again have a very high fire danger rating.

Areas unaffected by last Summer's fires are all carrying large fuel build-ups, both in ground litter and undergrowth — and all is highly flammable.

During the past fortnight the curing of fuels had reached 75 per cent with reports of fuel loadings being heavy. Without rain, it was only a matter of a few short weeks for there to be 100 per cent curing of fuels. That is when the potential for fires becomes high — and real.

NOVEMBER 1983

A vacant house block in Mount Barker (Adelaide Hills), burnt as fire swept in to the western edge of the town on Ash Wednesday II, is now covered with grass almost as tall as Mount Barker general inspector Len Quick. "As the burnt fence shows — it happened once and could happen again," said Mr. Quick.

(Photograph/article reproduced courtesy The Courier.)

The Captain of the Kadina C.F.S. (on Yorke Peninsula) Mr Fred Munzer, is very concerned at the likelihood of fires this summer, as is evident by the growth (pictured) on the side of the Wallaroo to Moonta Road. In the background is the District Council of Kadina's huge water tanker used as a back-up for the firefighting unit.

(Photograph reproduced courtesy Yorke Peninsula Country Times.)

Early sign of fire danger — on the weekend of the 8th October, Waikerie C.F.S. volunteers were called out to two grassfires indicating that even this early the fire danger this summer will be extremely high.
(Photograph/article reproduced courtesy The River News.)

Farmer with simple prevention policies

by David East
Stock Journal

Simplicity and commonsense are the key factors behind the bushfire prevention policies of Stewarts Range farmers, Robert and Janet Board.

The policies and practices which involve the whole family and are part of the overall management and planning of the farm are virtually practised throughout the year, not just during the bushfire season or the weeks leading up to it.

The Boards have never had a major fire affect their property and they want to keep it that way.

Besides looking after his own farm, Robert Board (along with other volunteers) shares a great concern for the property of other people, and he is the captain of the Stewarts Range CFS brigade.

His philosophy is simple. You cannot expect other people to take precautions, if as a member of the CFS, you do not take adequate and proper precautions yourself.

The Board family farm of 474 ha (1170 acres), about 16 km west of Naracoorte on the Lochaber-Stewarts Range road, is situated in a lush area of gently undulating sand rises dotted with a host of native tree and shrub varieties.
shrub varieties.

Between the farm and the township of Naracoorte is Garey's Lake, an 8km by 3km natural water basis which has been full for two of the past three seasons.

Unfortunately, according to Robert Board, the lake is on the wrong side of the farm.

"If it were on the western or north-western boundaries, it would provide me with an almost perfect natural firebreak, because it is from those directions, a fire poses the biggest threat," he said.

When Robert and Janet built their new home several years ago it was situated with protection from bushfires in mind.

It is on the leeward side of rising land on the farm, so that north and north-west winds would be lifted over the house in time of fire danger.

Around the house, particularly on the danger sides, couch grass has been planted to provide easily controlled growth areas between the sheds and house.

On the same directional perimeters, native trees and shrubs have been planted as a means of protection and for breaking down dangerous wind velocities.

continued page 20

Clean-up firebreaks with Roundup® herbicide.

Protect your property and stock from the ravages of fire with a safe and effective firebreak created with Roundup® herbicide by Monsanto.

Roundup herbicide offers two successful management techniques for the establishment of firebreaks.

One method uses Roundup herbicide plus a residual herbicide such as Simazine for long term control.

The other method involves late season spraying with Roundup followed by burning.

Weed control with Roundup is the effective alternative to cultivation, grading or slashing in difficult areas such as fencelines, road sides and culverts.

Roundup herbicide controls a wide range of weeds including phalaris. It translocates into the weeds' root system to prevent regrowth.

Roundup has no residual activity in the soil, thus nearby trees will not be affected by root uptake and its low toxicity presents a minimal hazard to operators.

Break the chances of fire this summer with Roundup herbicide.

For further information see your local Monsanto or Ciba Geigy representative.

Clean-up with Roundup® herbicide.

Farmer with simple prevention policies cont.

Wide areas of mown and grazed couch grass provide a fire safety belt around Robert and Janet Board's home at Stewarts Range.

It is in these areas the whole family becomes involved in relation to fire protection.

With the aid of a ride-on motor mower the wide stretches of protective couch grass are kept under control.

Debris and leaf build-up under and around the trees and shrubs are regularly raked and cleaned up.

Fence lines around the house and sheds are chemically treated and in the case of bracken growth, hand pulled on a regular basis while livestock are used to bare graze other areas.

Specially selected native trees and shrubs have been planted a safe distance from the house.

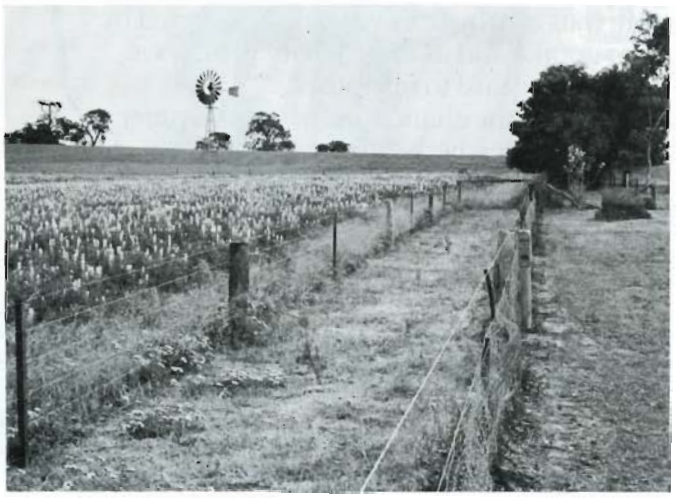
For added protection an overhead sprinkler system is being installed in the garden area.

this, according to Robert, will serve two purposes.

It will assist with the summertime watering of the garden and during the threat of a bushfire will assist in keeping the ambient temperatures lower.

Janet said it took 10 years of trial and error to find the right kind of native trees and shrubs to plant in and around the farmstead which would not only be aesthetically suitable, but would also afford suitable protection from strong winds on fire danger days.

Basically a fat lamb producing enterprise, a limited cropping program for stock feed is also carried out on the property.



In this area, Robert Board tries to plan his crop rotation with the fire danger season in mind.

It is impossible, he said, not to have a crop on the dangerous north and north-west sides of the farm at some time or other, but to reduce the risks as much as possible, he has planted lucerne in the paddocks he considers hold the most danger to his home and family.

As strong believers in the use of trees to break down wind velocities, Robert and Janet have recently undertaken another extensive tree planting exercise around the perimeter of their homestead area.

Robert regularly slashes the grass growing alongside the roadways bounding his farm and also maintains good and clean firebreaks around his crops and pastures.

His philosophy is simple — the less fuel there is to feed a fire, the safer the property must be.

He maintains a trailer fire unit on the farm and his water supply bore and pump are equipped with specially prepared instruction cards telling people about their operation.

"This is essential if the equipment is required urgently while I am away from the property," he said.

As a captain of the local CFS brigade, Robert says his greatest fear in going out to fight a fire lies in the uncertainty of entering a property and not knowing how dangerous conditions could be.

Robert Board, Stewarts Range farmer and captain of Stewarts Range C.F.S. pictured above, checks and maintains the power unit of his on-farm trailer type fire fighting unit, to ensure it is fully operational at all times.

He says he tries to keep his farm as safe as possible, not only from his family's point of view, but also for strangers who might be called in the case of an emergency.

"It's not hard to take precautions and if every property owner adopted some simple and commonsense policies, fire risks in most circumstances could be greatly reduced and the job of the fire fighter made a lot safer," Robert maintains.

Article reproduced courtesy Stock Journal journalist, Mr David East.

FIRE PUMPS

"PUMP-RITE" AND MITSUBISHI

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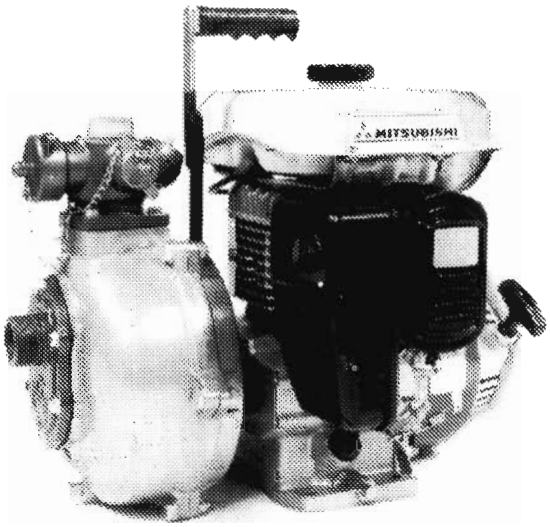

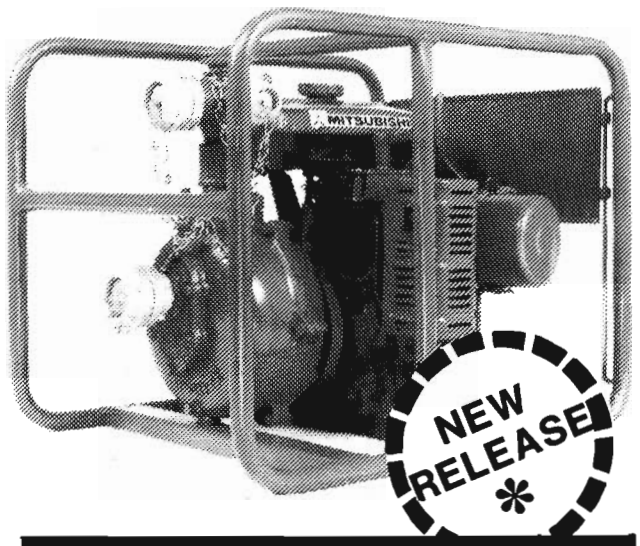

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Planning for Property Fire Protection

Recent experience has again shown that even with the increased efficiency of fire fighting equipment and fire control planning, it is not possible to successfully control large bushfires on days of extreme fire weather.

Homeowners should always be mindful that, in severe emergencies, it is not practicable to depend on the bushfire brigade to save individual houses. In a typical bushfire emergency, hundreds of houses may be threatened simultaneously and it would be impossible for brigades to protect more than a small proportion of these.

The only guaranteed fire safety for property in high risk areas is that which is provided by the owner.

Studies over the past years have strongly confirmed that the fire protection of a property cannot rely on one factor. There are always a number of factors which, when combined, will provide the best fire protection with the least disturbance of the surrounding environment. Such finesse can only be achieved by sound planning.

Individual homeowners should be aware of the elements of basic fire protection before developing a fire protection strategy for living in fire prone areas. These include hazard reduction and house construction undertaken in accordance with simple principles.

There are many ways of protecting your property. Appropriate landscaping and vegetation management around the house can reduce the risk of fire damage. Although landscaping is a long term solution, the essential ingredient of fire protection planning is good housekeeping; for example, it is possible to immediately reduce fire hazard by clearing dead material from under shrubs and trees.

If fire does threaten your property, thre are a number of measures which can be taken to minimise the risk of flying embers igniting the home. If the house does catch fire, it is not always necessary to evacuate immediately. However, it is wise to have a plan and be prepared to use it at any time.

In planning a fire protection programme, the first steps are to examine:

1. Personal and Property Needs

(1) Size of property i.e. is your property large enough to plan for fire protection independent of neighbours?
(2) The living and social requirements of the owner — do you require 'natural' landscaping? If so, consider the fire hazard in which you have placed yourself and plan carefully.
(3) Money available for fire protection facilities.
(4) Time and energy available.

2. Physical Environment

The personal and property needs of the owner must be carefully evaluated in terms of the fire hazard posed by the physical environment in which the person has chosen to live. Careful planning will ensure a fire protection strategy which will enable enjoyment of quality of lifestyle and at the same time provide an adequate standard of home fire protection.

Factors to consider are:

(1) The topography of the surrounding land, giving particular attention to northern and westerly aspects.
(2) The fire danger inherent in the surrounding vegetation.
(3) The availability of sufficient water for either fire protection or fire control.

—Topography

Fires burn more quickly and with greater intensity up hill than on the flat or down hill. Therefore, from a fire protection viewpoint, ridge tops and steep northerly slopes are the most dangerous sites to build on. Gullies substantially modify wind direction creating turbulence and thus erratic fire behaviour.

Steep, rough country also hampers the movement of fire equipment and the ability of fire fighters to control fires. Such terrain makes proper road construction expensive and difficult. Fire crews are naturally loathe to risk their lives taking heavy equipment down narrow, winding, dead end tracks through thick vegetation where they could easily become trapped. Proper access should allow for safe movement and turn-around of fire units.

—Vegetation

The vegetation is the fuel on which a bushfire feeds and grows. Reduction of this fuel by clearing undergrowth provides the best method of fire protection.

An optimistic view widely held by many homeowners is that the experts should be able to recommend fire proof tree and shrub species; that, if planted in the right position, will provide adequate fire protection. Such is not to be, for as C.S.I.R.O. researcher, N. P. Cheney writes:

> ". . . species selection is relatively unimportant compared with the management of fuels . . . if hazard reduction is not carried out, the effect of species selection alone in reducing fire intensity will be scarcely noticeable."

While this may seem discouraging, the truth has always been that it is the general management of the tree surrounds that is important. The removal of all trees and shrubs from around a house can increase the fire danger and would also be aesthetically undesirable. Trees reduce wind speed; therefore, fire intensity and rate of spread. Trees should be spaced so that there is not continuous canopy or line of flammable undergrowth from bushland to house. Overhanging trees will deposit a large amount of debris on to a roof, thus increasing fire hazard.

The greatest danger to trees, and therefore the house, comes from burning undergrowth and fallen or dead tree litter igniting the tree.

A planned approach to vegetation management would be:

(1) Space trees so that there is not a continuous canopy from bushland to house.
(2) Remove trees or prune limbs which overhang the roof of the house.
(3) Thin out flammable undergrowth to ensure that there is not a continuous pathway for fire, either along the ground or between ground and tree canopy, some desirable undergrowth species may be retained.
(4) Remove snagged leaves and twigs from branch forks.
(5) Where desired, grow lawns under trees or keep undergrowth mown down.
(6) All trees should have their lower branches pruned away to allow a vertical firebreak which will help prevent ground fires spreading into the tree crowns.

Where trees are being planted, there is a selection of tree species which are better suited to some areas of the garden.

Deciduous trees are suitable for planting nearest to buildings as they drop no litter during summer.

Smooth barked Eucalypts and open canopies are a good choice, providing their boughs are well clear of the house roof.

Trees generally unsuitable for planting adjacent to buildings are Conifers, cypresses and rough barked Eucalypts. Also avoid those species which shed bark in long streamers. Although it may look attractive, bark, when caught in branches, is easily ignited. Such trees must be planted well back from buildings. A good guide for tree selection is to study mature trees growing in the district. Assess their height and spread of canopy and plant them no closer to buildings than a distance equivalent to their mature height.

—Water Supply

For the safety of residents and their property, it is essential to make provision for an adequate water supply for fire fighting, independent of mains supply and electric pumps. At least 22,000 litres should be available at all times.

Clear sign posting of access to property and water will assist fire crews, particularly those from other areas called in during a large fire.

Other Factors to Consider

* Principles of house construction.
* House sprinklers.
* Building preparation.
* Fire control.
* Planning for family safety.
* Post fire activities.

Planning for Property Fire Protection continued . . .

—Principles of house construction

Simple rules to follow are:

(1) Roof coverings should be tight fitting with no openings where sparks could enter. Tiled roofs should be constructed so that an appropriate fire rated insulated sarking is placed immediately below the tiles. Eaves, gables and vents should be screened with metal flywire or boxed in.
(2) Where possible eliminate gutters or consider measures to keep leaves and twigs out of gutters, such as "leaf free" gutters.
(3) Homes elevated above ground level should have the under floor area boxed in.
(4) Windows are the weak points in house walls; large picture windows should not be used, particularly in walls facing north or west.
(5) Pergolas covered with shade cloth, awnings and canvas blinds are all fire hazards.
(6) Brush fences are highly flammable and are particularly dangerous when located close to house or carport.
(7) Wooden shingles should not be used on roofs and external walls.

—House Sprinklers

Where homes are surrounded by extreme fire hazards, or where undergrowth control is not desired, owners can, if water supplies are sufficient, install water sprinklers that will keep the house roof, windows and walls wet, and the gutters full.

Additional sprinklers set in the surrounding bush will, by wetting the undergrowth, provide a good firebreak. Such sprinkler systems should not be connected to E. & W.S. mains. In a major fire the sudden demand on the supply could cause a large drop in pressure, thus rendering the system useless. An auxiliary pump with petrol or diesel motor must be installed. However, the draw-back with all mechanical means of fire protection is that there must be an able bodied person at home to start the engine.

—Building Protection & Preparation

In all buildings, whether the walls are brick or timber, the windows are the weak spots. High temperatures can cause the window glass to break, allowing flames or flying sparks to ignite soft furnishings. Damage to glass and entry of sparks can be initially eliminated by fitting external metal flywire window screens. Do not use fibreglass mesh, as it melts easily.

On days of serious fire risk, if the house is left unattended, the gutter downpipe can be completely sealed and the gutter filled with water. This quantity of water will extinguish falling sparks well through the day.

Flammable material, such as cartons, paper and wood, if stored under carports, verandahs or near house walls, can be ignited by falling sparks, thus putting the whole house at risk. Store elsewhere.

No matter how many precautions are taken, if a window or door is left open, flying sparks will surely enter and ignite the home. Take inside all flammable furniture from verandahs and patios, close all doors and windows.

—Fire Control

Properties in a bushfire area cannot rely on electricity to provide water from bores, tanks and dams. For a dam or bore supply, the alternative power can be supplied by an auxiliary engine. For the home tanks, a large diameter tap should be fitted either to the tank or the connecting pipes, in a position that can be readily seen by fire fighters. Secure a water bucket nearby. The best fire fighting material is water, so where water pressure is sufficient, garden hoses that will reach around and throughout the building should be fitted to taps. A must for every home is an efficient knapsack water spray.

—Safety of Family

It is not easy to make recommendations on family safety; however, there are a number of important points that every family should consider:

(1) The family, before each summer, should take time to discuss a plan of action if fire were to threaten.
(2) The house is a place of safety and families can shelter inside a properly prepared, soundly constructed, house until the main fire front has passed.
(3) Evacuation should not be attempted if the fire is close. If evacuating, select the closest safe area, an irrigated paddock, a dam or school oval. The greater distance travelled, the greater the risk of being trapped by the fire. **Do not evacuate** unless you know of or are told of a safe place to go to and are given a safe route to get there.
(4) When travelling on the road, drive carefully with the lights on and do not drive through dense smoke.

—Post Fire Activities

At home — when the fire has passed — closely check the interior and exterior of all buildings, particularly the ceiling space, and extinguish any fires. If evacuated, return home as soon as possible and closely check all buildings.

Further Advice

The Research Division of the Country Fire Services offers advisory and inspection services. For further information, please contact CFS Headquarters, (08) 297 6788. Brochures giving more details on basic safety rules for personal safety are available from CFS Headquarters, 20 West Beach Road, Keswick.

Kiwanis Support C.F.S.

Pictured above, from left: Kiwanis International Messrs. Bruce Miller, Michael Flavel and Governor Geoff Peirce presented a $500 cheque, as a donation to the Mt. Burr C.F.S. unit for replacement of equipment lost in the Ash Wednesday II fires. R.O. Murray Sherwell (Region 5)—pictured second from right, with C.F.S. Director Lloyd Johns accepted the cheque on behalf of the Mt. Burr C.F.S.

Acknowledgement is given to Kiwanis Clubs of Sunbury, Dandenong, Warrnambool and Geelong for their support.

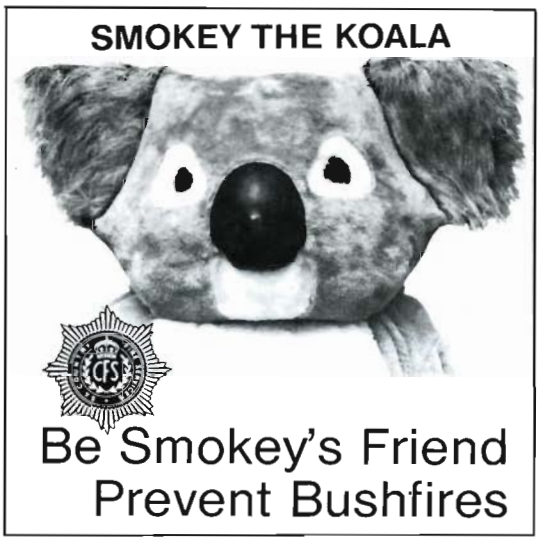
FIRE PROTECTION/PREVENTION PUBLICITY 1983/84

CAR STICKERS

For Brigades:

Car stickers carrying the above "PREVENT BUSHFIRES" message are now *available from your Local District Council, or C.F.S. Regional Headquarters.*

The sticker is printed in red light fast ink, with the copy PREVENT BUSHFIRES reversed out in red on a black background — size: 350mm long × 50mm deep.



For Children:

A limited supply of the above "Be Smokey's Friend Prevent Bushfires" stickers have been delivered to your Local District Council and C.F.S. Regional Headquarters for issue to children. Size: 70mm square.

YOUR LOCAL C.F.S. REGIONAL HEADQUARTERS HAS STOCKS OF EACH TYPE.

LITERATURE

The South Australian Country Fire Services Board has produced and issued to all District Councils and C.F.S. Regional Headquarters stocks of the following Fire Protection circulars and literature:

Barbecues and Campfires (Circular RD1/83); Burning Off—Bush and Stubble (RD2/83); Sprinklers for Bushfire Protection (RD3/83); *Bushfire Safety and Survival (RD4/83); Protect your House against Bushfires (RD5/83); This Summer leaflet (RD6/83); Inner Adelaide Fire Ban District Map (RD7/83); S.A. Fire Ban Districts Map (RD8/83); Mount Lofty Ranges Fire Ban District Map (RD9/83); Some Important Features of the Country Fires Act (RD10/83); Fire Safety with farm machinery (RD11/83); Incinerators and Burning Rubbish (RD12/83); Smokey The Koala bookmark (RD13/83); House Protection bookmark, and Planning for Property Fire Protection circular (RD14/83).

**The four colour Bushfire Safety and Survival leaflet is also available from R.A.A. branch offices—refer article in R.A.A. "Motor" magazine, December 1983 issue.*

SMOKEY PLEADS FOR CARE

"Smokey The Koala" received a hero's welcome to the Clare Primary School, Friday 28th october 1983, when accompanied by C.F.S. officers from Clare and Jamestown.

At a "pantomime", Smokey delivered a special plea to children to protect his cousins and bush and farm animal friends from fires this season.

The youngsters spent all day on Bushfire Prevention, learning a drill (refer article, page 25) in the event of a fire, and what can cause fires.

The message was all too clear with Ash Wednesday II disaster in mind — and from the children's faces during the special C.F.S. performance it was obvious they remembered the event clearly.

At the conclusion of the story, children held up their car stickers and screamed "PREVENT BUSHFIRES". The Clare Primary School and St. Joseph's joined in, in collective voice, "so all the shoppers in Clare" could hear their plea.

(Photograph reproduced courtesy The Northern Argus.)

Pictured above looking somewhat relieved that the pantomime is over are O.B. Flat and Benara C.F.S. members with "Smokey the Koala".

(refer page 25)

(continued from page 24.)

"RED ALERT DAY"

TOTAL FIRE BAN

This fire danger season a "RED ALERT DAY" announcement will be issued by the Bureau of Meteorology (under authority from the Director of Country Fire Services) on a *Total Fire Ban Day;* when the lighting of fires in the open is prohibited throughout the whole of the State, including the Inner Adelaide district.

To ensure the public is fully aware of a "RED ALERT DAY" all television and radio stations have been issued with a special 20 second "RED ALERT" announcement scatter, which they all have agreed to put to air as a community service on a Total Fire Ban Day.

The RED ALERT DAY script is recorded below, for your information:

THEME: "RED ALERT DAY ANNOUNCEMENT"
KEY NO.: CFS/RAD/83 CLIENT: S.A. COUNTRY FIRE SERVICES
LENGTH: 20 SECONDS TALENT: STUDIO VOICE

VIDEO	AUDIO
LOCATION: T.V. STUDIO	OPEN WITH EERIE MUSIC AS BACK-GROUND SOUND — MUSIC RUNS THROUGHOUT SCATTER. **VOICE OVER:**
SUPER: CFS LOGO	THIS IS A FIRE DANGER WARNING TO THE PUBLIC
SUPER: RED ALERT (RETAIN SUPER: RED ALERT ON SCREEN)	TODAY IS A RED ALERT DAY
NEW SUPER: TOTAL FIRE BAN	THE COUNTRY FIRE SERVICES ADVISES THAT THE FIRE DANGER IS EXTREME THROUGHOUT THE WHOLE OF THE STATE.
(RETAIN SUPER: TOTAL FIRE BAN ON SCREEN)	TODAY, THE LIGHTING OF FIRES IS PROHIBITED IN SOUTH AUSTRALIA.
NEW SUPER: CFS LOGO PREVENT BUSHFIRES	PLEASE TAKE CARE. PREVENT BUSHFIRES

Thanks for your Support

A pantomime was held on fire prevention for primary school students from Mt. Gambier and from surrounding rural area schools, on Monday 17th October, 1983, at the Valley Lake, Mt. Gambier.

The cast consisted of "Smokey The Koala", Mrs Elesa Aldridge (pantomime narrator), Mr Lou Tonin (fierce fred flame), organizers Messrs John Pratt of Woods and Forests, Mt. Gambier and Bob Davis, District Fire Supervisor, Mt Gambier D/C and members of the O.B. Flat and Benara C.F.S. brigades.

SES-8 Mt. Gambier television filmed the programme and put to air a segment on "Smokey The Koala" on their 'News Magazine' programme, Sunday 30th October, 1983 to coincide with the conclusion of Fire Prevention Week 1983.

Special thanks is expressed to Mrs Elesa Aldridge and Mr Lou Tonin of the Mt. Gambier North Primary School who held the children "spell bound" with their individual roles played; to Messrs John Pratt and Bob Davis for their valued support and organization together with members of the O.B. Flat and Benara C.F.S. brigades; Mr Bill James, General Manager of K&S Lake City Freighters for the use of a truck as a "stage" and the Mt. Gambier D/C for permission to use the Valley Lake facilities for the pantomime.

Acknowledgement is made to the support and community service provided by SES8 and staff officers Mrs Jean Hoytzenrohder and Mr Sid Hosking.

FIRE ACTION GUIDE

Fire Policy for schools

The official launching of a new fire action guide for all S.A. schools, by the Assistant Director-General of Education (Resources), Dr. Peter Tillett was held on Monday, 24th October at the Gumeracha Primary School, where the idea first originated; before school principals and council representatives from all parts of the Hills.

The fire action guide is the result of concern felt by many school principals for a co-ordinated policy to ensure evacuation and safety of children.

A group of EasternHills school principals met at Gumeracha soon after Ash Wednesday II, to discuss the need for such a guide. This was taken up by departmental officer, Mr Craig Cameron who prepared the draft with direction from C.F.S. headquarters, and ensured it would meet the needs of schools in various kinds of fire situations.

In launching the guide, Dr. Tillett said it provided a check list of actions which needed to be addressed, using local knowledge, including C.F.S. expertise for example, in the event of a fire.

He said the guide was the first in S.A. which attempted to deal with the problems of bushfires for schools. Previous instructions and guidelines dealt only with fires starting within a school.

"During the Ash Wednesday fires a number of schools in the State were endangered. The fact there was no loss of life of children in school care, is a credit to the conduct of those schools and staff. The guidelines will help ensure that record continues."

C.F.S. brigades from throughout the State assembled at the Torrens Parade Grounds, Adelaide, prior to the commencement of the "1983 City Parade of Fire Units." (refer page 36.)

BUSHFIRE SURVIVAL

by Tony Crichton, Superintendent Research Division.

Based largely on an article by N. P. Cheney, Senior Research Scientist, CSIRO (Nat/Dev. Publication, Vol. 3, No. 5, September 1972) and including observations in South Australia following the Ash Wednesday II bushfires, 16th February, 1983, by Mr Cheney and Superintendent Crichton.

The general increase in mobility of the population and the increasing trend towards rural living on urban fringe areas unfortunately means that more inexperienced and uninformed people are likely to encounter high intensity bushfires.

Bushfire survival facts have been actively disseminated by various means to the South Australian community for nearly 20 years. The severity of the Ash Wednesday II bushfires has not significantly altered this advice, however tragic deaths, particularly in motor vehicles, have emphasised the importance of *strict adherence* to the survival guidelines. Much of the previous research work was done with survival in vehicles during grass fires in mind, where occupants are subject to fairly high fire intensities for a relatively short period of time. In the forest situation the increased amounts of fuel mean that the fire intensity which impacts on the vehicle will be much greater and be of longer duration. There are examples of human survival in Ash Wednesday II in such high fire intensity situations.

It must be clearly understood that there is *no cast iron guarantee of survival* in extreme bushfire situations even if all the rules are strictly observed. However, one thing is patently obvious, that there is no chance at all of survival if the basic rules are not understood and followed absolutely to the letter.

Misconception Concerning Bushfire Survival

A number of popular misconceptions, such as death from lack of oxygen if trapped in a fire, or that a car petrol tank will explode if exposed to flame, have led to many questions as to the accuracy of survival advice given by fire authorities. These misconceptions may have caused persons to panic and flee a safe refuge and resulted in loss of life. Research was documented by N. P. Cheney in 1972 refuting these misconceptions, however they are still broadly held as correct today. These findings are worth repeating.

In both grass and forest fires the main cause of death is heat stroke in extreme form as a result of exposure to excessive heat radiation. Even severe burns to the body are not an immediate cause of death unless accompanied by heat stroke.

Even in a severe fire the temperature near the ground remains relatively cool as hot combustion gases are rapidly carried away by convection. Measurements have shown that air temperatures within a metre or so of flames up to 10 metres high are less than 50°C. While air at this temperature may be unpleasant, it can be breathed for long periods. Bushfires in the open do not deplete the oxygen concentration in the air outside the actual zone where combustion is taking place. In any case flaming combustion can only continue when the oxygen content of the air exceeds 12 per cent — and life can be supported at this level for a short period.

In very high intensity fires there may be very rapid distillation of combustible gases, producing a mixture of hydrocarbons which burns or explodes high in the convection column. This phenomenon results in the extremely high flame flashes and explosions characteristic of high intensity fires, which are commonly called fireballs. However, these occur briefly and always within the convection column.

Carbon dioxide, although produced in large quantities, never approaches a hazardous concentration even in the most severe fire situation. Most fires produce minute quantities of carbon monoxide, a highly poisonous gas, but never enough to cause even characteristic headache resulting from mild carbon monoxide poisoning.

To summarise Mr Cheney's previous findings:

* Petrol tanks will not explode
* Exposure to radiant heat is the principle cause of death in bushfires.
* Bushfires do not deplete the oxygen in the air.
* Close to the ground there is sufficient oxygen at a breathable temperature to survive.
* Carbon monoxide or carbon dioxide are not produced in sufficient quantities to threaten life.

How to Survive

In spite of warnings by the Country Fire Services and any precautions taken, fires will start on extreme fire weather days such as Ash Wednesday II and some of these will develop to the stage where they are out of control, threaten houses and trap people in motor vehicles, or on foot.

The basic principles of survival during bushfires, whether on foot, in a car or house, are:

* Shelter from radiant heat.
* Don't panic.
* Select an area to shelter where there is the least amount of combustible material.

The following advice depends on adherence to these principles.

House

If fire threatens your house, stay there. Shelter in a part of the house away from the approaching fire. You will protect yourself from radiation even if your house burns down after the passage of the main fire front. It is accepted by fire authorities that a properly constructed and landscaped house is the safest refuge during a bushfire, preferable to being trapped in a vehicle, and certainly much better than being caught on foot.

Evacuation

Do not consider evacuation unless you are guaranteed of travelling by a safe route to a known safe refuge area.

If you do decide to evacuate, leave early. Dress in protective clothing, take blankets with you and drive carefully to the nearest refuge area.

Clothing

At any fire, wear clothing made of natural materials, such as wool or cotton, to protect as much skin as possible from exposure to radiant heat.

(continued page 27.)

BUSHFIRE SURVIVAL continued . . .

Vehicles

Strict adherence to the following guidelines is a pre-requisite for survival when trapped in a motor vehicle:

* **Do not drive blindly through heavy smoke.** Do not panic. Stop the vehicle when visibility is negligible. Do not risk crashing into trees beside the road, or other cars. Prepare yourself to survive.
* **Stop the vehicle on bare ground, on the roadway if necessary,** as far away as possible from the direction of approach of the fire. Any burning material under the vehicle will place heat stress on the vehicle, in addition to the extreme levels of radiation from the fire front.
  It is thought that material burning under the vehicle causes failure of any rubber connections in the fuel lines, allowing petrol to flow out under pressure, engulfing the vehicle in flames. The petrol tank will not explode even in this situation.
* **Wind up the windows, close all vents.**
* **Shelter from radiant heat** by lying on the floor of the vehicle and covering yourself with a rug or some other article (even a floor mat).
* **Remain in the vehicle as long as possible.** If the vehicle catches alight you can leave it, but keep your skin covered as much as possible.
* In a grass fire the flames will last for 30 seconds, or less, and the chances of survival are very good. In a high intensity forest fire the flames will last for 3 to 4 minutes, and your chances of survival are lower, but they will be better in a vehicle than in the open.

This advice seems elementary — indeed it is, yet time and time again failure to follow simple rules is tragically reflected in loss of life during bushfires.

On Foot

Survival on foot in a forest fire or a grass fire is not all that easy — even for experienced persons. The best advice that fire authorities can give in these cases is to take note of the fire danger warnings and avoid placing yourself in hazardous situations away from fixed shelter on days of extreme fire danger. The following instructions are of the type given to fire fighters who have some knowledge of the forest and forest fires, but do not guarantee survival in every forest fire situation:

* Try to move onto bare or burnt ground.
* Do not run uphill or away from the fire unless you know a safe refuge is handy.
* Move across the slope out of the path of the head fire and work your way downslope towards the back of the fire.
* Do not attempt to run through flames unless you can see clearly behind them. This generally means that the flames are less than 1.5m high and less than 1.5m to 3m deep at the back or on the flanks of the fire.
  Lulls in the fire often result in the flames in these parts being low enough to step or run through to the burnt ground beyond.
* When conditions become severe, use every possible means to protect yourself from radiation. On bare ground cover yourself with dirt or sand if possible, or use wheel ruts, depressions, large rocks or logs to give protection. If you stay put you have a fair chance of survival.
* Take refuge in ponds, running streams or culverts, **but avoid** elevated water tanks. Water at ground level does not heat up quickly, but in elevated tanks it becomes warm very rapidly. A body immersed in lukewarm water cannot sweat and at a temperature of 46°C a state of collapse will be reached in about three minutes.
* Remain calm and do not run blindly from the fire. If you become exhausted you are much more prone to heat stroke and you may easily overlook a safe refuge. Consider an alternative course of action.

The tragic deaths on the 16th February, 1983, may perhaps remind people that fire is an integral component of the South Australian environment and that the "it won't happen to me" approach to survival in bushfires is not good enough.

This advice, not new, is simple enough and the message is clear: strict adherence to the rules is essential for survival during bushfires.

Hints on Surviving a fire in buildings.

by R.O. Michael Gent, Fire Prevention

Many persons lose their lives through fires in buildings. However well planned and equipped a building might be to safeguard the occupants from fire — human nature and response to an emergency are vitally important.

Could you be trapped in your home, or a hotel, motel, cinema, theatre, hospital, place of work? Could your children be caught at school or your elderly relatives in the aged home?

First, a few general rules.

When receiving a warning of fire, ensure everyone else in your area also receives warning.

Help those for whom you may be responsible (children, old folks, disabled) to get out of the building.

Never return for valuables until safe to do so.

Help fight the fire with first-aid fire appliances, if you can do so in safety.

Always be aware of at least 2 ways out of a building; particularly if you are sleeping there, and the building is not familiar.

In smoke, always crouch low or get down on all fours for cooler, cleaner air.

Always close the door of a room on fire.

If your escape route is blocked and you are on the ground floor, use a window. A heavy object such as a chair will smash the window and carpet or curtains over the sill will prevent injury from broken glass. Make sure there is a safe area outside the window.

Escape from upper floors.

Know your escape routes in advance.

Keep a torch by the bed of all family members.

Never jump from an upper floor until it is absolutely essential. In the San Palo fire, Brazil, people jumped and died after the fire was out. They believed the fire would soon overtake them when they saw smoke from lower floors. In many tragedies there is often a miraculous escape story. Just as people believe fire won't happen to them, when it does they believe they will be the ones to escape, so they jump — point nought something of a percent make it — not good odds.

Stop smoke entering your room by ramming anything you can find in any gaps around the door.

Prepare a makeshift rope to lower yourself to the ground, from curtains, bed sheets etc.

If in the last resort, the only thing left is to jump — don't. Lower yourself from the window, hang by the fingers and drop, thus reducing the height from feet to ground.

Read CFS Circular E14/2/78 Household Fire Precaution Hints — install a smoke alarm and have an extinguisher handy in your home.

Board Retirements

JACK HARE

Jack Hare, Senior Forester Protection has retired after twenty six years unbroken service with the department.

Jack came to Australia in 1957, after being recruited in London by Woods and Forests. Before Jack worked in private forestry in the UK, including on Beaulieu Estate in Hampshire.

A graduate from the University of Wales, Jack spent twenty years of his career with the department in the south-east.

His first three years were as assistant forester Mt. Burr Forest Reserve and after following up with three years at Mount Gambier Forest Reserve, as assistant district forester, Jack moved to the regional office as assistant to the Chief Forester.

Jack says some of his most memorable times with Woods and Forests were as District Forester for eight years at Penola. In this time he became infamous for being the only District Forester to report his fire tower out of action because it had caught fire — in the absence of any help from an outside source.

Jack served for six years on the Penola Memorial Hospital Board of Management. He was appointed deputy member of the CFS Board 1977-1981 and succeeded Board foundation member Mr Fred Pfeiffer.

Mr Jack Hare has been succeeded by Mr John Pratt, Woods and Forests Department, Mt. Gambier.

PETER J. SWANN

Peter Swann's fire service began as an auxiliary fireman with the South Australian Fire Brigade at Kapunda (1960), joined Kapunda E.F.S. (1965), was appointed sub-station officer and district council fire control officer (1966), D/C appointed Controller of S.E.S., station officer and district council fire supervisor (1967), district officer (1968). Qualified Mt. Macedon Rescue Instructor (1968).

Elected volunteer regional officer C.F.S. Region 2 (1968-1980), until position became redundant. Served as an executive member Lower North Fire Fighting Association (1968-1983), vice-president (1968), re-elected (1971) and still holds office.

Peter was elected to district council of Kapunda (1970-1972 and 1973-1979), was Mid-North local government S.E.S. representative, C.F.S. Board Member (1979-1983), current member Uniform/Competition/Finance Sub-Committees and C.F.S. Board Committees.

In recognition of Peter Swann's service to the Country Fire Services, District Council, Australian Fire Protection Association and the community he has been awarded: Life Membership of Kapunda Brigade (1976), British Fire Service Long Service Medal — 10 years (1975), Australian National Medal (1978), British Fire Service Long Service Medal — 20 years (1982) and the British Fire Service Centenary Medal (1983) — seventh in Australia.

The Country Fire Services extends its sincere appreciation for a "job well done" by Jack Hare and Peter Swann as members of the Country Fire Services Board and conveys best wishes to Jack Hare and Mrs Hare for a long, happy and healthy retirement. . . . Editor

C.F.S. TRAINING, RESEARCH APPLICATIONS *Now Open*

In a brief handover ceremony at C.F.S. Headquarters on Tuesday, 25th October, a cheque for $134,000 was presented to the Fire Service Training and Research Trust.

Pictured above receiving the cheque from C.F.S. Director, Mr Lloyd Johns on behalf of the Trust is (right) the Foundation Trust Chairman, Mr Len Frankham.

The S.A. Country Fire Services Training and Research Foundation is now calling for applications for grants under the Foundation Trust.

The Foundation was created following the most successful S.A. Great giant lottery earlier this year following the Ash Wednesday II bushfires. The lottery raised $107,000 for the project.

The C.F.S. Board added another $27,600 from contributions made direct to the Service following the Ash Wednesday II disastrous bushfires. This now gives the Foundation Fund a capital of $134,000.

Foundation Chairman, Mr Len Frankham said the Foundation was really conceived shortly after the February bushfires.

He continued: "The S.A. Great campaign committee recognised at the time the tremendous efforts, skill and courage shown by C.F.S. fire fighters and the committee decided it should use its resources to assist the C.F.S. in a positive manner."

It was now intended to use income generated from the capital investment, to provide the grants, said Mr Frankham.

C.F.S. Director Mr Lloyd Johns said there were two categories for grants:

Training grants would be available only to registered members of the C.F.S.; while

Research grants would be available for registered members of the C.F.S. or for other persons where it could be demonstrated that the results of the research would be of direct benefit to the C.F.S. and/or the public of South Australia living in areas protected by C.F.S. brigades.

Applications will be received up until January 31, 1984. Application forms, with details of eligibility and other information, are available from the S.A. Country Fire Services Training and Research Foundation, c/- S.A. Great Office, 121 Greenhill Road, Unley S.A. 5061.

Recovery grew out of the ashes

by Peter South
Director, South Australian Woods and Forests Department

PETER SOUTH,
DIRECTOR, WOODS AND FORESTS

The largest part of SA's forest resource is concentrated within a 60-80 kilometre radius of Mount Gambier.

Some 126,000 hectares have been established in the region by State and private industrial forestry companies, making it the largest and most productive aggregation of man-made forests in Australia, producing 30% of the country's softwood timber.

More than 1.5m cubic metres of sawlogs are processed annually by the integrated forest-based industries of the area: many thousands are employed in the forests and sawmills, plywood, particleboard, paper and paper products factories.

The devastating February fires at first sight appeared to have jeopardised the future prosperity of the region by killing some 18,000 hectares of State forest and about 2000 hectares owned by private forestry companies; more than 2500 hectares of State forest was killed in the Adelaide Hills.

The unthinkable had happened, the scale of the damage to the forests was unparalleled and there were unanswered questions on the region's capacity to maintain production at its pre-fire levels.

Ambit assessments showed that the fires had killed large areas of older, multiple-thinned plantations valued at more than $100m, of which as much as 70% could be salvaged.

It was decided to quickly convert the maximum possible quantity of fire-killed standing trees into sawn timber while exploring every avenue to put at least three years' supply of logs under water storage to ensure future supplies to the softwood conversion industries of the area.

Within days, every form of anaerobic storage was explored, the availability of the huge amounts of water needed for large log dumps under sprays was gauged and mills were alerted to gear up for double-shift production.

It was decided to use Lake Bonney for storage of up to 700,000 cubic metres of logs underwater for up to five years.

This would be supplemented by four above-ground storage areas using sprinklers, giving an additional 300,000 cubic metres.

The logistics were daunting and the cost estimates frightening but the consequences to the economics of the region of a less than full-scale attack were even less palatable.

Woods and Forests set out to communicate the size of the problem to all with a stake in, or otherwise interested in, the State's wood conversion industries.

Government—State, Federal and local—were briefed, as were other State and private forest owners and sawmillers, with an immediate co-operative reaction at every level.

Contingency plans were prepared in anticipation of Federal Government financial assistance to fund storage on a massive scale; this subsequently was made available.

Agreement was reached with other producers to concentrate immediately on processing firekilled logs at maximum production rates.

Now, the end of the first part of the recovery program is in sight.

By the middle of summer, 1.8m cubic metres of high quality logs will have been salvaged, enough to build more than 7000 house frames.

Probably the largest single materials handling exercise ever to confront the Australian forest industry, it has ensured continuity of supplies to the industry in the region for several years.

Roughly 1m cubic metres will be in water storage, either under sprays or submerged in Lake Bonney, while another 700,000 cubic metres will have been converted into sawn products.

This represents enough material to keep the entire Australian softwood industry operating for something over eight months, at the 1982 level.

The second and longer term part of the project is the replanting, already begun, of the burnt areas.

We will be employing all of the experience gained in more than 100 years of plantation establishment and management, in particular the results of research into intensive cultural practices in recent years.

I believe we will be able to use this capability to establish an even more successful forest than the previous rotation, and that the SA forest resource and the industries which utilise it will maintain their present pre-eminence.

DOCUMENTARY ON BUSHFIRES

South Australia's State Government Insurance Commission has released a documentary of this year's disastrous bushfires as part of a $300,000 public awareness campaign.

The half hour dramatised documentary "Ash Wednesday", launched recently by the Governor-General, Sir Ninian Stephen, traces the events of February 16 (Ash Wednesday II) through the eyes of newspaper reporters.

"Ash Wednesday" was shot on location in South Australia and includes actual news footage. It stars award-winning Adelaide actress Tracy Mann, Brenton Whittle, John Ewart and Lewis Fitzgerald.

"The documentary stems from the Ash Wednesday disaster when it became obvious that many of the old lessons had been ignored and that something had to be done to educate people," the general manager of the SGIC, Mr Denis Gerschwitz, said.

It has three major aims:— To tell people how to select a suitable building site. To show them how to reduce the chance of having their house destroyed, **and most important,** how to survive a bushfire if they are ever unfortunate enough to be caught in one."

Following the showing on television, the film will be made available to community organisations.

We want as many people as possible to see the film, to push home the vital message that people can take preventative action against bushfires," Mr Gerschwitz said.

As well as the documentary, the S.G.I.C. has produced 400,000 leaflets on bushfire safety and survival, titled: "BUSHFIRES, SUMMER TRAVELLING AND YOU!", which will go to every urban household in S.A. and 100,000 copies of a more detailed booklet "Bushfires" for households in danger areas (fire prone areas) such as the Adelaide Hills and specific rural zones.

C.F.S. BOARD FIRE APPLIANCE SPECIFICATION

This specification has been prepared for the purpose of ensuring that suppliers of cab/chassis vehicles and built up fire appliances comply with acceptable standards of design, safety, performance and finish which brigades and district councils, in purchasing fire appliances, are entitled to receive.

The specifications cover the following appliances:

(a) New body build-up on new cab/chassis.
(b) New body build-up on second-hand cab/chassis.
(c) Transfer of existing body to new cab/chassis.
(d) Transfer of existing appliances from one CFS brigade to another.

As from 1st July 1982, it has been necessary for the approval of the Board to be obtained, in relation to qualification for subsidy, **before** any contractual arrangements are entered into or vehicle purchased for use as a fire fighting vehicle.

The specification detailed in this document applies to a new cab/chassis and new build-up. It is obvious that in the case of the other three categories, some of the requirements of the specification cannot be met.

In such cases the specifications provide for exemption from appropriate clauses. Items within the specifications for which exemption is allowable are identified with an asterisk. Items which are not thus marked are essential to safety/integrity/engineering features of the vehicle. Councils/brigades may apply the exemption at their discretion, but the items for which exemption has been made should be listed in the application for subsidy for the vehicle.

It is stressed that the CFS Board fully acknowledges that the second-hand cab/chassis will continue to make up a good portion of the CFS fire appliance fleet. To this end, Councils are not to be discouraged from making applications for both a subsidy and from exemptions from certain clauses of the exemptions as they see fit.

The procedure for acquiring approval for subsidy will be as follows:

1. Provision in estimates submitted to CFS Headquarters.
2. Examination of brigade's requirements.
3. Identification of appliance type.
4. Preparation of plans/specifications for appliance.
5. Application for subsidy approval.
6. Letting of contract/purchase of appliance.
7. Acceptance Test completion.

Items 1—4 inclusive and Item 6 will remain the prerogative of the brigade/council. However, the assistance of Country Fire Service Headquarters should be sought where the brigade's requirements or the identification of appliance type is not readily discernible.

ACCEPTANCE TEST

The purpose of the Acceptance Test is to:

(a) ensure that the finished vehicle complies with the specifications set down for the vehicle and approved for subsidy; and
(b) that pump performance is in accordance with suppliers' specifications.

The Acceptance Test will be undertaken by a CFS Headquarters Officer or Regional Officer, in the presence of the supplier/contractor and representatives nominated by the brigade and/or council.

Acceptance Tests will be conducted either at CFS Headquarters, Adelaide, or at a place convenient to the parties concerned, in the region.

At the completion of the Acceptance Test, the completed document will become the property of the registered owner of the vehicle.

The entire system of Specifications and Acceptance Testing is designed to ensure the maximum participation of the end users, whilst at the same time protecting the interests of brigades, Councils and the CFS Board by ensuring reasonable standards of performance in accordance with the fire protection requirements of the area the appliance will protect.

LLOYD C. JOHNS,
Director,
Country Fire Services.
July 1982

MEDIUM FIRE APPLIANCE
ISSUE NO. 1, 1982

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- ★SAFETY STRIPES.
- ★LADDERS.
- ★INTRA-CUT NAMES AND NUMBERS. (BRIGADE NAMES)
- ★WATER TANKS.
- ★SLIP-ON UNITS.
- ★FIRE TRAILERS.
- ★MODIFICATIONS TO EXISTING UNITS.
- ★MONITORS.

1983 INTO THE FUTURE

A paper presented to:
UNITED FARMERS & STOCKOWNERS OF S.A. INC.
(BORDERTOWN BRANCH)

by Lloyd C. Johns
Director, S.A. Country Fire Services

INTRODUCTION

The provision of fire services utilizing volunteer labour resources is not unique to the Australian scene, nor in the Western World. In West Germany, some one million fire fighters give their services voluntarily, whilst in the United States of America, at least that number are employed as volunteer fire fighters, protecting extensive capital risks throughout urban and rural areas. In various European countries, volunteerism exists, whilst closer to home, in New Zealand, some 7,500 persons are registered as volunteer fire fighters.

The South Australian Country Fire Services is the largest volunteer organization in the State, employing some 15,000 registered fire fighters in 465 brigades over 92% of the State.

On 16th February, 1983, one third of the manpower resources and one half of the mechanical resources were deployed in what is now recognised as the most disastrous bushfires in the history of the State.

The fire fighters performed magnificently — to a person. The same cannot be said for a fair portion of the equipment — a situation which was not wholly unpredictable.

That situation, which could quite easily occur this fire danger season, regardless of what scientists predict about the cyclic action of bushfire occurrence, could not be allowed to pass by without a critical review of both systems and equipment currently used in the S.A. Country Fire Service.

This paper will address this problem and will attempt to predict what future lies ahead for our State's "Thin Yellow Line."

A PHILOSOPHY OF VOLUNTEERISM IN 1983

The need to maintain the current level of CFS membership is an important factor in the overall economic recovery of this State from two points of view, viz.—

(a) If volunteer forces are no longer inclined to give of their services, replacement with permanently paid fire fighters increases operating costs of providing that service with little or no significant increase in efficiency; and

(b) As well as maintaining membership levels, volunteer fire fighters must be properly trained and equipped so as to minimise fire losses, thereby preserving the capital **already invested** throughout the State.

Society today is producing a new level of expectations in the volunteer. When the Emergency Fire Services (EFS) was first established in the 1960's, the concept of "self help" in protecting one's own property was sufficient for the volunteers to accept what equipment was given to them and to do the best they could with it. The expectation of self help and self protection are still important factors in CFS volunteerism, but other factors have increased in importance as both population growth and technology have placed greater pressures on CFS brigades and equipment to provide a level of service at least equivalent to that of a whole-time fire fighter. At the same time being exposed to the increased dangers fromboth the bush environment and modern technology which has developed and put into our everyday lives high fire risk and high toxicity risk elements, resulting from fire.

One may well ask, "why is the bush environment more hazardous to the fire fighter today than in yesteryear?"

Certainly the weather conditions of an "Ash Wednesday" type day have been reported for at least the last century, but the level of fire risk, particularly and especially life risk, has increased many, many times as man has moved out of urban environments into the (hoped for) peace and tranquility of the near-city, idyllic, bushland setting.

To compound the problem, agencies with a responsibility to serve the community at large, have pressed ahead with their responsibilities at the (probably unforeseen) expense of exacerbating the rural fire risk problem. Thus, environmentalists, planning authorities, local councils, roadside vegetation committees, ETSA, NP & WLS, E & WS, and rural developers have all, in their own way, and in pursuit of their own objectives, added, portion by portion, to a rural fire risk and fire protection problem which is by far in excess of what the foundling fathers of the modern CFS could ever have imagined.

So the scenario for 1983 contains two very important elements, viz. . . .

(1) A change in the expectation levels and values of the volunteer fire fighter; and

(2) A gradually increasing and compounded life and property risk throughout the semi-rural and rural areas of South Australia.

Thus, a Catch-22 situation is present which revolves around maintaining the high level of volunteerism whilst imposing cost effective measures which often are perceived by volunteers as taking away their individualism and involvement in a job which sometimes takes their lives.

THE FUTURE OF THE ORGANISATION

At the very least, the volunteer element of the CFS must continue to prosper. I have long considered the four elements essential to a successful volunteer system which are:

* a high degree of personal involvement and autonomy;
* good equipment;
* adequate training;
* strong support from a (relatively) small central professional organisation.

It is my considered opinion that radical changes need to occur within the CFS total structure. This can be achieved without endangering the above philosophy, and indeed it may well be considered as strengthening it.

The main area of change, in my opinion, needs to be in the area of responsibility of Fire Fighting Associations.

I believe that District and Regional Association involvement should be increased to the point where these Associations are virtually administering the Country Fire Services at local and regional level. I see the Regional Associations as the power-bases of the future in the Operations and Administration of the Country Fire Sevices. I will be expressing these views to the CFS Board and to the Steering Committee overseeing the Organizational Review of the Country Fire Services.

A reform in funding arrangements and a central purchasing system administered at regional level in accordance with established standards of fire cover will overcome much of the disparity in equipment supply and maintenance which has plagued the system and caused so much dissention throughout the Country Fire Services in the recent past and at this very point in time.

STANDARDS OF FIRE COVER

Brigades throughout the State have recently been asked to complete a questionnaire which is designed to provide data for the establishment of a knowledge of fire risks in each district.

Without establishing what risks exist, the supply of equipment in all areas of the State has largely been based on experience and sheer gut feeling. In many cases, equipment selection has been pretty much on line, but it is quite unacceptable to attempt to argue with Government that the State needs 656 fire appliances, replaced every 20 years, using data based on intuition and (often) personal opinions!

The end result of the Standards of Fire Cover study will provide appliance and equipment lists and specifications for every brigade in the State, for the establishment of a Fire Risk Rating system which determines the appropriate levels of fire cover for each area, to combat that risk.

(continued page 33.)

1983 INTO THE FUTURE continued . . .

At that stage, we can begin to plan for proper appliance replacement and, more important, have the most suitable equipment covering the risk concerned.

THE FIRE FIGHTERS' EQUIPMENT

In 1980, some new technology was thrust upon the Country Fire Services in South Australia. This technology included:

* High/Low pressure pumping systems;
* Power take off facilities;
* The ability to "pump and roll";
* Welded aluminium body and tank components;
* Hydroblending.

There has been a not inconsiderable amount of criticism of each of these systems, but strangely enough, **not** from those brigades which are using them.

High/low pressure pumping systems for fire appliances has been dubbed as "too dear", "not required", "economically out of touch with reality," "not necessary for grass fire situations" and "not what we need in our district".

In the three years since inception, there are now more than 60 engine driven high pressure pumps and some 25 power take-off installations in service and some 8-10 in the pipeline.

Let's explode a few myths.

• The graphically illustrated performance curves of the new technology pumping systems which were tested at CFS Headquarters indicates considerable performance values when compared with equivalent "standard pumps". (Refer page 47.)

There is, just simply, more litres per minute available from the high pressure pumps at identical pump pressures.

• And then there is the cost of the new technology — another myth! There is no more than a 10% difference in cost of a high pressure engine driven pump and an (equivalent) low pressure pump. The improved performance far outweighs the cost increase.

When one considers power-take-off installations for the heavier high pressure pump units, savings of 30-40% are experienced when compared with similar engine-driven low pressure pumps.

DIESEL vs. PETROL

I have noted with interest that the Country Fire Authority of Victoria has adopted a policy of purchasing only diesel powered prime movers for fire appliances in Victoria.

In 22 years of professional fire fighting, I am unable to argue either for, or against, diesel engines as opposed to petrol engines.

A review of fire appliance failures during the Ash Wednesday II fires in the South-East, has shown a 51% failure rate, all of which were petrol engines. In so far as diesel vs. petrol is concerned, the results are inconclusive because only three appliances of the 81 put into the field on that day were diesel powered, but it is important to note that none of the three failed.

It would appear that in so far as new cab and chassis build-up is concerned, the matter is largely out of our hands as I understand that few petrol driven prime movers will be available in the future in any case, so the trend away from petrol to diesel appears to be something we will experience in the future.

We are, as always, concerned with the protection of crews. My predecessor was adamant that unlike the N.S.W. and Victorian tankers, CFS fire fighters would have at least minimal crew protection availability, hence the high sided trucks we are all so familiar with.

The introduction of power-take-off units has enabled the installation of a crew haven immediately behind the cab of the vehicle. With adequate insulation and a roll down protective blanket, protection from radiant heat is possible.

Protective clothing is another main consideration. We have traditionally (throughout Australia) worn the plain cotton or proban treated coverall, boots, eye protection and hard hat.

A researcher in N.S.W., Dr Graeme Budd, has being doing some most valuable work on the physiology of rural fire fighters with particular reference to heat-stress. At this stage, there are no conclusive results which will lead to dramatic changes in protective clothing in the immediate future.

There is considerable interest in the balaclava type head protection, and of course gloves, and we are looking with some interest at both our own experiences, those of the C.F.A. and the findings of Dr Graeme Budd's research into ways and means of regulating body temperature which is a critical factor in heat exhaustion and fatigue.

TRAINING

There is absolutely no doubt in my mind that training is one of the most neglected features of the Country Fire Service. I recently noted a feature in a bushfire magazine in New South Wales where one of the Shire Councils had introduced a policy of training qualifications and those who had not completed a basic training course were not allowed to take work in a fire area. I am not sure how this would go down amongst the volunteers in South Australia, but we must pay much more attention to training needs than we have done in the past.

RADIO COMMUNICATION

VHF Radio has now been established as the fire ground operational communications medium.

Development, however, is continuing on a UHF system for fire control and co-ordination.

As the UHF is installed, districts and regions will be able to avail themselves of the high level command and co-ordination facility which the VHF, because of the high density traffic, has not been able to provide.

CONCLUSION

There is no way our Service can stand still. We must continue to strive for good equipment, better training and improved levels of control and co-ordination. We cannot afford, for a second, to be lulled into the attitude **"IT WON'T HAPPEN AGAIN!"**

Pictured above at the Australian Conference of Rural Fire Authorities from left, Messrs. Mel Blaikie, Chairman Queensland Bushfires Board, Professor Peter Schwerdtfeger, C.F.S. Board Chairman and Lloyd C. Johns, C.F.S. Director.

ALDINGA BEACH C.F.S.—Recent exercise "Protecting the Environment from fire" involving a week of films, lectures and practical demonstrations at the Aldinga Primary School, was also the theme for this year's Art and Craft Competition — and prizes for the first, second and third winners in each school grade were presented by Smokey the Koala.

Pictured above from left: Aldinga Primary School students Genevieve Evans and Carol Britton with "Smokey the Koala" and Aldinga Beach C.F.S., F.C.O. Jill Bolton.
(Photograph reproduced courtesy Victor Harbor Times.)

In September the brigade hosted a Region 1, Stage 1 live-in training school at Cooranga Y.W.C.A. Camp. A total of 34 people attended from Aldinga Beach, McLaren Flat, Willunga, Aldinga Plains, Blewitt Springs, Hindmarsh Island, The Range, Macclesfield, Sellick C.F.S. and National Parks. An earlier Stage 2 course was held in November 1982.

ATHELSTONE C.F.S.—Can now replace fire equipment lost and damaged in Ash Wednesday II, thanks to the support of the Campbell Town Apex Club in the form of a $500 cheque.

BALAKLAVA C.F.S.—Purchased a new pump for the town unit to provide greater pressure for building fires. A trading table/raffle raised $286.93 for C.F.S.

BEACHPORT COUNCIL—Announced that proceeds from the burnt Furner pines are being invested for a 5 year term and the revenue is to be used exclusively for fire fighting. It is anticipated that the invested proceeds will yield about $18,750 per year. With Government subsidy the money has been earmarked for the replacement of fire vehicles and capital expenditure. Two new fire units currently on order are being financed from general revenue. One unit will be for the Beachport township — the other will go to Mt. McIntyre. Future expenses will be covered by the burnt pine investment.

BRIDGEWATER C.F.S.—Ladies auxiliary members have turned secondhand goods from their "opportunity shop" into a new fire vehicle. With funds raised they were able to hand over more than $10,000 for the brigade.

CAREY GULLY C.F.S.—On Sunday 6th November, the Mayor of East Torrens, Dr. B. C. Linder officially commissioned two new Carey Gully fire units and a watertanker, which cost a total of $131,000.

Carey Gully lost what was then its only unit in Ash Wednesday II; one firefighter died and two others were seriously injured. Appeals for funds were overwhelming with many people giving anonymously, resulting in better fire protection for Carey Gully and surrounding areas.

CLARE C.F.S.—New unit will have a Lions emblem on the side of the new truck as agreed by Council in recognition of the Lions donation of $8,000 to the truck's purchase cost. The money was raised by Lions Club in the 201S2 District. Clare Lions also presented another cheque of $500 to the C.F.S. raised locally.

COOKE PLAINS C.F.S.—Received its new fire truck built up from a secondhand International C1600 cab chassis. The new truck's body built up by brigade members took about 500 man hours to complete.

EDITHBURGH C.F.S.—Will receive an $800 donation from the Edithburgh Progress Association, to establish a sub-base radio and facilitate the firefighters role in search and rescue, fires and communications.

GUMERACHA DISTRICT C.F.S.—Three new vehicles costing over $104,000 were commissioned by Mr Roger Goldsworthy M.P. The units commissioned were a Command Vehicle — Suzuki Sierra 4 wheel drive van (for use by District Supervisor); Mercedes Benz Turbo, 4 wheel drive heavy truck, 10 man crew, 500 gallon capacity (for Cudlee Creek C.F.S.) and a 1976 International 1610D 4 wheel drive, heavy truck (for Forreston C.F.S.).

HAMLEY BRIDGE C.F.S.—A new 4 wheel drive Nissan Patrol will be used as a small back-up fire unit and rescue vehicle, after a rear body is built which will house a water tank, pump, hoses and rescue equipment. The entire cost has been met by money raised by members — from lopping trees, fundraisers etc.

IRON BANK C.F.S.—Have been "adopted" by the Brighton Rotary Club, a result of Ash Wednesday II in which many small volunteer C.F.S. brigades suffered great strains on their resources. Cheques to the value of $4,000 were presented from the Rotary Club District 952 and Rotary Club of Brighton. In the future both the Brighton Rotarians and the Iron Bank C.F.S. will work together to ensure a long term range of assistance.

KAPUNDA C.F.S.—Captain Peter Swann recently received a cheque for $1,335 on behalf of the brigade, from Mrs Claire Mathews, President St. John Ambulance Auxiliary (Kapunda & District). The money will assist Kapunda C.F.S. in the cost of new Enerpac equipment used for rescuing people trapped in vehicles. The Kapunda Rotary Club have also indicated their support.

KINGSCOTE C.F.S.—Have a newly completed fire station and are now actively involved in the fitting out of a new truck being built by C.F.S. volunteer labour at a fraction of the cost of a new unit.

LAMEROO C.F.S.—In conjunction with the Geranium C.F.S. unit held a recent training night and simulated accident conditions. Geranium also held a familiarisation day demonstrating their equipment in simulated situations.

LITTLEHAMPTON C.F.S.—and Mt. Barker Rotary Club have united their resources to develop the Littlehampton Fire Station. The $75,000 facility is to be built as a memorial to former community member and Rotary President, the late Ron Childs; who died from burns he received an Ash Wednesday II.

Rotary has made a significant contribution to the project by pledging $25,000. Club President Mr Art Gamlin said the building will stand as a tribute not only to the late Mr Childs, but to others who lost their lives as a result of Ash Wednesday II. It will also commemorate the efforts of Rotary in Australia and overseas, who contributed approx $250,000 to the relief of fire ravaged areas.

LUCINDALE D/C—Received a donation cheque of $2,000 from Grantley Phillips, president of Lucindale Hotel Social Club, which will be divided among the eight C.F.S. brigades in the Lucindale District Council area.

McLAREN VALE C.F.S.—Had their new $70,000 fire unit commissioned by Willunga Mayor, Mr Gordon Symonds. The new urban/rural unit is stage one of a plan by Willunga District Council to replace each year one of the 15 trucks run by the area's eight C.F.S. units. The Council's contribution was $22,500.

MACCLESFIELD C.F.S.—Benefitted by about $1,000 raised from a recent concert at the Macclesfield Institute.

MEADOWS C.F.S.—Fund raising concert raised nearly $400.

MIDDLETON C.F.S.—Is to get a new station costing over $30,000. The project funded through the Job Creation Scheme and successfully submitted by Port Elliot and Goolwa D/C. The Council will contribute $8,400 towards the new building and the Commonwealth grant of $22,398 brings the total funding to $30,798.

MILLICENT C.F.S.—Received a new fire unit at an official handover ceremony on Wednesday 19th October at which K.C.A Managing Director Mr Jack Donehower from Sydney, Apcel's General Manager Mr John Carrell and former Apcel Mill Manager Mr Jim Osborne were special guests. Apcel put in half of the cost of the new unit, built for $65,000, including $25,000 for the Isuzu diesel 6-cylinder truck supplied by Aslin Motors. For Kimberly-Clark of Australia, Mr Donehower said the inscription on the truck noting the gift from Apcel, resulted from the Ash Wednesday fire on February 16th, 1983.

MANOORA C.F.S.—Cheques of $100 each were presented to four units of the C.F.S. by students from the Manoora Primary School. The units who were recipients of the fine effort by Junior Red Cross Circle; were Manoora, Waterloo, Black Springs and Tothill C.F.S.

Pictured above from left: back row—Colin Schultz (Waterloo), Peter Fatchen (Black Springs), Eric Mosey (Tothill) and Ross Thomas (Manoora) received cheques from, front row—Timothy Sandow, Erica Venning, Jennifer McGuinness and Gavin Quick.
(Photograph reproduced courtesy Northern Argus.)

MT BARKER C.F.S.—Six members were honoured with life membership — a total of 182 years of combined service to C.F.S. Recipients were: Ray Orr (37 years service); Kevin Orr, Lieutenant (35 years), Colin Childs (Captain) (29 years), Mrs Val Davis, women's auxiliary treasurer (27 years), Mrs Dawn Orr, auxiliary member (27 years) and Mrs Neil Stephenson, auxiliary member (27 years). Proceeds from a fund raising dinner totalling $2,800 will be shared by the Mt. Barker C.F.S. and local St. John Ambulance brigade.

PALMER C.F.S.—Established 12 months ago; has now raised sufficient funds to purchase tools, siren and phone link ups to members for emergency calls. Council who first provided an old 1982 Chev Blitz as a fire unit (with 28 men helped Gumeracha on Ash Wednesday II); now intends to supply materials so working bees of volunteers can erect a fire station.

PORT LINCOLN—High school students doing a Year 12 technical studies course are using their "studies" to rebuild the back of a light truck owned by the Port Lincoln C.F.S.

The 40x5x5 aluminium tubing and 5mm thick aluminium tread plate (costing about $1,000) was supplied by C.F.S. Safety rails will also be added and the water tank repositioned.

PORT NOARLUNGA/CHRISTIES BEACH AND MOANA C.F.S.—Were presented with a cheque for $500 from the Port Noarlunga Hotel Social Club. The Social Club is a generous donor and supporter of the C.F.S.

SEVENHILL/PENWORTHAN C.F.S.—Have had their newly formed brigade's funds boosted to more than $6,000 following a generous donation of $2,000 from Apex. Their goal is a fire shed, equipment and a tray top for the already purchased truck. Registered members total 43.

STIRLING DISTRICT C.F.S.—Group Committee held a dinner at Bridgewater Sports and Social Club, Friday 14th October to honour the service of Charlie Rosewarne, following his retirement as Group Captain and Deputy Fire Supervisor. The dinner and roast was attended by 130 guests. While Charlie has retired from his official responsibilities, he will retain his involvement in the activities of the Mt. Lofty Ranges Training Centre.

MR CHARLIE ROSEWARNE

TAILEM BEND C.F.S.—The programme involving the official opening of extensions to their fire station, also included a surprise presentation of $1162.30 for the brigade, from the Tailem Bend Lions Club. In acknowledgement the C.F.S. presented an appreciation plaque to Mr Sladden, Lions Club President. The Lions Club being staunch supporters of the brigade.

TATIARA F.F.A.—150 volunteers attended a training day covering arson—related fires, hazardous chemical spillages and knowledge of the uses of ropes and foam extinguishers. Keith C.F.S. brigade won the inaugural S. W. Pitcher Memorial Shield for the best turned-out appliance.

TRURO C.F.S.—Over the past year has raised over $20,000 to assist in purchasing an extra fire truck costing approx $22,000.

UPPER STURT C.F.S.—Gained several new members and raised $2,500 from a doorknock following Ash Wednesday II.

WAIKERIE C.F.S.—Two new fire units were commissioned into the service, comprising of: the Toyota 4 wheel drive unit (won for Best and Most Efficient Appliance and Crew in the State for 1983) and a Ford pursuit vehicle designed and built locally. Acknowledgement was made tosupport from Apex and Lions Clubs, C.F.S. H.Q. and brigade members who raised over $4,000 themselves towards the cost. In just 15 years the brigade has grown from one unit, to currently a six unit service.

Pictured above Waikerie and Blanchetown members with Waikerie Captain Mike Arnold (centre) and the new Ford F100 fire unit.

WILLUNGA D/C—Has paid tribute to all C.F.S. members who helped Willunga during Ash Wednesday II; with a plaque that was proudly unveiled in the Willunga Council Chambers by Mayor Gordon Symonds. The plaque was erected by the District Council of Willunga. Mayor Symonds stated: "there is no doubt many brave deeds assisted greatly in the saving of life and property. The people of our District owe them a very great debt."

WOODSIDE C.F.S.—Launched an appeal within the town and immediate district to finance an additional unit. The brigade has already outlaid $28,000 to purchase a new Mitsubishi cab-chassis truck and high pressure pump. However it was reported that a further $20,000 was required to build up the body of the unit and fit it out.

Fire Prevention Week

National Fire Prevention Week, observed each October, serves to remind *all* about the dangers and havoc wrought by fire and, more so, of the need for fire protection and fire prevention.

The Committee Chairman Mr N. J. (Nat) Cooke, said fire awareness should be the responsibility of all citizens throughout the year. The fact that the "Week" is held in late October emphasises the increasing danger from fire, during the hotter summer months ahead.

Official Opening: Friday 21st October

The official opening of S.A. Fire Prevention Week was performed by the Premier, Mr J. Bannon, at Light's Vision, Montefiore Hill, Friday evening 21st October at 6.30 p.m.

The theme"A tribute to the founder and protectors of Adelaide and South Australia." The venue of Light's Vision looks across the city and suburbs to the Adelaide Hills, giving a panorama of all areas of fire prevention and protection — commercial, industrial, residential and urban/rural.

Fire Prevention Week cont.

Pyre Lighting Ceremony/Displays: Monday 24th October

This year, the S.A. Metropolitan Fire Services function commenced in Victoria Square with a parade and aerial display by fire appliances. After which two students, Megan and Shannon Kunst, from the Millbank Primary School (burnt in the Ash Wednesday II bushfires) lit the pyre at S.A.M.F.S. Headquarters Building. The S.A.M.F.S. also gaven an aerial display using snorkel units in Victoria Square, and fire extinguisher demonstrations.

Fire Service Training/Research Trust: Tuesday 25th October

Refer story page 28.

Arts & Crafts Competition—Presentation: Tuesday 25th October

Fires Kill — they kill people as well as animals and birds and the effects of the Ash Wednesday II bushfires on children was illustrated among the 640 entries received from this year's Fire Prevention Week arts and crafts competition.

Competition judge, Adelaide Hills artist Barbara Leslie said, "as was the case last year, probably due to Ash Wednesday, many of the younger children stressed human danger as well — to the point of actually drawing dead people."

The presentation, made at C.F.S. Headquarters, saw prizes awarded to students at schools as distant as Eyre Peninsula, the South East and Kangaroo Island. The competition, arranged by the Australian Fire Protection Association, sponsored by B.P. Australia provided $500 prize money, and the Savings Bank of S.A. promoted the competition and provided savings passbooks for the winners.

Pictured above, Kingston Community School students, Philip Emery and Linda Wright display their winning posters in this year's Fire Prevention Week poster competition. Philip (second from left) proudly displays the Fire Fighting Enterprises Perpetual Shield to be retained by him for 12 months, for the best overall entry. His mother Mrs Roxy Emery (left) holds the winning poster, while competition judge Barbara Leslie (centre) with Chairman, competition committee, Mr Dick Rowe and Mrs Kathleen Wright look on.

Emergency Evacuation: Friday 28th October

An emergency evacuation exercise was staged at the Hilton International Hotel by the S.A.M.F.S., supported by other emergency services and the Hilton's own staff.

It was the first major evacuation exercise at the hotel since its opening, although regular fire drills are conducted.

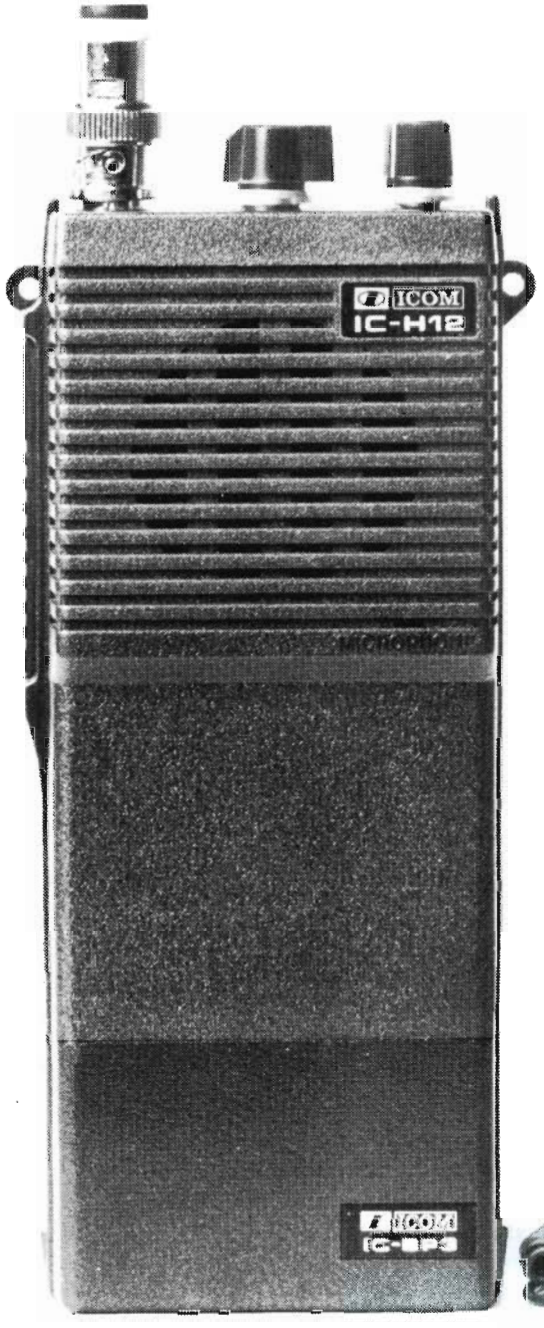
An essential aspect of fire drills for large city buildings and similar complexes, is evacuation procedures.

City Parade of Fire Units: Saturday 29th October

South Australia's Fire Prevention Week ended on a strong note with the biggest fire parade yet in Adelaide.

In all 81 vehicles, representative of C.F.S., S.A.M.F.S. and other support emergency services took part in the parade which also involved just under 700 personnel. The salute was taken by the Minister of Agriculture, Mr Frank Blevins, Minister responsible for the Country Fire Services.

(continued page 38.)



ACTUAL SIZE PHOTO

ICOM IC-H12
Commercial Band Transceiver
Specifications

General

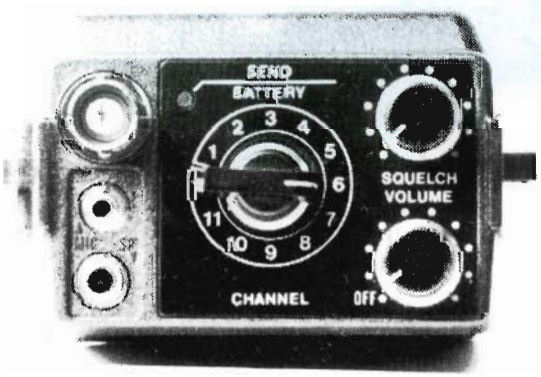
Frequency Coverage	160-170 MHz
Number of Channels	12
Channel Spacing	30 kHz/15 kHz
Size	6.5" (H) x 2.6" (W) x 1.4" (D)
Weight	1.1 lb. with the BP-3 battery pack
Current Drain	Receive: Standby 20 ma
	Full Audio 130 ma
	Transmit: @ 3 watts 550 ma

Transmitter

RF Power Output	4.5 watts IC-BP5
Frequency Stability	± 0.0005%
Modulation	± 5 kHz
Spurious & Image Rejection	more than -60 dB
Spurious Emission	70 dB below carrier
Harmonic Emission	60 dB below carrier
Channel Spread	any 5 MHz segment

Receiver

Sensitivity	better than 0.5 uV (-20 dB quieting)
	better than 0.4 uV (squelch threshold)
Audio Output	300 mW to 8 ohms at 10% distortion
Channel Spread	any 5 MHz segment



CONVENIENT TOP-PANEL CONTROLS

Department of Communications approved.
Country Fire Services Endorsed.

ICOM Accessories Available for the IC-H12

BC-31E Battery Charger. Charges standard battery pack in 15 hours or rapid charge packs in 1½ hours. Serves as handy stand while charging. Works off 240V AC.

IC-HM9 Speaker Microphone. Plugs into transceiver and clips to lapel or pocket. Has PTT button. Contains both speaker and microphone elements to provide excellent audio quality.

IC-CP1 Cigarette Lighter Cord. Plugs into cigarette lighter socket to charge standard (BP3) battery pack. May also be used with DC Regulator, IC-DC1 to operate unit from car battery.

IC-DM1 DC Regulator. Allows operation of your H12 from your cigarette lighter or from any 12V DC source. The DM-1 slides onto the H12 in place of the battery pack preserving it for portable operation.

IC-BP2 Battery Pack. The BP-2 is a high capacity (450 mah) nickel-cadmium fast charge battery pack. The high capacity provides approximately twice the useful life between charges as the BP-3 standard pack, and will recharge in the BC-31E in 1-1½ hrs. This provides good utility and quick turn-around.

IC-BP4 Battery Pack. The BP-4 is designed as an emergency backup supply for the H12. It will accept 6 "AA" size alkaline or nickel cadmium batteries. This provides the best of two worlds – the relatively long life available with the alkaline batteries or the rechargeable capability in the BC-31E when equipped with nickel-cadmium batteries (approx. 12 hr. charge cycle).

BP5 Battery Pack (not shown). A high voltage (10.8V DC) rapid charge nickel-cadmium battery pack which will recharge in approximately 1-1½ hrs in the BC-31E charger. The BP-5 pack will allow 4.5 watt operation with the H12. (The H12 has been resubmitted for 3 watt certification.)

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All stated specifications are approximate and subject to change without notice or obligation. All ICOM radios significantly exceed DOC regulations limiting spurious emissions.

Adgroup ICM614

OBITUARY

MR W. D. (Bill) MARSCHALL
Waikerie C.F.S.

A town and district leader, tireless worker for Legacy, keen sportsman and life member of the C.F.S. Mr Bill Marschall will be remembered for many things, but most of all his willingness to help others.

Mr Marschall was a man who devoted his life to his town, district and its people.

To Mrs Eileen Marschall, son Billy and family we extend our heartfelt sympathies.

MR F. E. RICHARDS
Robertstown C.F.S.

A valued member and staunch supporter of the Robertstown C.F.S. Mr Frank Richards served as a Fire Control Officer.

Mr Richards will be remembered constantly as a willing and cheerful co-ordinator and a friend to all.

Mr. Raymond L. THORNHILL
Aldgate C.F.S.

The Country Fire Services pays its respects to the memory of Mr Raymond Thornhill, who passed away on 13th November 1983, aged 18.

"He was a young man who was well liked and respected in the brigade and will be sadly missed.

To his family and friends we extend our sincere sympathies. God be with you."

MR D. A. (Don) SANDY
Australian Fire Protection Association

A leading personality in the field of fire protection and prevention, Mr Don Sandy, Executive Director of the Australian Fire Protection Association passed away suddenly on 28th July, 1983.

Sincere condolences are extended to Mrs Merna Sandy from friends in fire services throughout Australia.

Waikerie C.F.S. had the honour of leading the parade of fire units with the Toyota 4 wheel drive awarded to Waikerie C.F.S. as "The Best and Most Efficient C.F.S. Appliance and Crew for 1983." Closely following behind is the new Waikerie vehicle built locally, which was to be later commissioned in November 1983.

Farewell

The Country Fire Services sadly farewells two of its Headquarters personnel:

HEATHER HATELEY
Switchboard Operator

Heather Hateley has left, to tour England and Europe.

RICHARD KEYNES
Regional Officer, Region 1

Richard Keynes commenced service in the S.A. Police Force in 1962, was transferred while an instructor of the Police Academy to the E.F.S.—C.F.S. in 1971, and has held the position of Regional Officer; appointed to Region 1 in 1980.

Richard has planned a well earned rest before taking up other responsibilities.

From your many friends at C.F.S. Headquarters and the Volunteers you have served so well, goes the very best wishes of the service to Heather and Richard . . . Editor

who's who at headquarters

JILL CRUMP
Stenographer

Jill transferred from Commonwealth government duties to C.F.S. Headquarters in May 1983 as a stenographer for operational staff.

Her interests include Running, Basketball and Squash. In 1982 Jill took on the City Bay Fun Run recording the 12 km run in 55.5 minutes. The gruelling 42.2 km Gawler to Adelaide Festival City Marathon in 1983 was completed in 3hrs 36 minutes 46seconds and Jill was officially placed 21st out of 130 women competitors.

Pictured above Jill Crump proudly displays the finishers' medal.

The 1983 City Bay Fun Run was finished in 50 minutes and Jill now has set her sights on the Sydney "Wang" Marathon of June 1984.

Well done Jill and best of luck in '84. . . . Editor.

C.F.S. HEADQUARTERS STAFF

LLOYD C. JOHNS
Director

DAVID BATTEN
Regional Officer, Region 3
& Fire Equipment

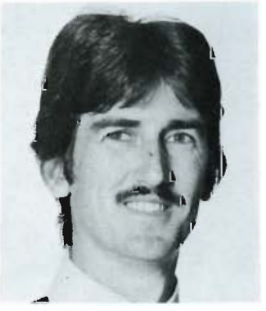
BRUCE HOGAN
Regional Officer, Training

MICHAEL GENT
Regional Officer, Fire Prevention

TONY KEAY
Acting Deputy Director

TREVOR CONLON
Regional Officer, Communications

KEVIN MAY
Regional Officer, Region 6



CHRIS DEARMAN
Regional Officer, Research Division
Fire Investigation

JOHN FITZGERALD
Acting Superintendent, Operations

PETER FERRIS
Regional Officer, Region 7

BRIAN MENADUE
Regional Officer, Region 2

JOHN LLOYD
Regional Officer, Research Division
Fire Investigation

TONY CRICHTON
Superintendent, Research Division

RUSSELL GREAR
Regional Officer, Region 1
& Fire Appliances

GEORGE POLOMKA
Regional Officer, Region 4

PETER MILLS
Publicity/Promotions Officer

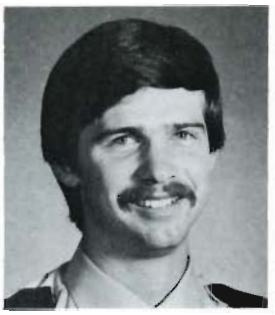
NAT COOKE
Superintendent, Administration

MURRAY SHERWELL
Regional Officer, Region 5

(continued page 40.)

C.F.S. HEADQUARTERS STAFF continued

BRIAN BILNEY
Control Centre Operator



DAVID PEARCE
Control Centre Operator

TRUDY MADDOCK
Accounts Clerk

DAVID RAMSDEN
Chief Clerk

WINSTON BRYANT
Control Centre Operator

MARK THOMASON
Control Centre Operator

ELIZABETH MARTIN
Typist/Clerk

JUDY ROBBINS
Secretary to Director

NEIL ELLIS
Control Centre Operator

VAL CHAPMAN
Subsidies Clerk

JAN McMAHON
Correspondence Clerk

BARBARA WILLIAMS
Records Clerk

TREVOR MODISTACH
Control Centre Operator

DAVID CRITCHLEY
Supply Officer

DES PACKER
Control Centre Operator

MICHAEL KNOWLES
Messenger/Handyman

IN RETROSPECT

C.F.S. Fire Fighting Drill Competitions

Country Fire Services volunteers participate in regional fire fighting drill competitions that cover the seven (7) C.F.S. regions in the State.

The winners of each event then qualify for the right to compete in the State Championships, the culmination of the annual winter C.F.S. training programme.

C.F.S. Fire Fighting Drill Competitions afford volunteer firefighters the opportunity to participate and familiarize themselves with the firefighting equipment needed to attend "call-outs".

Competitions sharpen the volunteers' efficiency and training skills related to hoses, ladders, pumps and appliances.

Region 5: Sunday, 5th June, Keith Oval, South East

Fire Fighting Drill Competitions continued . . .

One man hose drill winner at the S.E. region fire fighting drill competitions — Jim Schultz of Bordertown.
(Photograph reproduced courtesy Border Chronicle.)

Region 1: Sunday, 19th June, Symonds Reserve, Aldinga Beach.

Blackwood A Grade Pump Drill team.

Region 2&3: Sunday, 26th June, Truro Oval, Barossal Valley

Yorketown (Region 3), 3 Man and Captain Wet Ladder Drill—Top Team.

Truro cadets inspect trophies and plaques displayed at the Region 2&3 competitions before the presentation. Pictured above, from left, centre row: Andrew Coutts, Brenton Edwards, Peter Burgmeister (C.F.S. member). Front row: Cadet Graham Millar and Hackham West visitor Jeremy Limbert (aged 5). Truro resident Jamie Langey is in background.

Region 4: Sunday, 10th July, Jamestown Memorial Oval

Superintendent, Jamestown St. John, Mr Tony Lessong was presented a 20 years C.F.S. service certificate by R.O. George Polomka (Region 4), during a service presentation ceremony held at the Region 4 competitions. In addition to Mr Leesong's involvement with St. John he has served with the Buckleboo and Jamestown C.F.S.

(continued page 42.)

Fire Fighting Drill Competitions continued . . .

Region 7: Sunday, 24th July, Barmera Oval

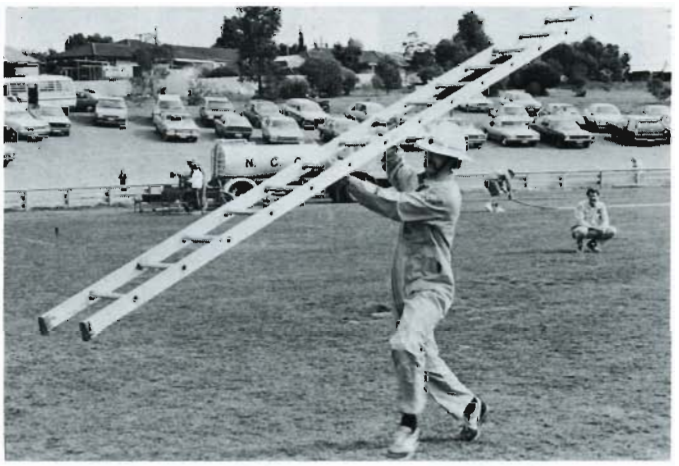
Gary Cleaver, Waikerie C.F.S. entrant is off and running in the One Man Hose Drill Event.
(Photograph reproduced courtesy Murray Pioneer.)

Region 6: Sunday, 7th August, Cummins Showgrounds

Buckleboo A Grade Hose and Pump Drill team show their winning form.

C.F.S. Firefighting State Championships: Sunday, 21st August, Hackham Oval.

Salisbury C Grade Dry Hose Drill team.



Geoff Brown, Aldinga Beach C.F.S. runner-up in the One Man Ladder Drill. (Malcolm Merritt, Blackwood C.F.S. took first place.)

Receiving trophies from Professor Schwerdtfeger are the Nuriootpa team who came second in the A Grade Hose and Pump Drill event. The winning team, Blackwood (background) "await their just rewards".

Blackwood C.F.S. won the Government Cup and Pennant, Adelaide Hills Fire Fighting Association Schield, Swan Trophy, Rex Brinkworth Memorial Shield and the Wormald International (Aust) Pty. Ltd. Challenge Shield.

C.F.S. Director Lloyd Johns (left) received a cheque for $2,000 from Constable First Class Geoff Malpas representing Christies Beach Blue Light Discos during the opening ceremony at the fire drill championships. The money will be used for equipment for units in the southern region.

A PAINTING FOR PETER

The painting "Ladies in the Garden" by renowned artist John Tiplady of Largs North was presented to C.F.S. Deputy Director Peter Malpas (pictured right) when he attended the State Championships at Hackham Oval on August 21, before his retirement. The painting was presented by Deputy Chairman C.F.S. Board Ray Orr (left) on behalf of the Local Government Association, fire fighting associations and some brigades.

Acknowledgement is made to donors who contributed to the painting:—District Councils of Angaston, Barmera, Beachport, Burra Burra, Central Yorke Peninsula, Cleve, Coonalpyn Downs, East Torrens, Gladstone, Mallala, Millicent, Karoonda, Minlaton, Mt. Barker, Mt. Gambier, Murat, Murray Bridge, Onkaparinga, Peake, Pt. Elliott and Goolwa, Pt. Pirie, Redhill, Stirling, Strathalbyn, Streaky Bay, Truro, Victor Harbor, Waikerie, Yankalilla, Yorketown, Lameroo and Wakefield Plains. Mt. Lofty Ranges FFA, Barossa Ranges FFA, Lower North FFA, North Eastern FFA, South Eastern FFA, Koolonga C.F.S., Meningie C.F.S., Naracoorte & District Group Committee, Tailem Bend C.F.S. and Salt Creek C.F.S.

Gentlemen: My thirty-four years association with the South Australian Volunteer Fire Service has been most rewarding and exhilarating. As the years accumulated, a close and warm association developed between myself and the volunteer, the fire fighting associations, the district councils, other associated emergency groups, the industrial fire protection services and of course, my employers and work associates.

To all my colleagues, I extend a sincere thank you, for the privilege of having known you and served with you.

In particular, my sincere thanks must go out to the Service as a whole, for arranging the many farewell functions to mark my retirement.

The kind sentiments, tributes and presentations extended to my wife and I by all concerned for a long and happy retirement, will assure the memories of those past thirty-four years will never fade.

I know that the Service, the CFS Board, the Director and Headquarters will face the challenges of the future with confidence, will move towards new achievement and be prepared to meet the inevitable disastrous fire holocausts which are an accepted part of our State's bush and grassland environment.

God bless you all.

PETER MALPAS
October, 1983.

The Country Fire Services Board, Headquarters Management and Staff extend seasons greetings to our many readers and wish you all a Merry Christmas and a Happy, Prosperous New Year.

Comparison of Cab/Chassis

Standard C.F.S. cab/chassis commonly used throughout the State, are listed below with a comparison of their main features with prices* for your easy referral.

For further information contact:
Regional Officer Russell Grear or David Batten.
Fire Appliances and Equipment.
Telephone: (08) 297 6788.

*Prices are as of 3rd October, 1983. Prices are subject to change without notice.

COMPARISON OF CAB/CHASSIS IN THE 8-9 TONNE G.V.M. RANGE 4x2

	V.D. NISSAN CM80G	ISUZU SBR422	MITSU-BISHI FK115F	FORD CARGO 0913	INTER-NATIONAL ACCO 1730	HINO GD 174	MERCEDES 2911B/48	MAN. 9-136FC
STEERING	MANUAL	MANUAL	MANUAL	POWER	POWER	MANUAL	POWER	MANUAL
FRONT AXLE (T)	3.100	3.200	3.300	5.000	5.450	3.300	5.000	3.200
REAR AXLE (T)	5.900	6.200	7.700	7.200	8.200	7.700	8.800	6.100
BRAKES	HYDRAULIC	HYDRAULIC	AIR/H	AIR/H	AIR	HYDRAULIC	AIR/H	HYDRAULIC
AREA (cm^2)	2600	3082	2600	3374	3783	3870	3844	—
CLUTCH (cm^2)	846/300mm	846/300mm	966/325mm	996/330mm	1184/330mm	846/300mm	590/300mm	—
ENGINE (DIESEL)	NA 6CYL	NA 6CYL	NA 6CYL	NA 6CYL	NA 6CYL	NA 6CYL	TBC 6CYL	NA 6CYL
POWER (KW)	(5654cc)108	(5393cc)93.8	(6557cc)106	(6200cc)98	(5870cc)91	(6443cc)117	(5675cc)124	(5683cc)100
FUEL (litres)	130	90	200	120	159	220	200	100
TRANS (speed)	5	5	5	6	5	6	5	5
WHEELS/TYRES	8.25x16x14	7.50x20x12	8.25x20x10	7.50x20x12	9.00x20x14	8.25x20x12	9.00x20	9.5x17.5
TARE (T)	2.665	2.860	3.000	3.599	4.000	3.345	3.580	—
G.V.M. (T)	9.000	8.000	9.400	9.000	12.850	10.500	10.500	9.000
G.C.M. (T)	12.000	15.000	16.000	16.250	19.300	—	18.300	18.000
NO SPIN DIFF*	NO	YES	YES	YES	YES	YES	NO	NO
AUTO TRANS*	YES	YES	YES	YES	YES	YES	NO	YES
PRICE	$15,000	$16,761	$15,790	$18,893	$21,000	$15,600	$29,901	$14,000

*Prices as of 3rd October, 1983. Prices are subject to change without notice.

COMPARISON OF CAB/CHASSIS IN THE 8-9 TONNE G.V.M. RANGE 4x4

*Price not included	MAN 10.136	MERCEDES 911B	ISUZU JCS420	HINO GT175
STEERING	POWER	POWER	POWER	POWER
FRONT AXLE (T)	4.100	5.000	3.900	4.500
REAR AXLE (T)	7.600	8.800	9.200	8.500
BRAKES	AIR/H	AIR/H	AIR/H	AIR/H
AREA (CM^2)	4110	3844	3082	3870
CLUTCH (CM^2)	528/310mm	590/300mm	1164/350mm	846/300mm
ENGINE (DIESEL)	NA 6 CYL	TBC 6 CYL	NA 6 CYL	NA 6 CYL
POWER (KW)	(5687cc) 100	(5675cc) 124	(5785cc) 110	(6443cc) 117
TRANSMISSION (SPEED)	5	5	5	5
TRANSFER CASE	1.1/1.72	1.05/1.64	1.0/1.561	1.0/2.0
WHEELS/TYRES	900x20x14	900x20x12	900x20x12	900x20x14
TARE (T)		4.430	4.050	3.480
G.V.M. (T)	10.000	11.500	11.000	11.000
G.C.M. (T)	18.000	18.300	15.000	—
DIFF LOCKS*	YES	YES	YES	YES
AUTO TRANS*	YES	NO	YES	YES
PRICE	$34,500	$40,112	$26,000	$26,000

*Prices as of 3rd October, 1983. Prices are subject to change without notice.

"BLOW IT OUT"

by Lt. John R. Harris
Cabin John Park Fire Department, Maryland, U.S.A.

The Cabin John Park Fire Department protects a large residential area in the Potomac horse country of Maryland in the United States of America. We have a tremendous amount of natural cover, grasslands and woods, which are not readily accessible by firefighting vehicles. A ground cover fire in this area means that many expensive homes would be in peril. When a fire does occur we would normally use conventional firefighting tools and methods—fire crews on foot with hand tools, backed up with firefighting vehicles. Like all fire departments today, we are faced with a shortage of personnel, both career and volunteer. Because of our fire potential and shortage of personnel, we searched for some solutions.

Backpack Blower

In our search we looked into many different pieces of equipment and techniques. We thought about how nice it would be if we could just blow the fire out, as if it were a candle. With this in mind we were reminded of how the military uses helicopter rotor wash to lower flame height in crash fires. Also, we had seen an advertisement in a fire service publication for a backpack unit which produced an air stream of approximately 200m.p.h.! A local lawn equipment dealer supplied us with such a unit, and we were ready to give it a test.

The backpack blower is a 2 cycle single vertical cylinder of 40cc size which powers the blower and comes equipped with a 10 litre water tank for water mist production. The total weight of the unit (including water) is approximately 44 pounds. This is slightly less than a conventional 5 gal. backpack-pumptank. Our unit was manufactured by the Kioritz Corp. of Tokyo, Japan. In our trials we found the back blower to be far more comfortable to wear, even when running, than the water tank.

Also, the blower unit at full output was lasting a full 45 minutes in continual operation. The pumptank quickly tired the firefighter and would empty its contents in less than a third of that time. With the blower there was a lot less operator fatigue, and greater effectiveness.

Of course the big question is how well does the blower suppress a ground cover fire. Quite frankly we were surprised at how well it worked. We thought that the high velocity air output (approximately 180 m.p.h. at nozzle) would quickly scatter burning embers and start spot fires; though there was turbulence the embers did not scatter and with the water mist added to the air stream, flames and embers were quickly suppressed, almost as well as a 20 gpm flow from a ¾" booster-line; however, at this point we would not suggest that the blower should replace a fire hose. Also, we must say that to the 10 litres of water we added 1% of a wetting concentrate.

We found in our trials that when one or two personnel with hand tools followed the blower unit operator that fires on grass and undergrowth could be quickly and efficiently handled. Personnel can easily be trained to operate the unit. By coupling this simple training with other groundcover fire training, obtaining proficient operators is an uncomplicated task. As with all training, practice and increasing experience will increase the skills of the firefighter.

We did have several problems which can be easily avoided. The first problem was when the engine was given full throttle without being allowed to warm up for approximately a minute the engine would have a tendency to stall out. Another problem was that for effective flame suppression, the discharge nozzle had to be within three feet of fire, if further away the air stream was less effective in flame suppression.

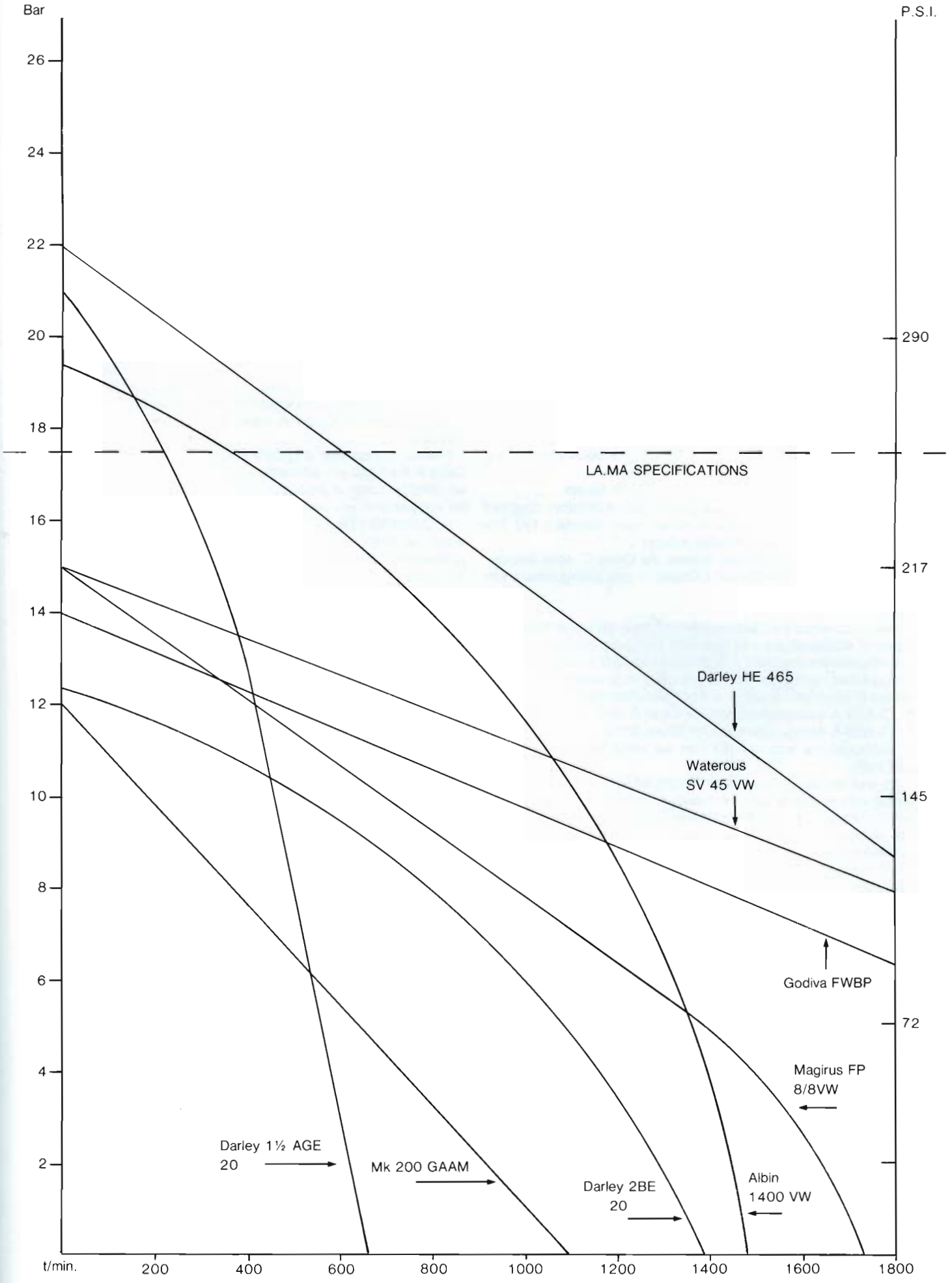
Also, we found that the unit had to be drained of its fuel (20:1 gasoline/oil) while in storage because the oil tended to separate causing fuel line problems.

In summary, we feel that the backpack blower is an innovative tool that is helping us with our problem of fire cover and shortage of personnel. With relatively simple training and slight modification (addition of wetting agent) the backpack blower can become a valuable piece of firefighting equipment. It also serves well around the station in cleaning sidewalks and driveways and other tasks traditionally done by a broom. So now we can blow the fire out with little huff'n and puff'n from the firefighter.

ETSA CLEARS OUR TREES

ETSA has been on a state-wide campaign to cut trees near or under power lines to prevent people, especially children, from being able to make contact with overhanging wires whilst climbing trees. To stop trees breaking or falling over power lines, and to minimise risk of fire. Sufficient branches and limbs are removed, according to ETSA policy so that under the worst likely conditions such as strong winds causing conductors to sway or intense heat causing them to sag; safe clearances are achieved, said an ETSA spokesman.

LARGE ENGINE DRIVEN PUMPS (PORTABLE) (Refer page 33.)



EXTINGUISHERS, CLASS RATING, COLOUR

by R.O. Michael Gent, Fire Prevention.

A fire extinguisher is of no use unless the fire is observed to start, or found in the first few seconds of ignition. Therefore, a fire extinguisher must be considered as a "first aid" fire appliance.

Having decided to buy an extinguisher, or being asked to recommend an extinguisher, we must ask the following questions to determine the type and size required:

(1) What type, or classification of fire, is the extinguisher most likely to be used to extinguish.

(2) What size do we need and, maybe, how many to cover a particular risk—considering who will use the extinguisher.

There are two Australian Standards for guidance on choice of extinguishers; A.S. 2444 Selection & Location and A.S. 1850 Classification, which also covers Rating and Testing.

According to the above quoted Australian Standards, types of fires are classified A, B, C or D. No class exists for fires involving electricity, but where it is anticipated an electrical hazard exists, an extinguisher with an (E) after its rating should be used — indicating that the extinguisher is safe to use on an electrical hazard.

CLASS A fires are those involving "carbonaceous solids", e.g. wood, paper, textiles, etc.

CLASS B fires are those involving flammable liquids.

CLASS C fires are flammable gases. No Australian Standard exists for type of extinguisher to be used (contact HQ Fire Prevention Division for specialist advice).

CLASS D fires are flammable metals. As Class C, seek advice.

ELECTRICAL HAZARDS (not a Class) — use extinguishers with (E) marking.

Having covered the classifications of fires, let's now look at the types of extinguishers that deal with particular classes of fires.

Extinguishers are rated A or B and in addition have an (E) if the extinguisher contents are electrically non-conductive when tested in accordance with the Australian Standard.

* CLASS A extinguishers are for Class A fires.
* CLASS B extinguishers are for Class B fires.
* Extinguishers with an (E) can be used on fires involving electricity.

As well as being rated A or B with an (E) where applicable, extinguishers should also be rated as to their capability to deal with a certain size fire. This is usually done by weight or capacity, but according to Australian Standard 2444 this should be achieved by a prefix figure, e.g 2A or 4B or 10AB or 5B(E).

The figures take the place of size in litres or kilograms. i.e. a 9 litre water extinguisher = 2A.

This figure also indicates the area covered by the extinguisher according to risk. 2A indicates a 9 litre water to cover 300 sq.m. of light, 200 sq.m. of ordinary, or 150 sq.m. of high hazard.

The number also indicates maximum travel a person should have to take to reach an extinguisher, e.g.: 5B(E) = an extinguisher to cover a light hazard of possible flammable liquid, safe to use with electrical hazard, maximum area covered by the 1 extinguisher 15m², maximum travel to reach the extinguisher 2m. (Tables used A.S. 2444 Table 3.2).

The manufacturer's wall charts and other information which they may have issued to your brigade may be out of date and differ from current Australian Standards. For instance prior to 1981, Class C referred specifically to fires involving "Energised Electrical Equipment."

Below is a list of fires, and in order of preference the correct extinguisher to be used—

CLASS A—paper, wood, etc. — water, halon, foam.

CLASS B—flammable liquids, paints, petrol, solvents, cooking oils, fats, etc. — foam, dry chemical, halons (BCF), carbon dioxide.

CLASS C—flammable gases — specialist advice required; dry chemical can be used safely.

CLASS D—flammable metals — specialist advice required — dry chemical of special ternery eutectic chloride type often used.

Fires involving electrical apparatus — halon (BCF) carbon dioxide and dry powder.

A company is currently developing an extinguishing medium that will be safe to use on all fires. This is good news and will simplify matters, but it does not mean that this particular extinguisher will be the best for a given fire — **just safe!.**

Foam is the only extinguisher recommended for Class A and B fires, but cannot be used where electricity is involved. Water can only be used on Class A fires, but not where electricity is involved.

Halons, dry powder and carbon dioxide are all good to use on Class B fires and are safe where electricity is involved. They can be used on Class A fires, but do not have any cooling effect, so do not perform well and the fire may re-ignite.

It should **NEVER** be assumed that if power is switched off a water or foam extinguisher could be used. Many electrical appliances carry a charge when isolated or there may be a secondary supply, or defective circuitry.

Wall Mountings

Each extinguisher should be hung on a wall bracket with the top of the extinguisher 1m—1.5m above the floor.

Carbon dioxide and dry chemical types can be lower, due to their weight, but no extinguisher base should be less than 150mm from the floor.

Colour Codes

Each extinguisher should have a red triangle with 200mm sides, placed above the extinguisher. The words FIRE EXTINGUISHER should be in white 16mm block lettering. A 60mm coloured circle with a 10mm white band round it denotes the type of extinguisher, hung below a white arrow below the coloured circle:

—RED for water
—BLUE for foam
—YELLOW for halon (BCF)
—BLACK for carbon dioxide, and
—WHITE for dry chemical

Extinguisher bodies shall be coloured:

Water—RED
Foam—BLUE
Dry Chemical RED with WHITE BAND
Carbon Dioxide RED with BLACK BAND, and
Halons YELLOW or POLISHED BRASS.

This information is up to date at the time of printing. Any information in the way of wall charts and leaflets should conform with the above information. Unfortunately, manufacturers do not always conform to colour codes and rarely print ratings on their extinguishers.