

# THE VOLUNTEER

Official Journal for The Country Fire Services South Australia



VOLUME 9

Autumn Issue

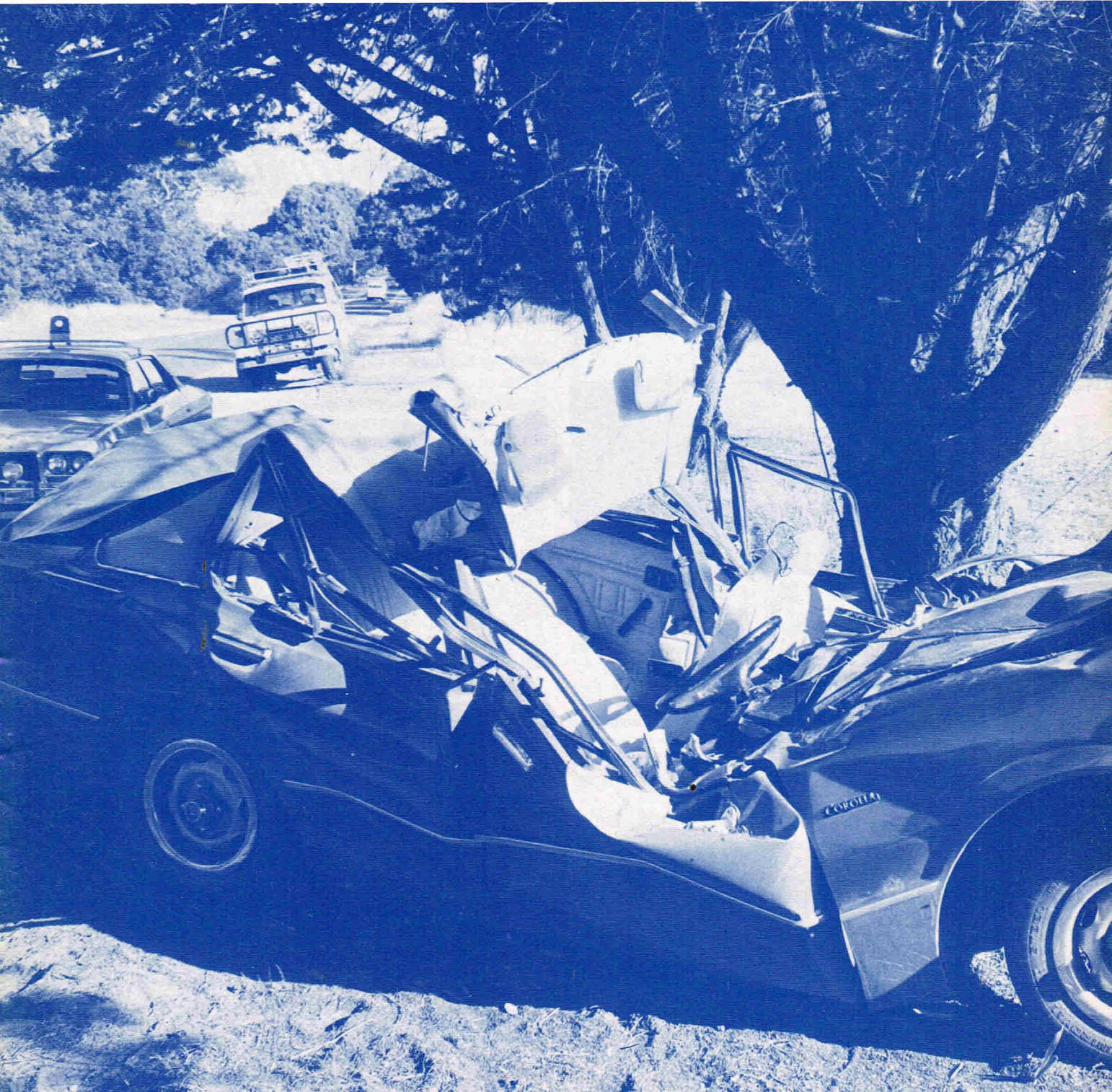
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Correspondence to the Editor

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Accident Rescue. . . CFS does more than fight fires. Page 3

# Letters to the Editor.

## COMING EVENT

### Scrubby Gully Fun Run and Fair Sunday 29 March Cherry Gardens Oval

The Cherry Gardens CFS have organised a Fun Run (or walk) for the family, commencing at 10.30 a.m. from the Cherry Gardens Oval. The fun run/walk will cover approximately 7 kilometres. Admission costs \$1.00 each or \$2.00 per family. Entrants must register before 10.30 start. All who complete the course are eligible for prizes and will receive a certificate.

CFS units are invited to

enter four-man teams in friendly competition with a team from Cherry Gardens.

Lunch will be a barbecue and chicken with food and trading tables. Locally grown apples and pears for sale along with specially printed T-shirts and singlets. Children can enjoy pony rides and 'Life. be in it' games.

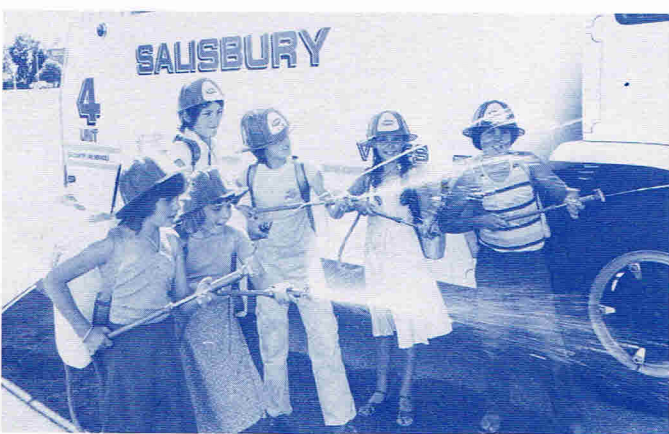
At Scrubby Gully there's something a little different for children and adults alike.

See you there.

## NATIONAL CONFERENCE OF RURAL FIRE AUTHORITIES 13-14 MAY 1981

The S.A. Country Fire Services Board will be host to a National Conference of Rural Fire Authorities at Country Fire Services Headquarters on 13 and 14 May 1981.

A TRADE DISPLAY WILL BE HELD ON 15 MAY.



On Monday 12 January 1981 at 3 p.m. (1500 hours) the NWS Channel 9 Children's program featured a segment on fire prevention and the Country Fire Services. F.C.O. Ron Pullen (Salisbury CFS Volunteer) with a new 'White' Salisbury CFS unit and R. O. Brian Menadue (not pictured) made guest appearances.

One of the highlights of the hot summer afternoon was the 'cooling down' exercise by children from the audience who donned knapsack sprays outdoors, and wet down everything in sight. Pictured from left—Kym Dixon (11 years), Samantha Kay (9), at rear Steven Duncan (13), David O'Toole (12), Catriona Walker (10) and Robert Williams (12).

## APOLOGY

re: Air Surveillance/Assistance  
at Brownhill Creek Fire

Our thanks to the crew of the Police Light Aircraft; to the Smokey I Air Spotting Patrol and to the crew of the ADS Channel 7 Coca-Cola helicopter for their assistance during the Brownhill Creek Fire, Wednesday 10 December, 1980... We apologise for omitting reference in the earlier writeup (*The Volunteer* volume 8, pages 57 and 58), to the important role played by your services.

Information from the air on hot spots, dangerous situations, access to fire fronts and fire progress, is vital in fighting such fires... Editor.

Brown Hill Creek Fire  
Dear sir,

As we live on the Belair Hills face, we had a grandstand view of the Brownhill Creek bushfire. May I take this opportunity of thanking the CFS most sincerely, for the superb job they did in stopping the blaze and alleviating what could have been a disaster for us.

Please would you be so good as to convey our appreciation to the men involved.

Yours Faithfully  
Mrs. E. C. Shearman,  
Belair.

## SIREN PROBLEMS!

Happy Valley CFS have available 'NEW CAST ENDS FOR GRIFCO SIREN'. The two ends are cast from aluminium.

The siren is the three phase old air-raid type. For information contact Neil Ellis, control centre operator, CFS H.Q., phone (08) 297 6788 or home (08) 381 3525.

## EDITORIAL

### ARSON—MODERN DAY ENIGMA OF OUR SOCIETY

*Ever since fire was first discovered by man, it has been used for bad as well as good purposes. The word 'arson' is derived from the Latin word 'arsonis'—burn.*

*And burn it does.*

*In the words of S.A.F.B. Fire Prevention Chief Peter Clarke, 'Arson is the plague of the decade'. How true are his words.*

*Our quiet country areas have, up until now, been relatively free from the malicious fire lighter, but the tentacles of a disease which almost defies explanation have slowly but surely spread out through South Australia, and poses to each and every one of us, new problems in fire prevention and suppression.*

*It is not unreasonable to state that years of time and expense spent educating the public on fire safety has begun to show some results, but the gains made have been thrown aside by the menace of the deliberately lit fire.*

*It is well known that the arsonist often strikes with total disregard of the possible results of his act. For this reason, the crime is even more foreboding and sinister.*

*The National Fire Protection Association has commented, 'there is no indication that the rate of rise of arson will slow down unless someone puts a stop to it'.*

*Every fire fighter in the State—indeed every citizen—can do something to 'put a stop to it'.*

*The points which help the fire and police investigations include the preservation of possible evidence, accurate eyewitness accounts of unusual smoke or flame colours, unusual fire travel patterns—using your eyes and ears and recording, preferably in note form, any unusual events or situations.*

*The first major stumbling block in securing a conviction for arson goes right back to the fire scene with the analysis of proof and cause. Unwitting destruction of vital evidence has let many a villain off the hook!*

*An editorial is not the place for a lecture on fire investigation which is a specialised, more often than not highly frustrating job, but you, the fire fighter, can often be the key which locks the door on the activities of the arsonist.*

*The arsonist is a heinous criminal regardless of the reasons for committing the crime.*

LLOYD C. JOHNS,  
Director,

S.A. Country Fire Services

## FOR IMMEDIATE SALE

1975 BEDFORD FIRE APPLIANCE  
6 000 km  
400 GALLON WATER TANK,  
MAGIRUS PUMP  
24FT WOODEN EXTENSION  
LADDER

THE VEHICLE IS AVAILABLE  
IMMEDIATELY

PLEASE SUBMIT TENDERS TO MR  
G. DICKSON, DISTRICT COUNCIL  
OF MUNNO PARA, 36 CRITTEN-  
DEN ROAD, SMITHFIELD PLAINS,  
SA 5114.

for INFORMATION ABOUT THE  
APPLIANCE PHONE (08) 380 7131

BEVIS J. DIXON  
ONE TREE HILL CFS  
SECRETARY

## Front cover: Accident Rescue

On Thursday 22 January 1981, at approximately 1710 hours a small Corolla sedan heading east on a fairly isolated section of Stewarts Range Road, 37 km from Naracoorte (South-East), swerved across the road and struck a tree. The vehicle's front end crumpled on impact, causing the rear section still travelling with the momentum to 'jack knife' upwards, trapping and causing injuries to the male driver.

A young couple first to attend the accident were not familiar with first-aid, so they frantically attempted to 'flag down' someone for help. Almost immediately a CFS H.Q. vehicle returning to Adelaide from a TV production session that day at Mount Gambier arrived, and was quickly dispatched to locate a homestead that had a telephone.

On route, in one of the vehicles stopped, was a local resident with eight years training as a nurse, and she agreed to tend the victim.

After an agonizing fifteen to eighteen kilometres a farm house was reached, the owner was home and the accident was reported to the Naracoorte Police, St John Ambulance and the local Country Fire Services Station.

While the accident victim was being administered first-aid, an Agriculture and Fisheries vehicle had sought help from the Kingston CFS. A local Kingston CFS crew arrived and cut away sections of the twisted wreckage that was dangerously near the victims head and neck.

Meanwhile the CFS vehicle left the farm house and headed towards Naracoorte to intercept the 'rescue teams' and direct them to the accident site.

The St John Ambulance arrived only minutes after the Police, closely followed by the Naracoorte CFS Rescue Unit and the 'Jaws of Life'.

Working as a team the professionals went about their tasks. The St John men treated the victim and took all the necessary steps to avoid any further injury, instructing the CFS volunteers on how they wished to remove the badly injured driver.

The Volunteers went into action. Dangerous metal was removed from within the vehicle, chains were attached to the front end and to the 'Jaws of Life' and the front section was pried away from the victims legs. Sections of the door, roof and steering casing were cut away and the driver was carefully removed.

Due to the extent of the internal chest and head injuries, the victim once stable had to be flown from the Naracoorte District Hospital by Air Ambulance the next day to the Intensive Care ward of the Royal Adelaide Hospital. After many anxious weeks and through the skills of the doctors, he is now making a slow recovery.

*Thanks go the Naracoorte St John Ambulance Division,*

- *to all the members of the Naracoorte CFS for their professional speed and efficiency in handling a very serious accident,*
- *to the two ladies who administered the first-aid that helped so much before the St John Ambulance team arrived,*
- *to the Police and the Royal Adelaide Hospital Intensive Care Ward . . . Editor.*

### Point of Interest:

The Naracoorte CFS was the first (1st) CFS Brigade to have a Rescue and Salvage Vehicle.

A \$16 000 vehicle was officially handed over on 8 November 1980.

The Brigade provided much of the voluntary labour, and built up and equipped the vehicle.

The Chief Secretary and member for Victoria Mr Rodda said that "Road deaths and accidents were increasing despite warnings and prevention campaigns. At least the new unit would be a 'guardian angel' standing by."



Members of the Naracoorte CFS Rescue Unit who attended the accident, are pictured with the 'Jaws of Life'. Wreckage of the vehicle is in the background.

## WED AT CLEVE



• Mr and Mrs Vic Gerschwitz sign the register after their marriage in Cleve Lutheran Church. The bride was formerly Gwen Lienert of Cleve. The couple will live near Port Lincoln.

Photo courtesy 'West Coast Sentinel'.

CFS members who know Mr Vic Gerschwitz of Wanilla, have always respected his strong character and ideals, as a member of local government, past president of the Eyre Peninsula Fire Fighting Association and as a member of the Country Fire Services Board.

Well, you could have 'knocked us over with a feather' when we learnt the 'sly ole fox' quietly dropped a hint he intended to enter into matrimonial bonds.

I know all CFS members will be delighted to extend with the Board, the Director and Headquarters Staff, heartiest congratulations to Vic and Gwen on the occasion of their marriage, and wish them both good health and happiness for the future.

Peter Malpas,  
Deputy Director, CFS.

## CORRECTION

Please Note!

Victor Harbor D/C Transceiver Licence Holders Call Sign and Frequency:

VL5FH

(Not VL5FM)

### Young Citizen Award

Congratulations go to Grant Blackwell of Milang for being selected by the Strathablyn District Council for its Young Citizen Award.

Grant is involved in many sporting activities in the town, the CFS and the Scouts movement.

### N.S.W. Bushfire Tragedy

Dear Sir,

I would be obliged if, through your journal, you would convey the appreciation of the Sutherland Shire Bush Fire Brigades to the many members of the Country Fire Services, for their messages of condolence at the recent loss of the lives of five fire fighters.

The tragedy stunned the members of this organisation and it seems ironic that an occupied residence has not been lost in a bushfire within the Shire during the past twelve years, despite many severe fires occurring during that time. Now five very experienced firemen, five very good mates, have gone.

Under these tragic circumstances, of tremendous consolation was the comradeship and support expressed by firemen from right throughout Australia.

On behalf of us all, thank you.

Yours Sincerely,  
Brian Parry,  
Fire Control Officer,  
Sutherland Shire Bushfires  
Brigade.



**SHELL DEPOT FIRE  
KEITH**

The above photo shows how lucky the Shell Depot was that it was only one of their trucks and not the complete depot going up in smoke.

The alarm was raised shortly before 4 a.m. on the morning of 28 December 1980, at the Keith Fire Station. Across the road from the fire station was a raging fire in the fuel depot, all one could see on arrival to the fire station was a ball of fire, and you'd expect the worst. Our group supervisor was on the ball and quickly evacuated the towns people from around the fuel depot. A hydrant situated near the fuel depot was a great asset, and also the Keith Fire Truck being housed at the station opposite the depot. Within the hour the fire was out, and the burnt remains of the truck was towed out of the depot and parked in front of the fire station. Newspaper reports estimate the truck was valued at \$20 000. The drums of fuel on the truck were empty, the truck apparently had been used the night before to deliver fuel. All one can only ascertain is that the vapour and a short somewhere in the truck started the fire in the depot, apparently one of the corks on the fuel bins on the truck popped off, the fire was believed to have started in the cab of the truck.

Mrs. Sandy Schrapel,  
Secretary,  
Keith CFS

Many thanks for your interesting article ... Editor.

### Bushfire Disaster School Pic-a-Pak 114

A school Pic-a-Pak Kit on Bushfire Disaster 'Ash Wednesday' is now available.

The Pic-a-Pak 114 Kit, Adelaide; E.T.C. 1980 contains three sheets, thirty-one slides, three transparencies and teacher's notes.

This impressive teachers training guide on Bushfires and its effects is available from the:

EDUCATIONAL TECHNOLOGY CENTRE  
EDUCATION DEPARTMENT OF S.A.  
81 FLINDERS STREET  
ADELAIDE S.A. 5000

## High cost of fires

Sir—I am a CFS member and am concerned at the number of bushfires due to carelessness.

As a fire fighter, I am aware of the enormous cost in time and money to conscientious country people.

It is a fact that we do not have to go to bushfires incurring costs, neglecting our own work, and there are risks in fire fighting.

My particular concern is the fact that those concerned with the starting of these fires seem to get very small fines.

Fines of \$60 and \$25 have been imposed on people convicted of what is doubtless a serious offence.

The maximum fine is \$1 000; it would be reasonable to raise this very substantially then maybe the courts would be in a position to impose a realistic fine.

A fire in our hilly country involves several days of fire fighting and surveillance.

Who among us does not consider a couple of days to be worth \$60, which is what those responsible could be fined later on.

Publicity resulting from high fines could help to reduce this needless waste of resources.

Public liability insurance does not seem to be able to cover a district-wide loss of time and money.

Higher insurance premiums would, of course, follow a pay out.

Let's attack that hip pocket nerve and see whether an awareness of possibly very heavy fines would make us all a bit more careful on fire ban days.

Peter Leane  
Victor Harbor

## Fire call out in own cars?

**When volunteer firefighters drive their own cars to a blaze rather than chance it on the fire appliance, you know it's time to buy a new truck.**

The lads at Mount Torrens CFS are seeking funds to replace their twenty-year-old truck, which is nearing the end of its useful life.

With a State Government subsidy, they have to raise about \$15 000 for a new fire appliance.

The boys have their eyes on a hot little ten-man machine which just might enable them all to reach their destination together.

All donations gratefully received, of course, c/o Mount Torrens Post Office.

### No water!

**A bushfire in the Adelaide Hills, 8 December 1980, started a chain of events which resulted in some parts of Mount Gambier being without water for about an hour.**

The bushfire burnt beneath a high voltage line, resulting in a voltage dip throughout the State.

The drop in voltage caused a circuit breaker to trip out at the Blue Lake pumping station and, as a consequence, water storage tanks at Keegan Drive were emptied and not refilled.

An alarm system which usually alerts the Engineering and Water Supply Department of the shut off of pumps, failed to operate.

The drain on the 800 000 gallons of water in the Keegan Drive tanks began at about 5 p.m.

The E. and W. S. Department began receiving complaints about loss of water at about 7 p.m.

Operations engineer at the Mount Gambier office of the department Mr Brian Tattersall, said water supply was restored to most affected households within an hour.

He said it was only the second time in nine years that such a breakdown had occurred.

Editorial courtesy 'The Border Watch'.

FERNTREE GULLY  
URBAN FIRE BRIGADE  
(C.F.A.)

BRIEF HISTORY  
by Tony Welbourn

The Ferntree Gully Urban Fire Brigade was formed in 1942 by the Country Fire Brigades Board, the forerunner to the service as it is known today—The Country Fire Authority (CFA). In those

days Ferntree Gully was one of many small country townships on Melbourne's outer fringe in the Dandenong Ranges. On its formation the Brigade was issued a Chevrolet hose tender this being converted to a pumping appliance in 1944 by the addition of a front mounted pump. Several other vehicles have since seen service with the Brigade, probably the most notable being the GMC six-wheel-drive ex US Army petrol tanker. This unit performed well until pensioned off in 1968 to be replaced by a 600 gallon International tanker purchased with Brigade funds. During the post war 1950s the Brigade was supplied with various front mounted appliances by the CFA. The International tanker was handed over to the CFA who now own and maintain that vehicle. The Brigade has been involved in numerous larger scrub fires the most noteworthy being the 1962 and 1968 Dandenong Ranges fires. Since 1968 whilst there have been several 'scares' in the Dandenongs, major fires of the past have not been repeated to date due to updated fire fighting methods, more reliable communications, modern equipment, and various Brigade/Forestry hazard reduction programs.

### CURRENT OPERATIONS

With the rapid development of Ferntree Gully and surrounding suburbs the town has now become part of the outer metropolitan area. The Brigade district abuts on to a National Park and much of the terrain and environment is similar to that of the Adelaide Hills. As well as a large population growth this has brought with it the normal growth in schools, hospitals, shopping centres, and industry. The current population within the Brigade district is approximately 17 000. The present day strength of the Brigade is thirty-five members with an average turnout number of around twenty. Current vehicle compliment is three with an additional vehicle under construction. The vehicles are a 650 GPM front mounted urban appliance, a 600 gallon tanker, a station wagon (which serves as a command vehicle) and in the near future a twin cab salvage appliance. All fire calls are received by our neighbouring station, Boronia, which is

continued page 5

Ferntree Gully (C.F.A.) Continued manned by CFA permanent staff backed up by volunteers. The Brigade is turned out by siren actuated from Boronia. We have recently tested and evaluated pocket alterters (paggers). These have proved invaluable and are activated by a coded signal transmitted over the VHF Fire frequency and in turn is activated on the sounding of the siren although should a power failure occur the paggers will operate thus ensuring total cover. Initial fire fighting operations are confined to the Brigade District the incident is in. However should further calls be received or assistance be requested a second Brigade is turned out under pre-planned arrangement by Boronia base. This past season has been the busiest on record, total calls being 328 made up as under:

Grass/scrub/rubbish, 123; vehicle fires/incidents, 24; dwellings/out buildings, 28; industrial premises/shop fires, 4; false alarms (building alarm installations), 32; hoax calls, 57; other, 9; plus 51 assistance calls to other Brigades. The fires of note this season were a larger number than normal minor grass fires coupled with six to ten above average scrub fires caused by person(s) unknown involving us and surrounding Brigades on lengthy night duties. One fire in particular (one of two lit within one hour) taxed Brigades to the limit both in manpower and vehicles although due to support Brigades being brought long distances from their own areas we were fortunate to avoid any repeat disasters of the 1962/1968 in spite of the severe weather conditions prevailing at the time. Whilst not in our Brigade area we supported our neighbouring Brigades at two large industrial fires, one being a half million dollar coolstore blaze and the second being a two million dollar factory involving the manufacture and storage of wall paper. This blaze involved the utilisation of over 80 BA sets/cylinders plus an aerial ladder/platform from the Dandenong Urban (CFA) Brigade.

For a future issue of *Volunteer* I will present an article on the operations of the Knox Fire Brigades Group of which Ferntree Gully is one of seven Brigades covering a population of approximately ninety thousand people.

## Eyre Peninsula farmer honoured

**A farmer at Greenpatch, on Eyre Peninsula Mr Stuart Sinclair was recently awarded the 'Medal of the Order of Australia' in the Australia Day Honors List, for service to the community.**

In 1955 he was elected to represent the Louth Ward of the district council of Lincoln. In 1957 was made chairman of the council, and held that position for thirteen years before retiring in 1971.

During the four year period between 1965 to 1968, Mr Sinclair was the president of the Eyre Peninsula Local Government Association, and participated in formulating bushfire legislation, while as a member of the Bushfire Advisory Committee.

He was also a long established member of the early Emergency Fire Service and served on the Port Lincoln Hospital Advisory Board.

The support received from his wife had allowed him to actively pursue his community work, Mr Sinclair said.

The couple have four children, their only son Peter works on the family's Greenpatch property.

*Congratulations Stuart on a splendid achievement, most justly deserved. Editor.*

## Awarded New Year Honours



Mr A. Geoffrey Lillecrapp of Eden Valley, was awarded the M.B.E. (member of the Order of the British Empire) for services to Local Government and the Community. He has a most distinguished record of services, with a list of achievements including member of the Mt Pleasant District Council for 31 years, chairman for 25 years, first Chairman of the St John Ambulance Mt Pleasant and District, and Chairman of Eden Valley CFS since inception.



Victoria, Wednesday 10 December 1980 in a searing 45° heat wave strong winds fanned flames through grass, fencing and scrub in the Minimay Fire which burnt out 3 500 hectares of pasture land, killing 600 sheep. One house was completely gutted and a large area of fencing lost. A massive mopping up operation continued for days after.



Pictured, children from the local area, who are winners of a recent Bray Poster competition, with members of the Bray CFS brigade.

## Alexandra '1st Girl' in nearly a Century



Born to Phil and Rhonda Rungie of Aldgate on 23 January, 'Alexandra Michelle' is the first girl in the family in nearly a century.

Since 1887 there have been thirteen Rungie boys in succession, including their own sons Kimberley (8) and Mathew (6).

Congratulations to the proud parents who are delighted, yet still a little stunned.

The Rungie family has lived at Aldgate since 1971. Phil was secretary of the local CFS for six years, but had to resign the position when he became president of the Adelaide Chapter of Jaycees. Photo courtesy 'The News'

## FIRE WEATHER FORECASTS

During this season there have been several instances of confusion at the fire front as a result of misunderstanding of the weather forecast.

During a fire, the services of the Bureau of Meteorology are always available to help with forecasts of likely wind speeds and direction. However, it must be understood that all fire weather forecasts from the Bureau give wind speed in KILOMETRES per hour (km/hr). The term knots is only used for nautical and aeronautical forecasts.

Should you require a fire weather forecast at any time, the Control Centre Operator at CFS Headquarters can quickly obtain it for you, or you can make a direct phone call to the Bureau on (08) 42 6601 (24 hour service).

To assist the Bureau, when calling for a forecast, be prepared to give them details of present weather conditions at the fire, wind speed, direction, temperature, cloud cover as best you can estimate them.

Finally, remember the weather forecast that you are given will include **wind speed in kilometres per hour.**

R.O. John Lloyd

Research and Fire Protection Branch

### Poster Competition, Lameroo Winners.

A fire prevention competition, held by the Country Fire Services at the Lameroo Area School was judged by Murray Sherwell, regional officer based at Naracoorte. The winners of each age section were:

1 Randy Nairn, 2 Dwaine Kretschmer; 1 Linda Vigar, 2 Rebecca Fraser; 1 Darryl McNeilly, 2 Tracey Potter.

Part of the prize for the first place winners was a visit to the fire station in Adelaide, and some days later, several members of the CFS took the children to Adelaide for this visit.



Winners of the poster competition: l to r, Murray Sherwell, regional officer based at Naracoorte, who presented the prizes, with Darryl McNeilly, Frank Miller (F.O., Lameroo), Linda Vigar, Rebecca Fraser, Tracey Potter, Dwaine Kretschmer, Randy Nairn.

### Brigade Officers Course

Nomination forms are now being received for Stages 1 and 2 of the Brigade Officers Course (i.e. for Captains; Lieutenants; and Senior Firemen.) Details and Forms are available in the last issue of 'The Volunteer', December 1980, volume 8, page 22 (a).

### Regional Training Schools

Courses similar to Stage 1 of the Brigade Officers Course will be held for all volunteers *not* only Brigade Officers), in Regions 3 and 5.

Region 3 School (Yorke Peninsula): 27, 28, 29 March 1981.

Region 5 School (South East): 22, 23, 24 May 1981.

Details are available from R.O. David Batten (Region 3) phone (08) 297 6788; and R.O. Murray Sherwell (Region 5) phone (087) 62 2311.

## ST JOHN THANKS FROM THE COUNTRY FIRE SERVICES

Throughout the year, and especially through the summer months, Country Fire Services brigades are constantly answering calls for their service. Hard on the heels of the fire trucks, permanent and volunteer units of the St. John Ambulance offer their most valuable services which have, and always will be, greatly appreciated by CFS fire fighters, whether they have needed first aid or not.

On behalf of the 11 000 CFS fire fighters of this State, I take this opportunity to record our sincere thanks for a job always well done-keep up the good work.

Yours faithfully,

LLOYD C. JOHNS,  
Director, Country Fire Services.

### Recognition of First Aid

The General Manager  
St. John Ambulance Association

Dear Mr. Jellis,

I have been approached on a number of occasions by CFS Volunteers seeking permission to display a form of identification on their CFS uniform signifying they are the holders of current first aid qualifications.

It is understood that a cloth patch bearing the St. John insignia has received some form of approval, but in the interest of both our organisations, I feel we should be in agreement at State level on the nature of the recognition and the manner in which it should be displayed.

Following a reply from you, the CFS Board Uniform Sub-Committee will consider the best position on the CFS uniform for any such insignia approved by the St. John Council.

Yours faithfully,

LLOYD C. JOHNS,  
Director, Country Fire Services  
3.2.81

Dear Mr. Johns,

There is indeed a St. John insignia which may be worn to identify that the wearer has successfully completed the St. John First Aid Course. A sample of this is enclosed from which it can be seen it would be most suitable to wear on a sleeve of a uniform. The location of it on your uniform, however, would be your own affair.

Quantities of these are available from our store, and we would be very happy to supply them. One of the conditions that we feel is appropriate is that the wearer

should retain the currency of his qualifications which means attending a course for re-examination every three years.

If there is anything further which we may do to assist, please let me know.

Kind regards.

Yours faithfully,

DON JELLIS  
General Manager  
St. John Council of S.A.

9.2.81

### Death of Mt Barker's 'Mr EFS'

Mr. Harold Frederick William Gierke, who was known throughout the Mt Barker district as 'Mr EFS', died at his home on Thursday, 18 December 1980 at the age of 78.

The late Mr Gierke started the Civil Defence unit in Mt Barker in 1939. After the war, equipment from this group was used to form the fire brigade.

It was Mr Gierke who, in 1946, designed and supervised the building of the district's first bushfire fighting unit—also the first in South Australia.

This unit, which won numerous prizes for Mt Barker, is still in use at Walkers Flat.

With the former director of the Emergency Fire Services, Mr Fred Kerr, Mr Gierke was one of the instigators of the move to form the Hills Fire Fighting Association.

Mr Gierke was involved in many other community activities, including the Lutheran Church and the Mount Barker Rifle Club, of which he was patron and a life member.

The Country Fire Services expresses sincere condolences to Mr Gierke's widow, Sophie, three daughters, Faye, Judith and Margaret, relatives and friends.



FIRE  
PROTECTION  
FOR STATE  
PARKS

refer page 7

## FIRE PROTECTION FOR STATE PARKS

The Minister of Environment, Mr Wotton, has announced further proposals relating to fire protection in National Parks and Reserves in South Australia.

Mr Wotton said he had instructed that fire access tracks along park boundaries were to receive top priority among fire protection measures to be continued by the National Parks and Wildlife Service.

'In 1980, the service constructed more than 350 kilometres of boundary access tracks on national parks and reserves throughout the State,' Mr Wotton said.

'The program is continuing, with about \$38,000 to be spent in the south-east alone in the next few months.'

### ACCESS TRACKS FOR FIRE FIGHTING

Each year the Country Fire Services Board makes grants to district councils for construction of access tracks for fire fighting. The aim of the program is to provide summer access for CFS units into fire prone areas where no road or track presently exists, or to provide a more direct route of travel to other areas of a district.

District councils may apply to the board with details of the proposal on the application form provided. On receipt of the application an officer from CFS Headquarters will arrange to inspect the proposed track with an appropriate District Council officer. The location and features of the track will be determined at the time of this inspection. Full consideration will be given to using construction methods which cause a minimum of damage to the natural environment. Generally tracks will

be in as long a straight line as possible with provision for turning or passing bays where necessary. A finish sufficient to allow the safe movement of fire units is required.

Mr Wotton said that as a matter of policy, wherever physically possible, every park and reserve in the State would be provided with boundary fire-access tracks five metres in width. 'If neighbours constructed similar access on their boundaries, an effective 10 metre fire break would result on which to base fire fighting or controlled burning operations, as well as provide access for fire control vehicles and equipment.'

Mr Wotton said regional superintendents of the National Parks and Wildlife Service, and their ranger staff, would announce individual proposals as they were commenced.

It is expected that councils will use their own equipment to carry out the necessary work. Where this is not possible contractors may be used. When the work has been completed, a final inspection will be carried out by a CFS Headquarters officer.

Following this, council should then submit itemised certified statements of expenditure involved to the CFS Board. Provided that the final cost is no greater than the agreed estimate, full reimbursement will be made from the CFS Fund.

Further information on this program is available from Superintendent Bill Green, Research and Fire Protection, CFS Headquarters.

### 'THANKS FOR THE CFS'

Thank you Nairne Primary School

*As an expression of appreciation for service given to the community both by the Nairne Country Fire Services and in general all the CFS brigades throughout South Australia, the children and teachers of the Nairne Primary School have composed a song 'Thanks for the CFS' (refer below) which truly says it all.*

*I feel sure all CFS brigades will join with me in commending the Nairne Primary School on the concept, the excellent lyrics and the spirit in which it was written.*

*Congratulations to all . . . well done . . . Editor.*

### 'Thanks for the CFS'

(Song composed by Nairne Primary School.)

Summer Days we like to swim,  
Summer nights to spend at rest,  
Summer comes we take a break  
But not so our CFS.

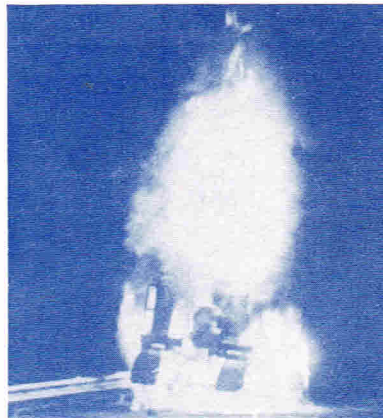
Thanks for the folks so gallant  
Manning the Fire Brigade,  
Watching and always waiting  
Helping our land to save.  
Thanks for the CFS  
Made up of folk so brave,  
Thanks for the help they give,  
Watching the summer blaze.

Fire comes when folk are careless,  
Fire to destroy our land,  
Fire burns our land and stock,  
But the CFS's on hand.

A fire begins—the siren sounds,  
Fire to spread and burn our land,  
The men are ready—the truck has left,  
Fire! Fire! It will be found.

No matter how worn out they feel,  
the fighting will be made,  
Toiling on without a break,  
Our life and land to save.

### Freeway Tanker Blaze . . . Potential Disaster.



Flames and smoke billowed high into the air as CFS firemen from Mt Barker, Hahndorf and Bridgewater quickly averted a potentially disastrous situation, after a tanker laden with 6 000 gallons of molten bitumen caught fire on the Mt Barker freeway. Fire fighters attacking the blaze had to also play a constant flow of water onto two 100 lb L.P. gas bottles and a 20 gallon tank of diesel fuel on the rear of the tanker, to keep them 'cool' to prevent a BLEVE. Two Bridgewater units and the giant 1 000 gallon water tanker from the Mt Lofty Training Centre handled the task.

The fire was caused by the truck's brakes or wheel bearings overheating.

### OBITUARY

Darin Peter KAVANAGH  
Ceduna and Thevenard CFS

The Volunteer and the Country Fire Services pay tribute to the memory of Darin Peter Kavanagh, aged 18 years, who passed away on 19 January 1981 as the result of a vehicle accident.

This young Volunteer will be sadly missed by members of the Ceduna and Thevenard CFS and the community.

The sincere condolences of our Service are expressed to his family, relatives and friends.

**'THE CFS VOLUNTEER . . . A FAMILY PERSON'**

**VIDEO**

30 second TV scatter, Key No. CFS/BF8/81.

**AUDIO**



A CFS Volunteer fire fighter . . . a family person, enjoying a family cricket game . . . until interrupted by the sound of the fire siren.



'CFS Volunteer' with crew members arriving at the scene.



Into the smoke go the Volunteers to 'put out' the fire.



'CFS Volunteer' having extinguished the fires flank moves to attack the front.



Close up of 'CFS Volunteer' (F.C.O. Ron Pullen, Salisbury CFS). In TV scatter his family (wife Heather and two sons Brett and Craig), are superimposed in fire scene, above Rons head.

COUNTRY FIRE SERVICES VOLUNTEER FIRE FIGHTERS PROTECT NINETY PER CENT OF SOUTH AUSTRALIA FROM BUSHFIRES . . . TO PROTECT YOU!

THE VOLUNTEER FIRE FIGHTER IS A FAMILY PERSON LIKE YOU . . . WITH FAMILY AND HOME RESPONSIBILITIES TO ATTEND TO . . .

BUT (SOUND OF FIRE SIREN) . . . INSTEAD OF SPENDING TIME WITH THE FAMILY AS YOU DO . . .

HE'S OUT FIGHTING FIRES. PROTECTING YOUR PROPERTY, HOMES AND THE ENVIRONMENT TOO!

GIVE THE VOLUNTEER A BREAK, FOR HIS FAMILY'S SAKE . . . PREVENT BUSHFIRES.

*Special thanks goes to the members of the Salisbury and Northfield CFS for their co-operation, patience and personal sacrifice; to Mrs Heather Pullen; Salisbury CFS F.C.O. Ron Pullen and sons Brett and Craig; State Planning Authority; S.A. Police Force; SAS Channel 10; and Regional Officer, Brian Menadue (R.O. Region 2). Brian's valuable assistance, contributed greatly to the success of the project.*

*Peter Mills*

*CFS Publicity and Promotions Officer*

**STRANGER THAN FICTION**

A small grass fire that occurred at Greenfields, north of Pooraka was quickly extinguished as the result of an intense whirli-whirli (whirl wind), that developed in the area.



This photograph was taken from some 3½ kms away at Salisbury East, where filming of the TV scatters was in progress.



## THE 'BEAR' FACTS fire in car . . . in city



### A recent fire in a car highlighted dangers associated with foam rubber products.

The fire involved a child's teddy bear which had been left on the back parcel ledge against the rear window. The windows were wound up and the car parked in the sun, this is not an uncommon practice.

The temperature at the time of the call was 32.6°C according to the Department of Meteorology. Information from the Institute of Technology suggested the car's interior temperature would be between 45-55°C.

The call was attended by Norwood, Station Officer Brenton Wilson reported that the atmosphere in the car was acrid and unpleasant. The damage in terms of dollars and cents was not great, nor was the fire spectacular, but Brenton, realising that it was unusual, preserved the evidence and notified the Fire Prevention Division.

The investigation took a strange direction to arrive at an acceptable conclusion which involved another teddy bear. One Fire Prevention Officer recalled a passing mention of an exploding bear at an Arson Seminar some months previous. The Seminar papers were searched and the relevant speaker contacted. It was discovered that twelve months prior, another bear had charred while left in similar surroundings.

**A test had been sponsored by the Standards Division of the Department of Public and Consumer Affairs. A copy of the original report was obtained and the latest bear handed over for testing by their contract Laboratories.**

A statement was released to the *Advertiser* with a covering picture, from this the Division received many responses. Among them were similar occurrences involving stuffed toys and cushions in cars. There were no reports of fire, but generally of a terrible smell for

a week or so and then the padding was found to have become hard. In all cases the articles had been discarded.

The report of the tests on the original bear indicated the foam rubber stuffing consisting of 80 per cent natural rubber and 20 per cent styrene-butadiene rubber. This is a type of latex rubber used extensively for upholstery furniture and mattress slabs.

Synthetic foams have now replaced latex rubber foams to a great degree. Tests showed that when heated 38°C the latex rubber increased its temperature to 250°C in twenty minutes, gases liberated being flammable in certain concentrations.

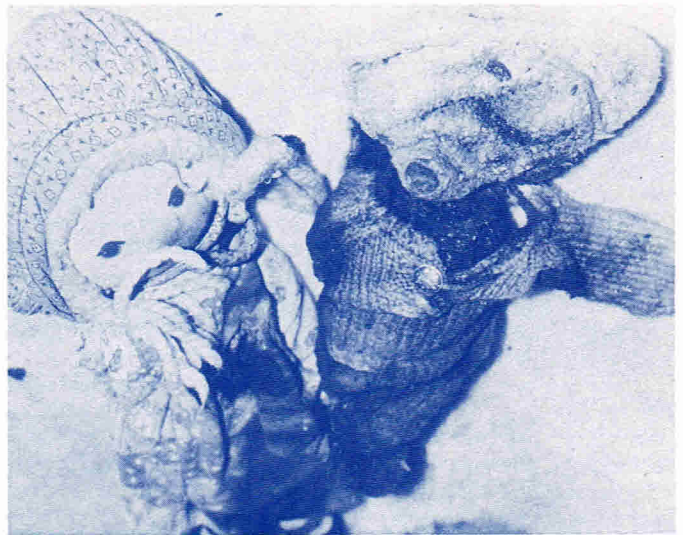
A conclusion drawn from testing was that the foam degrades with age and conditions to a point where exothermic decomposition can be started at a low temperature.

Two incidents reported in the British publication *Fire* in December 1975, involved greater quantities of this type of foam rubber.

The first involved a small smouldering fire in a mattress store of the Chatham Naval Dockyard. During operations two firefighters were killed and four injured when accumulated flammable gases liberated by the decomposing foam exploded. It was believed that the fire smouldered for about two hours before discovery.

The second incident occurred when a foam rubber mattress fell onto a one kilowatt single bar radiant heater in a domestic bedroom. As with the above fire, conditions were tolerable which allowed two firefighters to enter the room. About 20-30 seconds later an explosion blew one out of the bedroom door and the other across the room, trapping him. He finally escaped out of the bedroom window. Both suffered burns and cuts.

Editorial courtesy 'S.A. Fire Call.'



A similar case occurred in November 1980, near Beachport, in the South East.

A toy bear (pictured—same type as reported) and a rag doll were left lying on a lambswool seat cover on the front seat of a car that was locked and parked in the sun. A similar situation occurred (as reported above), the sun shone through the front windscreen onto the toys and the bear caught fire.

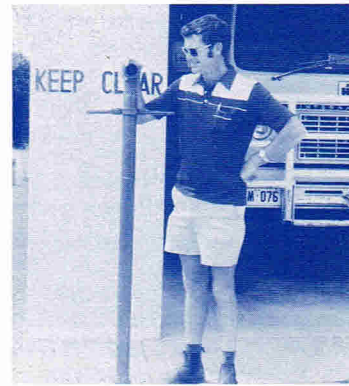
The bear was destroyed; and because the 'flammable' bear was in contact with a rag doll, the doll was singed.

The lambswool seat cover prevented any further damage, leaving the car (when finally opened) with a smoky, acrid and unpleasant odour.

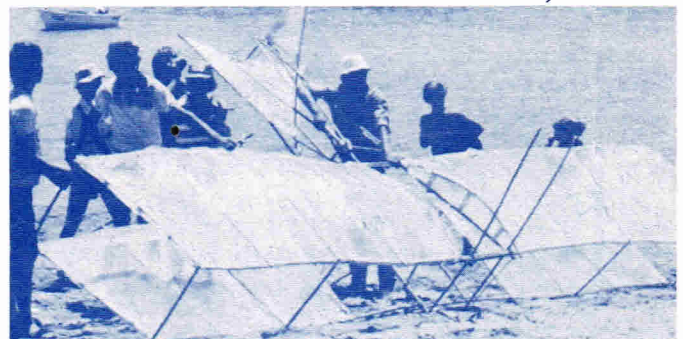
*CFS H.Q. Research and Fire Protection Branch would be most interested to hear from brigades and members who have details on fires occurring in unusual circumstances . . . Editor.*

### **We grow them tall in the South-East!**

Deputy Les Smith of the Kingston CFS displays an unusually tall stand pipe, one of many that the E.&W.S. modified to give access to some of the Volunteers fire plugs.



### **The Birds have it at Wudinna, E.P.**



Lothar Kowaleski of Wudinna, Eyre Peninsula (related to a member of the Wudinna CFS) spent only two days building the fragile craft which gave him the 'Birdman' title at the annual Venus Bay sports, Sunday 18 January 1981. The bamboo and black plastic flying contraption flew just over 9 metres to give Lothar, twenty-six, the coveted sash and a \$60 cash prize. Fourteen craft of all shapes and sizes entered the 'Birdman Competition' which attracted a crowd of 1 800 spectators.

## MOBILE B.A. CHAMBER

### The New Generation Appliances

Throughout the world, our Fire Services are being compelled by economic restraints to re-evaluate the availability of specialist appliances for use at incidents or for training purposes.

Compared to conventional fire fighting appliances, the usage of these specialist vehicles invariably indicates low mileage with poor cost effectiveness of highly expensive capital cost. Consequently they are limited in availability within a Brigade or Service to strategic central locations.

Containerised or demountable special units are now proving an overwhelming success, clearly producing cost savings in fuel, manpower and financial outlay, in conjunction with convenience and versatility of appliance availability.

Utilising a separate prime mover, a variety of specialist units can be mobilised as appropriate to an incident, providing all the necessary resources to deal with breathing apparatus recharging, chemical incident protective clothing/equipment, communications, salvage and rescue, canteen and even w.c./shower facilities. Other non-operational functions can also be provided for publicity, fire prevention campaigns and recruiting.



A portable training chamber from the Suffolk Fire Service being off-loaded.

To double the width, the chamber slides out on outrigger beams to extend one side. The complete 'pod' is fitted with a door at each corner, each having interior and exterior fastenings.

An early advocate of this concept was Chief Officer Ernst Achilles of the Frankfurt Fire Brigade, West Germany, who had established a whole fleet of some sixty odd containerised special appliances.

Britain shows evidence of accepting this concept as numerous Brigades commission this new generation appliance.

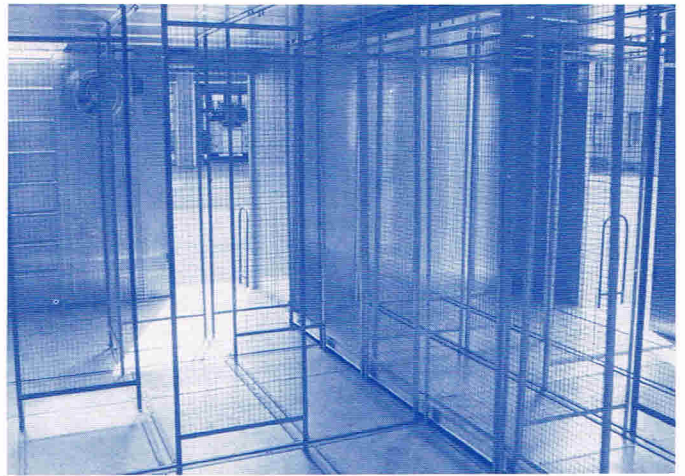
Mobile breathing apparatus training facilities are producing major savings in capital costs when compared to a static on-station building, but of greater consequence, ensuring all personnel whether full time, part time or volunteer receive the necessary supervision in training and practical experience of wearing B.A. sets in realistic fire conditions.

For years Brigade crews had a choice of commuting many miles to the nearest B.A. training facility, often remaining on call remote from their own operational area or simulating training facilities wearing blacked out goggles in the appliance room or station yard, causing little stress or anxiety, if any.

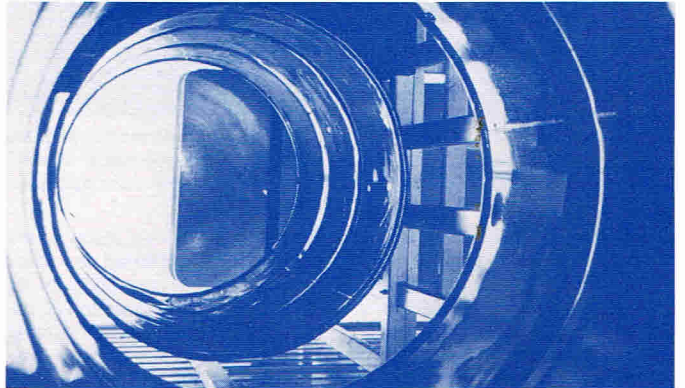
The advantages of this mobile type of facility to Australian Brigades, particularly rural/urban such as CFS are enormous. From a safety and efficiency aspect almost mandatory.

County brigades in the United Kingdom, with comparative small areas to their Australian counterparts, are opting for mobile chambers, as an alternative to a purpose built brick B.A. chamber on selected fire stations. The costs today of on station facilities are prohibitive and limited in their availability to those closely located stations.

These units provide a varied internal layout utilising movable screens, crawling galleries, stair flights and vertical ladder access, and simulate heat and smoke conditions with immediate venting and emergency egress facilities, ensuring the highest standard of safety during training.



Movable screens within the training chamber.



Crawling gallery (tunnel).

(photo courtesy of 'Lincolnshire Fire Brigade')

The Suffolk County Brigade (UK) has commissioned such a unit recently, and following a request from CFS Headquarters, Chief Officer Willis has assured us of plans and specifications when available. (These are being reduced in size to accommodate the world wide requests for similar information).

This particular unit is fitted with outrigger beams allowing a lateral extending section to provide an overall floor space of over 22 square m., and conventional ceiling height. By variation of the walkways a linear distance of 20 m is attainable thus providing an ever changing breathing apparatus training route. Essential practical instruction is also possible to those remote brigades in maintenance procedures, monthly standard tests, and safety checks.

Containerised or demountable pods are nothing new, in fact the road transport and shipping industry saw this as a future trend twenty odd years ago.

That future is with us today and looking ahead, can we afford to do anything better or even wait around for something else?

R. H. HUTCHINS Regional Officer Fire Prevention

### Vacant Blocks . . . Serious Fire Hazard



Long grass on vacant blocks, particularly in the newer subdivisions throughout South Australia are a serious fire hazard and, as pictured, pose a threat to nearby homes.

Blocks such as this are 'over run' with grass/rubbish over five feet high, which until the recent rains has been tinder dry. The Mount Barker District Council alone this season has served a total 462 notices on owners to clear their properties. If property owners do not clear land the cost of clearing allotments by the Local Council or CFS Brigade(s) is charged to the owner.

## Edithburgh Unit Commissioned

On Sunday 8 February, the new Edithburgh Unit was commissioned by CFS Director Mr Lloyd Johns.

A crew of five comprising of Messrs Lloyd Johns (CFS Director); Mike Rowell (Chief Fire Control Officer, Bushfire Council, Northern Territory); Regional Officer David Batten (CFS Region 3); Peter Mills (CFS Publicity Officer) with a pilot from Lloyd Aviation alighted from the Wales State Rescue Helicopter at Edithburgh, Yorke Peninsula on the Edithburgh Football Oval for the Commissioning; and received a warm welcome from the local community.

The ladies arranged luncheon in the Edithburgh Football Club Rooms, which was immediately followed by the Commissioning. Mr George Sheriff, Chairman of the Edithburgh Council welcomed NT guest Mr Mike Rowell, and introduced Mr Lloyd Johns, who congratulated the Brigade on their splendid achievement, thanked the ladies auxiliary and presented keys of the new fire unit to the captain of the Edithburgh CFS, Mr Barry Butfield.

The Wales State Rescue Helicopter also took the three District Supervisors from Minlaton, Yorketown and

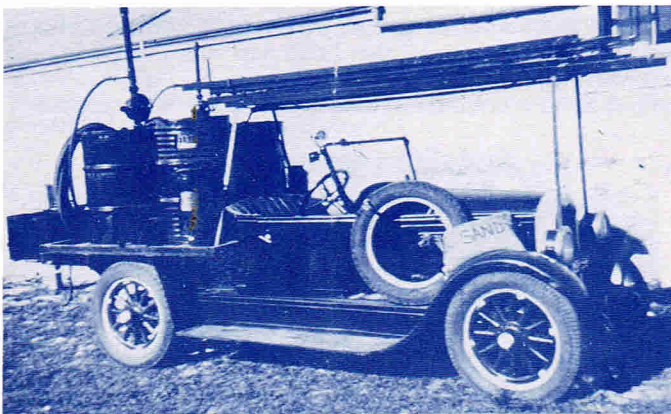
Warooka respectively, aloft for an aerial inspection of surrounding areas to highlight the suitability of the helicopter in bushfire surveillance and control.

The new Edithburgh CFS Fire Unit is an International 1810 truck, with power steering and a 345-V8 engine. Watertank capacity is 3 000 litres with a 'Godiva Pump' that delivers 2 500 litres (500 gallons) per minute. Equipment consists of a Hoenig Fog Nozzle; Monitor; 3 lengths x 64 mm (2½") canvas hose; 2 lengths x 38 mm (1½") canvas hose; branches; 4 knapsacks; 1 x 10 metre extension ladder; 3 x 3 metre sections of 100 mm (4") suction hose.

### Early Awards

Members of the Edithburgh CFS presented with the 'National Medal', Friday 22 June 1979, at CFS H.Q. were: Messrs Harold John Braund (19 years service); Albert Terry Braund (19 years); Robert Sydney Hiscock (22 years); Edmond Yorke Miller (20 years) and Leslie John Stehbens (22 years). On 8 November 1977, Robert Sydney Hiscock was awarded 'Life Membership' . . . Congratulations to these men for their dedication and untiring volunteer service . . . Editor.

### Edithburgh CFS Through The Ages

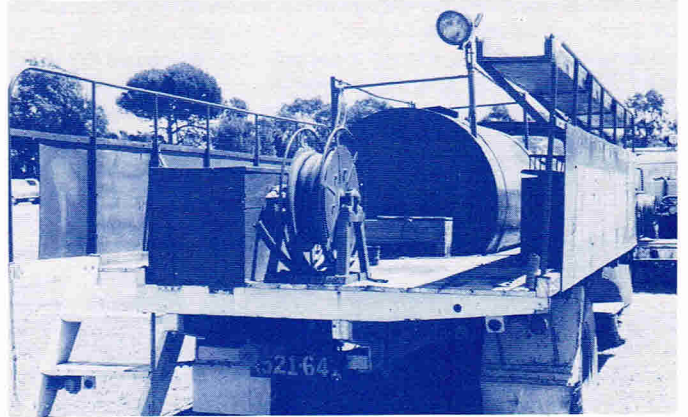


The 1st Fire Unit (pictured) used by the Edithburgh Fire Service (E.F.S.), was a Buick Car modified with a buckboard upon which was mounted 4 x 200 litre (44 gallon) water drums and a No. 6 series Rotary Hand Pump.

The 2nd Unit, a 4 cylinder Gardener Diesel Truck (pictured), complete with a 2 500 litre (500 gallon) water tank, was reported to be most economical in that it took three years to empty the 200 litre (44 gallon) fuel tank. The truck is believed to have travelled over 2 million km, having originally been used as a transport vehicle commuting between Edithburgh and Adelaide.



Pictured—Manning the Diesel for the last time, in memory of the truck's service are the members of the Edithburgh CFS. The new unit is in background. The fire fighters train with Yorketown CFS every Wednesday night.



Rear view of old Diesel Truck; in front almost out of picture is the other fire unit still in operation, a 4-wheel-drive Land Rover.



Children from Edithburgh many of whose dads are members of the service.



The 3rd Unit (pictured). Attendees of the Commissioning of the Edithburgh CFS Fire Unit (unit in background), CFS Director Lloyd Johns (4th from left) with proud members of the Edithburgh Volunteer Country Fire Service.

## HAZCHEM IN AUSTRALIA

The labelling of vehicles carrying hazardous loads with the 'Initial Action Emergency Code' and other necessary information known as the Hazchem scheme, has in the last few years been implemented by the transport industry on a voluntary basis only.

The Australian Transport Advisory Council has approved a Code of Practice for the Transport of Dangerous Goods by road and rail and agreed that each State would impelent in its own way, necessary legislation to ensure uniform compliance with the Code throughout Australia.

The South Australian Government is currently considering, through the activities of two separate Working Parties, the most effective method of introducing regulations to require this Hazchem label to be displayed on the relevant vehicles. CFS Headquarters has representation on both Committees.

The Department of Industrial Affairs has incorporated the requirements of the Federal Code in the Dangerous Substances Act, 1979-80, which will make the Hazchem label mandatory on many vehicles, consequently, you may observe vehicles carrying the placards on South Australian roads.

Cards and self adhesive labels are shortly to be distributed to all CFS Brigades showing the initial action emergency code which will, should your Brigade be mobilised to an incident involving such a vehicle, enable immedate action to be taken if the appropriate equipment is available. Alternatively be able to recognise a need for specialist advice, personnel and equipment to be requested from CFS Headquarters. viz: Breathing Apparatus and Protective Clothing.

It is not the intention to recommend that Brigades provide the specialist equipment to deal with these types of incidents.

A detailed explanation of the use of the Code and related operational procedures will be circulated with the cards in the near future, supported by technical training sessions, high-lighting the safety procedures and associated problems with this ever increasing hazard firefighters, who are traditionally called upon to act as the primary combatant authority at these hazardous chemical incidents.

R. H. HUTCHINS  
Regional Officer  
Fire Prevention

S.A. COUNTRY FIRE SERVICES		HAZCHEM SCALE	
Emergency Action Code Scale for Fire or Spillage	Hazchem UN No.		
1	JETS		
2	FOG		
3	FOAM		
4	DRY AGENT		
P	V	FULL	DILUTE
R	V	BA	
S	V	BA for FIRE only	
T	V	BA	CONTAIN
Y	V	BA for FIRE only	
W	V	FULL	
X	V	BA	CONSIDER EVACUATION
Y	V	BA for FIRE only	
Z	V	BA	
Z	V	BA for FIRE only	
E		CONSIDER EVACUATION	

### FOG

In the absence of fog equipment a fine spray may be used.

### DRY AGENT

Water must not be allowed to come into contact with the substance at risk.

### V

Can be violently or even explosively reactive.

### FULL

Full body protective clothing with BA.

### BA

Breathing apparatus plus protective gloves.

### BA for FIRE only

For fires BA essential. If no fire BA not essential for short exposures.

### DILUTE

May be washed to drain with large quantities of water.

### CONTAIN

Prevent, by any means available, spillage from entering drains on water courses.

### CONSIDER EVACUATION

This is the first priority. In case of doubt evacuate immediate vicinity and request police assistance.

'EMERGENCY ACTION CARD', FRONT AND BACK

<b>METHYL ETHYL KETONE</b>		
UN NO	<b>1193</b>	
HAZCHEM	<b>2YE</b>	
<b>IN EMERGENCY DIAL 000 POLICE OR FIRE BRIGADE</b>		<b>SPECIALIST ADVICE AUSTRALIAN CHEMICALS LTD SYDNEY 201 2001</b>

LABEL SOON TO BE PROVIDED  
On 'HAZARDOUS LOAD' VEHICLES

## Fire fighter priests man radio base



Chief radio operator Father Richard (pictured) with Brother Geoffrey and novices Brother Ken and Brother Robert operate the Stirling Country Fire Services communications base at St Michael's House, Crafers (Adelaide Hills). The house at Summit Road, on the western slope of the ranges next to the Mount Lofty Tower has a commanding view of the Hills and Plains.

Father Richard said 'The religious community has been used as a communications base since 1952 because of good visibility from property and because its high elevation helped radio transmission'. A

2 metre x 4 metre communications hut opened in 1969 is where, in the event of a bushfire, or smoke sighting, the priests put their habits aside and join the battle . . . using the radio communications equipment to monitor fire reports, location of fire and of CFS Brigades attending fire.

Should a fire start while house members are maintaining their practice of silence, 'that just sits to one side until it can operate again' Brother Geoffrey said. 'After 36 hours on the radio you don't wish to talk too much, anyway,' he said.

Photo courtesy "The Advertiser".

## Yankalilla Life Membership



At the Country Fire Service life membership presentation, Yankalilla are, from left, recipients Mr Fred Heinrich (third from left), Messrs Harold Zacker, Tom Lyddon, Mick Saltar; Chairman of the Yankalilla Council Mr Ian Martin and Mr Malcolm Golding. CFS Regional Officer Mr Richard Keynes (second from left) attended 'the presentation'.

Photo courtesy Victor Harbor Times

# From Fog . . . to Foam Branch

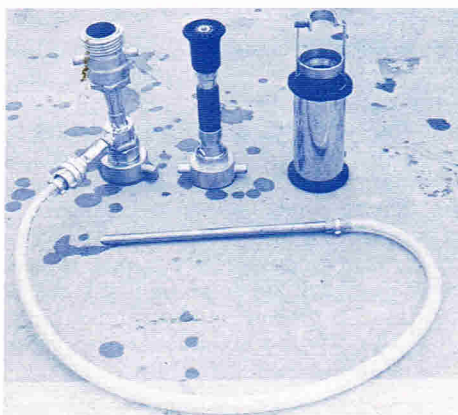
by R. O. David Batten

The use of Foam or AFFF as a fire fighting medium is well known. What is not so well known is the different types of equipment that can be used to allow us to produce foam. In this article we will have to look at three pieces of equipment that have recently been released on to the market. This equipment is basically designed to be used in conjunction with AFFF, however, it can be used with the normal protein foam compound.

The main advantage of this type of equipment is that a special foam making branch is not required. A normal fog branch can be used to apply the AFFF in either the aerated form or the unaerated form. The heart of the system is the in-line inductor. This particular inductor allows 225 litres a minute of water to be passed through it and at the same time picking up the required amount of AFFF compound. This is then directed on to the fire, by means of a normal fog nozzle. If the aerater is attached to the branch, it can be seen from the photographs that this will aerate the foam and allow it to be used in a more efficient manner.

The inline inductor can be placed at any position between the pump and the branch. This allows greater flexibility for the 'Branchman' to move around without the additional obstacles of having to carry or re-locate a drum of foam compound each time the Branchman takes up a new position. It is usual to place the in-line inductor as near as practical to the pump, as in nearly all cases the foam compound is carried on the Unit, and with the inline inductor so located, it removes the necessity for carrying these drums over long distances. The branch can be any type of fog branch thus allowing the Branchman to vary his pattern from direct jet or spray through to the shut off position should he require to stop the application of foam at any given time. If the aerator is attached to the branch this in turn, draws air in from the back of the apparatus and expands the foam approximately at a ratio of 10 to 1. As most brigades already have some form of fog branch, then the only other major cost is the inline inductor which at this stage, is cheaper than buying a special foam making branch.

The equipment tested was loaned to the CFS, courtesy of S.A. Fire Extinguishers (agents of equipment).



Equipment used in conversion of fog to foam, (pictured from left to right): In-line Inductor; Fog Branch; Aerator.

New fire fighting equipment on the market is continually being tested and evaluated at CFS H/Q and results of these tests when available will be published in *The Volunteer* under the category 'New Products' as information for brigades.

Editor

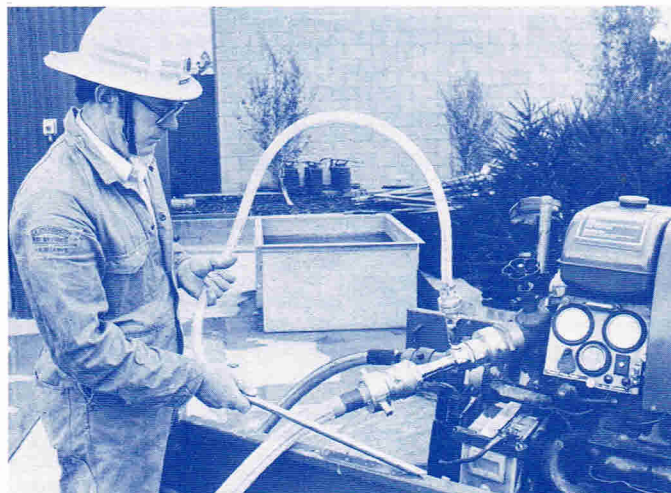
## From Fog . . . to Foam!



Step 1: Take a standard Fog Branch in operation.



Step 2: Place an Aerator over the Fog Branch.



Step 3: Insert the In-Line Inductor, into the delivery hose and pick up stick into foam compound.



Step 4: Foam application . . . from Fog to Foam Branch.

## Visit by Chief F.C.O. Northern Territory Bushfires Council



Pictured from left Messrs Mike Rowell (Chief F.C.O. Northern Territory Bushfires Council) and Lloyd Johns (Director CFS) inspecting standard equipment carried in each CFS Regional Officers vehicle, and discussing features of the S.O.S. Rescue Tool Kit.

Following a three day visit (Sunday 8-Tuesday 10 February) to South Australia and the Country Fire Services, Mr Mike Rowell, Chief Fire Control Officer, Northern Territory Bushfires Council commented that the trip was very worthwhile and he looked forward to a continuing liaison between the Country Fire Services and the Northern Territory Bushfires Council.

Mr Rowell expressed his appreciation for the hospitality received.

### ITINERARY

The three day itinerary included a flight in the Wales State Rescue helicopter to Edithburgh, Yorke Peninsula to witness the commissioning of the new Edithburgh CFS Fire Unit (Sunday 8 February); Inspection of CFS Headquarters, Discussions on Fire Prevention and Suppression Policies, Training Programs and familiarisation with CFS H.Q. Operations Room and Procedures.

### ORGANISATION

The Bushfires council of the Northern Territory is a unit of the Conservation Commission. Mr Rowell is responsible to the Director of the Conservation Commission and the Council.

The Council has a staff of eighteen. Four are based in Alice Springs, one at Tennant Creek, two at Katherine, one at Batchelor (south of Darwin), seven at Darwin and a mobile plant crew of three. The Northern Territory Bushfires Council is made up of twelve members, seven of whom are drawn from the private sector, comprising of pastoralists and farmers. The remaining five come from Government Departments closely aligned with the Council, i.e. representatives from the Forestry, Fire Brigade, Bureau of Meteorology, Primary Industry and Lands Departments.

The Northern Territory is the biggest area under one single fire authority in the world, covering an area of 520 000 sq. miles. For the purpose of Fire Control the area is split up into seven Regions. Each region consists of a Regional Committee of pastoralists/farmers and one member of each Region's Committee is appointed a Staff Fire Control Officer.

An executive officer for each Regional Committee implements the needs and requirements of that Committee, in line with Council Policy. The Council draws its authority from the Northern Territory Bushfires Act, May 1980 (previously authority came from ordinance of 1967.) The two (2) Senior Regional Officers (Northern and Southern areas respectively), are responsible for the Regional F.C.O.'s

and are in turn responsible to Mr. Rowell.

### HEADQUARTERS

The new Northern Territory Bushfires Council Headquarters established and opened at Darwin in May 1979 was attended by representatives from all states including Mr. F. L. Kerr (former CFS Director.)

Comprising of a single storey office the Northern Territory Headquarters has a well equipped workshop with a yard. The workshop performs maintenance on graders, heavy duty four-wheel-drive tractors and light firefighting equipment (i.e. trailers and slip on units), and recently gave birth to a newly designed flame thrower.

Other developments and equipment are on the drawing board.

### FIRE SEASON

The Territory's fire season lasts ten months of the year, due to the overlap of both the Northern and Southern Regions fire seasons (refer below.)

The two (2) peak seasons thereby provide little or no time convenient to train volunteers.

### FIRE PROTECTION

The main overall policy through out the Territory is to assist those, who are prepared to help themselves.

Pastoral: There are no volunteer fire fighters in the pastoral areas, however the Council has been able to encourage and foster co-operation between station properties. Council assistance in fire control is only applied, when a fire reaches a stage where it is beyond the resources of the stations in the fire area.

Farming: Farming areas are generally situated within the 200 mile area between Darwin and Katherine. Efforts to promote volunteer group activities from amongst the farming and residential communities have been successful.

The five (5) Volunteer groups established carry out pre-seasonal fire prevention measures, early pre-seasonal burning and annual aerial burning programs.

They have accepted the concept of group activity under a leader. The Council have provided *on loan* various basic fire fighting equipment; such as trailer water tank units; V.H.F. communications and have promoted an effective system of subsidisation for private ownership of small tank/pump slip-on units.

**Aerial Burning:**—The annual aerial burning program takes place between early April and mid May each year, and applies to all stations in the Northern Regions who wish to participate.

Before a burn begins the station(s) must request the burn and agree to accept full responsibility. It will then be essentially the station(s) fire.

'Aerial Burning' consists of 80 000 incendiary capsules dropped by a low flying aircraft, along roadsides, water courses and other natural breaks, to *break up* the country, to facilitate fire management later in the season.

The burn is reliant upon the exact conditions to burn; i.e. low humidity, fuel not completely cured, low winds and mild temperatures; and is dependent on the vegetation rapidly absorbing sufficient moisture overnight to 'wet down' the fire. The dew thereby raises the moisture content in the fuel thus extinguishing the fire.

### TRAINING

The Northern Territory Bushfire Council since its establishment has enjoyed a sound relationship with its neighbouring fire authorities.

This relationship will continue to flourish and similar to previous years, it is anticipated that delegates from the Northern Territory will again attend future training courses held at S.A. Country Fire Services, said Mr Rowell.

Mr Rowell will revisit S.A. on 13 and 14 May 1981, to attend the Rural Fire Authorities Conference in Adelaide.



### 'NIGHT SUN'

*Rescue of five at sea  
under daylight conditions at night*

The attachment of a 'Night Sun' spotlight (pictured above) to the Wales State Rescue helicopter, with the power to light up a football field with 500 times the brilliance of bright moonlight, has transformed the helicopter into a 24-hour-a-day search and rescue aid.

The 'Night Sun' spotlight was put to the test on its first night of use on 3 January 1981, when it responded to a report of 'flares off Henley Beach'. In the dead of night the helicopter found a 5 metre cabin cruiser, disabled and riding at anchor, 10 km off Henley at 2 a.m.

The 'Night Sun' then guided an approaching Sea Rescue squadron boat to a rendezvous with the cruiser and the five crew members.

The light had been fitted, after stringent Department of Transport tests, the day before its first operational use.

It is used overseas on numerous police and rescue helicopter operations and similar lights have been fitted onto anti-submarine and reconnaissance aircraft.

Superintendent Peter Stretton, the police officer most involved in helicopter operations, said the mission was confirmation of the value of the floodlight.

'It can light up a smash site, help in searches of desolate country, or find a boat at sea. It will be of value in any night operation. The helicopter now is a valuable tool 24 hours a day.'

### THREE LETTER CALL SIGN?

#### CALL SIGN REVISION INFORMATION SOUGHT

The South Australian Police Force has recently commenced the use of a three letter call sign in place of the old VL5AP and other similar call signs.

It has been suggested that such a move would be advantageous to the CFS.

This would mean that all CFS networks would be known by the call one sign (say VKF) throughout the State. The call sign for VL5BA at Belair would thus become VKF Belair base; or just Belair base, when the heat is on.

If a remote control extension to that base was at Blackwood, it would be identified by VKF Blackwood base. Mobiles for example would be (in full) VKF Blackwood 2 or VKF Belair 4, abbreviated to Blackwood 2 and Belair 4. Should an appliance come from Burnside to help these two, he could be called Burnside 3 (in full VKF Burnside 3).

The need to use the multitude of current network identifications would be removed, and appliances could be called by call signs of the type indicated giving better identification than say 'Mobile 25'.

*'Your comments on such a change would be appreciated!'*

R. O. Trevor Conlon

Communications

CFS Headquarters

Telephone (08) 297 6788

**VISIT BY NSW9 WEATHER FORECASTER**  
Mr Barry Pitman prior to taking up his position as NWS9 Weather Forecaster as from Monday 9 February 1981, visited CFS Headquarters Operations Room, Monday 2 February at 1430 hours (2.30 p.m.)

The purpose of Mr Pitman's visit was to familiarise himself with CFS H.Q. operations room procedures; set up a daily and weekly standard fire report information sheet for use by the NWS9 News (now available and issued to all media) and arrange to obtain the daily fire danger rating for the Mount Lofty Ranges.

Each night immediately following the NWS9 News, during Mr Pitman's weather report the public is shown the fire danger rating for the Mount Lofty Ranges for the day; advised on the number of fires reported to CFS H.Q.; reminded to 'Prevent Bushfires' by taking care and asked to heed the daily fire warning broadcasts.



Pictured being advised on the operation procedures involving the Control Centre Console by the Superintendent of Operations, Mr Tony Keay, is NWS9 Weather Forecaster Mr Barry Pitman (right). Control Centre operators in the background are Messrs Neil Ellis and Brian Bilney. Absent C.C.O.'s Messrs Trevor Modistach, David Pearce and Mark Thomason. (Photo courtesy NWS Channel 9).



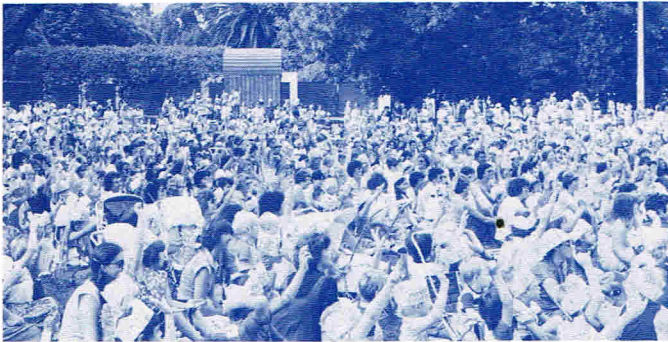
### British Fire Service 25 Year Awards

Recipients of British Fire Service Awards, from left: Capt. Gordon Durber (Mt Lofty Training Centre), Senior Superintendent Dick Rowe (S.A. Fire Brigade), and Group Capt. Charlie Rosewarne (Stirling District and Mt Lofty Training Centre), with Deputy CFS Chairman, Mr Ray Orr (second from right). The British Fire Service Award is in recognition of the service that fire fighters give to their communities. Awards were also presented to firemen and firewomen from Happy Valley, Hahndorf, Stirling, Bridgewater, Mylor and Basket Range for the completion of courses as Second Class Firemen, or Rescue and Salvage.

## Smokey's Birthday Party 'Enjoyed by all'

The Adelaide Zoo gates opened to a steady flow of excited children, many accompanied by parents, announcing the '1981 Smokey's Birthday Party', Wednesday 28 January 1981.

Master of Ceremonies, Ron Sullivan (Promotions Manager, John Martins Limited) was delighted with the program, quality of the entertainment and the audiences response. 'Hands up who knows what Smokey means to S.A.' (i.e. fire prevention symbol), asked Mr Sullivan.



... And what a reaction, as indicated in the above photograph from children at the party.



Pictured just some of the audience at the Adelaide Zoo Elephant Arena who appear to be 'mesmerised' by the antics of the TV personalities on stage.



... And this is what the audience saw at Smokey's Birthday Party, from left: Les Cookesley (piano accordionist); Jane Reilly and Ian Wilson (SAS Channel 10); Marianne Lomax (ADS 7); Pam Silby, holding cake (Athelstone CFS); Lloyd Johns (CFS Director); Ron Sullivan (MC) and Fat Cat (SAS10). Fat Cat was nicknamed 'Thin' Cat by Lloyd Johns during the festivities. 'Smokey' the Koala out of picture was resting in a part of a eucalyptus tree on the stage.

Mr Johns thanked the television media for their time and energy in promoting the fire prevention message to children. He made special mention of the Zoo's annual involvement, the work done by the Zoo personnel in preparation for the party and the co-operation received from Dr Mueller, Zoo Director.

Coca-Cola was again acknowledged for the generous contribution of soft drink and for the loan of a trailer dispenser unit and tray top. The truck tray top supplied by Coca-Cola was in turn rented from Budget for the party, because their own trucks were being kept busy in the hot spell... a magnanimous gesture... thank you Coca-Cola and Mr Colin Sampson (Coca-Cola Promotions Officer).

There was that age-old problem of trying to light candles '21' on Smokey's birthday cake, in a strong wind. The 'fire demon' may have come in handy, if the Athelstone CFS had not caught and doused him with water.

Special thanks to Messrs Ron Sullivan, Les Cookesley, Colin Sampson, Coca-Cola, St John, Police, the Athelstone CFS and members and friends of CFS H.Q. staff, who all helped to make the party such a success. Editor.

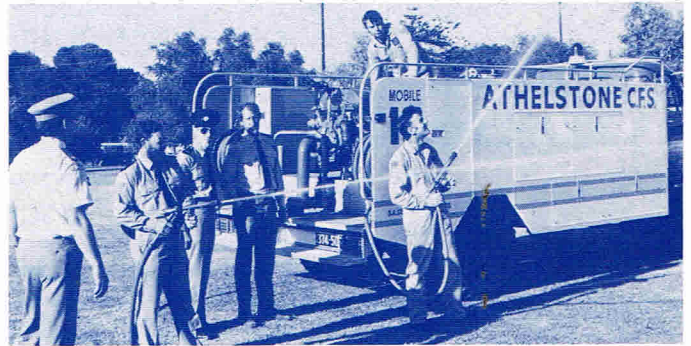
## PRE-PARTY PROMOTION

To highlight 'Smokey's Birthday Party', one of Smokey's friends, a koala from the Cleland Conservation Park with his keeper, Mr Bob Robbins, and Mr Lloyd Johns, 'dropped in' to SAS Channel 10 in the Wales State Rescue Helicopter at 8.00 a.m., Wednesday 28 January. They were met by SAS 10 personalities, Jane Reilly, Ian Wilson, Fat Cat and by members and families of the Athelstone CFS.

SAS 10 promoted both the party and fire prevention messages on their morning childrens TV program, and went outdoors during the segment to talk to the Athelstone CFS volunteers and inspect the fire equipment.

The Country Fire Services wishes to express its appreciation for the service and trouble the National Parks and Wildlife Services went to, to arrange the attendance of two of their staff personnel and a koala for the TV program.

To the members, their wives and children of the Athelstone CFS and to R.O. Brian Menadue, a special thank you for your attendance and assistance.



Athelstone CFS members under the watchful eye of R.O. Brian Menadue, demonstrate to the TV camera the operation of their fire-fighting equipment.



Ladies and children of the Athelstone CFS gather around the koala and Mr Bob Robbins (keeper, Cleland Conservation Park), to commemorate 'Smokey's Birthday Party'.



All aboard the Athelstone CFS Fire Unit. Fat Cat wishes to take the koala for a ride.

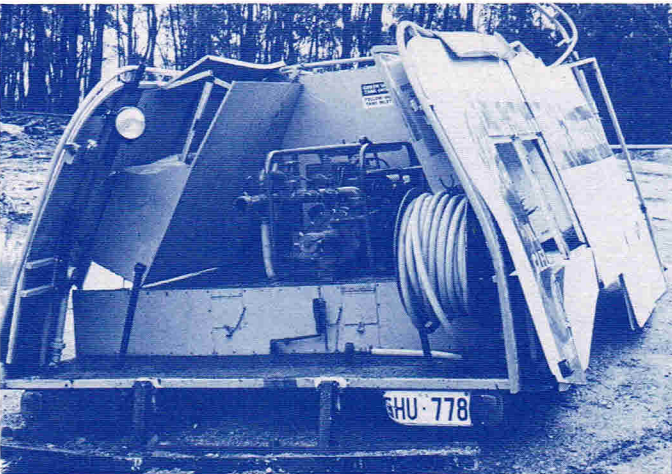


**N.P. Unit  
Suits Hills conditions.**

Cleland Conservation Park's new fire unit for the National Parks and Wildlife Services has been specially designed to suit Hills conditions.



The new unit pictured above was rebuilt on the cab chassis of a vehicle which was damaged last July. The accident in which the truck overturned (pictured below), resulted in five (5) Park employees being injured. The body of the truck was a write-off although the cab chassis was able to be repaired.



Carey Gully Engineering re-designed the layout of the unit to give greater safety to the crew. The seating area is located behind the cab, so that in the event of a roll-over accident, the tank or body would take the greater impact.

The tank is slightly wider and on a lower profile, affording a lower centre of gravity.

The pump is mounted on the back of the unit and is accessible only from the back.

There are no passage ways along the side of the tank, which used to be a weakness in the former design.

The unit was handed over by the CFS Director Mr Lloyd Johns to the Director of the National Parks and Wildlife Services, Mr Neville Gare at the Cleland Conservation Park. Mr Gare in turn handed the keys to the ranger-in charge, Mr Peter Martinsen.

Editorial courtesy Mt Barker Courier.



Mr John Fitzgerald  
New CFS Regional Officer

**NATIONAL PARKS  
FIRE OFFICER  
APPOINTED TO CFS**

Senior National Parks and Wildlife fire officer, Mr John L. Fitzgerald, has been appointed to the Country Fire Services of S.A. as a regional officer with responsibility for liaison with the National Parks Services.

**who's who at headquarters**

CFS Director, Mr Lloyd Johns, in announcing the appointment said Mr Fitzgerald of Modbury, took up his new position as of 9 February 1981.

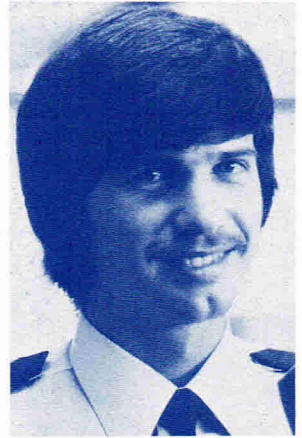
'Mr Fitzgerald will be seconded back to the National Parks and Wildlife Service for the remainder of the present bushfire season, besides his longer term role as a liaison officer with national parks,' Mr Johns said.

Within the CFS Mr Fitzgerald will be the regional officer responsible for the Riverland, covering an area from Truro to the River Murray-Victorian border, and through Lameroo and Pinaroo and part of the North-East pastoral district.

Mr Fitzgerald joined NPWL in 1975 as its fire and emergency operations officer and operational services manager.

Initially joining the SA Police Force in 1960, he transferred to the former SA Emergency Fire Services (EFS) in 1963 as an instructor. In 1968 he was appointed Regional Fire Control Officer with the Tasmanian Rural Fire Board. He served with the Tasmanian Board for six years and then spent one year in industry before joining NPWL.

Mr Johns said that Mr Fitzgerald would be based at CFS Headquarters, Keswick.



**DAVID PEARCE  
Control Centre Operator**

A member of the Blackwood CFS for six years David is a motor mechanic automotive electrician by trade. In 1979 he was a Police Officer with the Northern Territory Police, stationed in Alice Springs.

David returned to South Australia in 1980 and was employed by Telecom before joining the Country Fire Services H.Q. operations team on Monday 8 December 1980. His interests include water skiing, football, volleyball and motor cycles.



**MICHAEL BAKER  
Records Clerk**

Michael, aged seventeen years, has recently joined the Administration Department as Records Clerk. In addition to general clerical duties, he is responsible for recording all fire reports received, issuing membership cards, badges, chevrons, etc., to brigades and filing new memberships.

Outdoor sports: basketball, football, cricket and roller skating are his main interests and on most weekends Mike can be seen surfing his favourite beach breaks.



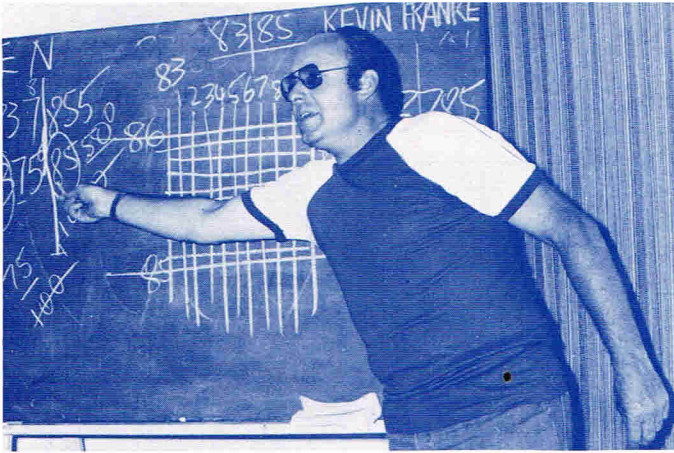
**LORRY BATES  
Handyman**

Lorry was previously self-employed operating a semi trailer and taxi truck business.

His duties at CFS H.Q. revolve around handyman, courier and stores services.

Married with four children, Lorry takes an active interest in cricket, soccer and tennis.

## Map Reading Course at Kingston



On 24 January, Mr Kevin Franke C.M.F. Instructor (pictured) instructed Kingston CFS members on correct map reading. Some areas covered: giving accurate grid references; converting magnetic compass bearings to grid bearings; making cross references to pin-point a fire, correct usage of contours to determine if the country is accessible. With the new metric scale maps, distances, areas, elevations and types of terrain can be easily worked out. Using maps, men and equipment can be guided into and around the fire scene promptly and with reasonable safety.

photo courtesy Strath Smith.



Pictured: front left—Mrs Emily Brinkworth and Mr Lloyd Johns, CFS Director with the perpetual 'Rex Brinkworth Memorial Trophy'.

Photo courtesy, Mt Barker Courier.



## PASSING OF AN ERA . . . ON PARADE

### Waikerie E.F.S.-CFS

Pictured left to right: 1924 Garford Hose Carriage purchased by the District Council of Waikerie in 1953 from the S.A.F.B. The appliance consists of a hose carrier, Jupiter trailer pump and a Chev motor placed on the rear of the appliance; Nissan Patrol vehicle (second hand), purchased and converted by CFS members in 1969; Dodge Truck bought in 1960 by the District Council of Waikerie, upgraded in 1971 and sold in 1980; International ACCO Fire Truck bought by service club and other community organisations in 1974 at a cost of \$16 000; International 1910 Unit purchased by council in 1980 for \$40 000. Believed to be the most modern unit at present in South Australia, it was designed by the Waikerie CFS members. (refer 'The Volunteer' Volume 8, page 42, 'NEW DESIGNED UNIT'.)

In the background is the Waikerie CFS Fire Station, built in 1973, opened by Police Commissioner H. H. Salisbury on 19 May 1974.

## Trophy to Honour CFS President

The dedication and contribution of a former president of Stirling CFS, the late Mr Rex Brinkworth, has been commemorated in a perpetual trophy. Mr Brinkworth for his long years of service to the Stirling CFS was made their first life chairman. The trophy is to be awarded for competition between the CFS and Industrial Fire Services, with which Mr Brinkworth had been closely associated.

## N.S.W. STATE DEMONSTRATION 20-25 OCTOBER 1980



Pictured left—Mr Michael Arnold (CFS Board Member, Waikerie, S.A.) was given the honour of presenting medals to winners of the N.S.W. State Demonstrations. One Man Hose and Hydrant winner (right) Captain Bill Pauls, Canowindra is being presented with his medal. Mr Michael Arnold and R.O. David Batten were guests of the Board of Fire Commissioners of N.S.W., at the Biannual N.S.W. Volunteer Fire Brigades State Demonstration, Tweed Heads.

All the twenty-one different events over the five competition days were held on one prepared track, making it easy for spectators to see and barrack for their brigades. Over 100 brigades and 1 000 fire volunteers participated.



# 1981 CFS ANNUAL COMPETITIONS NOMINATION FORM

Please fill in details on back of sheet and return this nomination form

To:

THE DIRECTOR  
COUNTRY FIRE SERVICES  
BOX 312, GOODWOOD  
S.A. 5034

**No later than 15 May 1981**

## CFS 1981 FIRE-FIGHTING COMPETITIONS

### DATES AND VENUE

Region	Date	Host Brigade	Venue
5	31 May	To be Advised	To be Advised
1	14 June	Athelstone	Foxfield oval
2	28 June	Salisbury	Salisbury oval
4	12 July	Napperby	Napperby oval
7	26 July	Paringa	Paringa oval
6	9 August	Rudall	Rudall oval
3	23 August	To be Advised	To be Advised
Finals	13 September	Adelaide Hills	To be Advised

You are cordially invited to enter teams from your brigade in the annual Country Fire Services Fire-Fighting Drill Competitions.

New brigades and competitors may obtain Drill Instructions by request when returning their Event Nomination Form (attached).

Elimination contests are arranged in each Region and the Finals will be conducted on Sunday 13 September 1981.

The travelling and accommodation expenses of Competition Liaison Officers and members of the winning "A" Grade Hose and Pump Drill event from each region are paid by the CFS Board whilst visiting Adelaide for the Finals and Conferences.



## 1981 CFS ANNUAL COMPETITIONS —NOMINATION FORM—

Please fill in and return the NOMINATION FORM to CFS Headquarters, Box 312,  
GOODWOOD 5034, NOT LATER THAN 15 MAY 1981

Brigade ..... Region.....  
DATE..... Signed.....

Please indicate by figures, number of teams, etc. competing in each regional event. If you require Drill circulars for the Competition events, please indicate by ticking the appropriate column.

### REGIONS

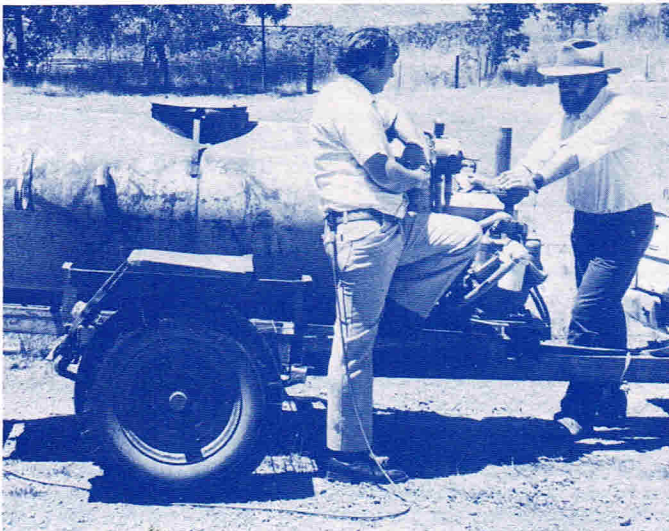
Events	1	2	3	4	5	6	7	Drill Circular Required (Tick)
"A" Grade Dry Hose and Wet Pump Drill								
"B" Grade Dry Hose Drill								
"C" Grade Hose Drill (Cadets and Ladies)								
Portable Pump Alarm Race								
One Man Hose Drill								
One Man Ladder Drill								
Three Man and Captain Wet Ladder Drill								
Best and Most Efficient CFS Appliance and Crew (State Title)								

**COMPETITION ASSISTANCE:** Please indicate where you can give assistance to the Competitions.  
\*Judges and Timekeepers: Please show Region Nos. and names for each individual event, where assistance can be given.

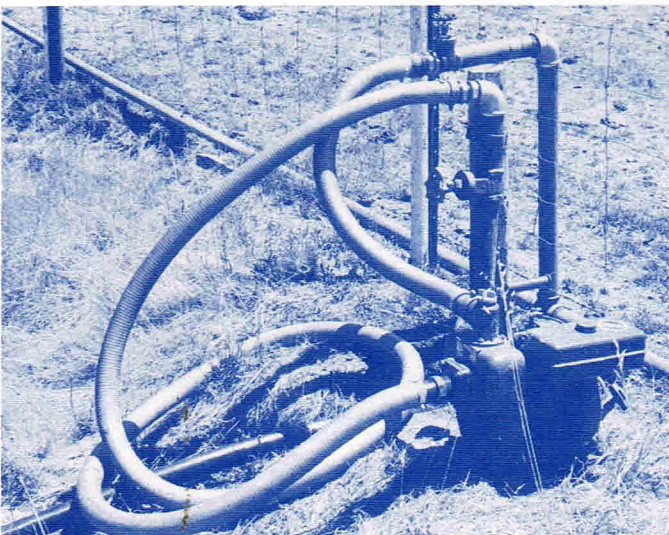
JUDGES	TIMEKEEPERS	REGIONS
"A" GRADE (Dry)		
"A" GRADE (Wet)		
"B" GRADE		
"C" GRADE		
P.P.A.R.		
1 M.H.D.		
1 M.L.D.		
4 M.L.D.		

## PROPERTY PROTECTION . . . ALL THE WAY!

During the production of a recent TV scatter 'Maintenance of Farm Fire Fighting Units', upon advice from Mr Ray Orr (Deputy Chairman CFS Board), it was discovered an enormous amount of work had been done by the farmer (featured in the TV scatter) in protection of his property.

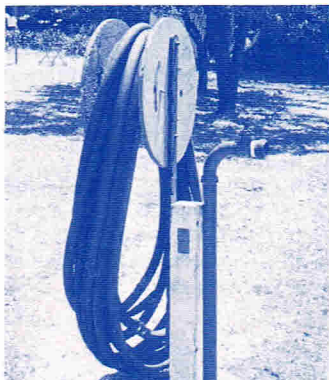


The farmer at Mount Barker, Mr Colin Perrott pictured above (right) checking over a farm fire fighting unit (shot from production of 1 x 30 second ABC TV scatter, with Mr Stuart Bray—left, ABC Rural Announcer and weather forecaster); has put a lot of insight and effort into protecting his property from the menace of bushfires. Details below:

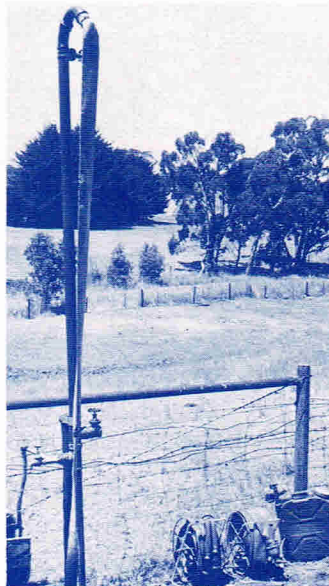


Mr Perrott has installed both an electric pump on one side of the house and a petrol driven pump (pictured) on the other side. Thereby even if the power is cut, acting on an alternative pressure system with the petrol driven pump, water can be pumped from the tank on the hill.

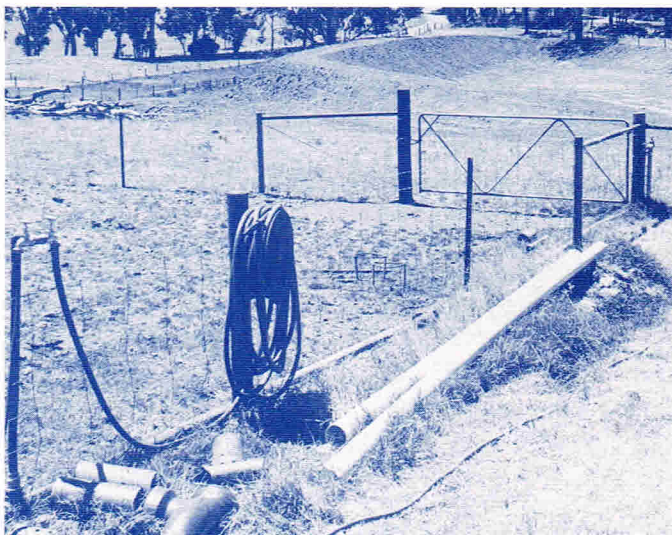
There are also two lines to the house, so if one line was to fracture you simply close that section off. This enables water to still circulate through the second line.



At a central position for all buildings and the house is a fixed stand pipe with a standard 2½ inch thread. When the pumps are operating, it has a capacity of 150 p.s.i.



Pictured is a fixed overhead standpipe—a quick filling point which, with the pump going delivers 600 gallons in two minutes to enable the farmer in the event of a fire to quickly fill both his own unit and refill CFS fire tanks. To the right is additional protection with extra hoses and a knapsack spray.



To cover the whole property 2 inch gate valves are set up at regular intervals, connecting hoses around the whole area. In the background is a dam completed in 1981 now waiting to collect the winter rains as an aid to future irrigation of the property and as a further fire protection measure.

## Council honours CFS worker

Victor Harbor councillors and Country Fire Services officers paid tribute to retiring CFS volunteer, Mr Rex Isaacson.

At an informal gathering at the Victor Harbor district council chambers, Friday, 11 November, the Mayor, Mr Cliff Thorpe, presented Mr Isaacson with a watch in appreciation for twenty-eight years of service.

Mr Isaacson has been associated with the service since 1952. He was appointed a fire control officer in 1954, deputy supervisor in 1959, assistant district supervisor in 1966 and district supervisor in 1967.

He became chairman of the Hindmarsh Ward Fire Fighting Association in 1965 and retired as chairman last year.

## New Brigade Units/New Fire Stations

**BUNBURY CFS**—Unit was commissioned 8.12.80 at Tintinara. Ex-Army International 4 x 4 truck fitted with a body, pump, and radio, under guidance of Coonalpyn Downs Councils' Works Supervisor Mr Brian White. Landowners in the 100th of McNamara raised \$3 000 by means of a special rate to help pay for unit. Coonalpyn Downs D/C granted remainder to purchase and fit the \$15 000 vehicle. Landholders served by the new brigade have offered donations. Until a new shed is built unit will be housed in Mr Batt's shed at Bunbury.

*What a creditable effort from a group of 12 'volunteers' who 'started from scratch' six months ago . . . Editor.*

**CARPENTER ROCKS CFS**—Fire Unit was purchased by Port MacDonnell D/C with a 50 per cent subsidy from CFS subsidy committee. The brigade was formed 15.12.80. A shed will be built on council land adjacent to the Carpenter Rocks Hall to house the \$5 000 fire unit.

**GLADSTONE CFS**—New \$600 trailer is for back up work. The trailer made locally contains fire extinguishers, hoses, a knapsack spray and ladder.

**HAMLEY CFS**—Have a home for their fire unit thanks to the Owen D/C who purchased allotments 23 and 22 containing a galvanised shed in Cooper Street, Hamley Bridge.

**HATHERLEIGH CFS**—No. 7 Unit commissioned 23.12.80, has a Gaam high pressure, high volume pump powered by 11 HP Briggs and Stratton motor. Pump and 500 gallon tank positioned to give freedom of movement all round. At rear two reels each 100ft x 1" hose for use on grass fires. For house, scrub and forest fires truck carries four lengths 100ft x 1 1/2" canvas hose. On a cab and chassis (ex Melbourne) the unit completed at Naracoorte cost \$22 000.

**IRON BANK CFS**—First fire unit received 14.11.80. At a total cost of \$18 500, people of Iron Bank provided \$3 800; Stirling D/C \$5 400; CFS H/Q \$9 250. Mr Bill Role donated land for the future CFS fire station. Stage 1 of the station would house two vehicles and cost \$25 000. A kitchen and crew room would be added later. A further \$1 500 was donated by Iron Bank residents from a Grand Fete 16.11.80, held in honour of the new Brigade.

*Such community spirit must be admired . . . Editor.*

**MILLICENT CFS**—Commissioned their fully equipped Emergency Rescue Unit Trailer.

**MONASH CFS**—Have purchased a new MK 200 Gaam pump.

**NAPPERBY CFS**—Will retain old fire truck as a back up unit for new \$25 000 unit. The Brigade will be entirely responsible for the old truck's maintenance and running costs.

**NURIOOTPA CFS**—A specially constructed Foam Unit commissioned 24.11.80 is for fighting 'Spirit Fires'. Unit comprises of a tandem trailer which carries five (5) drums of special foam, plus mixing equipment. A committee of twelve Barossa Valley wineries donated the mobile unit to the Nuriootpa CFS. Demonstration of the new type foam extinguished a blaze within seconds.

**ONE TREE HILL CFS**—Cab and chassis purchased by Munno Para Council needs to be equipped. \$4 500 will be required (from fund raising) to equip the new four wheel drive vehicle.

**ONKAPARINGA APEX CLUB**—Donated \$250 towards a new \$40 000 fire fighting unit. Work will shortly begin on building up an International ACCO 4 x 4 cab chassis recently purchased.

**PARAWA CFS**—Commissioned the \$20 000 International 4 wheel drive vehicle during a recent Fire Control Officer's school at Yankalilla.

**PORT LINCOLN CFS**—New \$34 000 high speed combination bush/town vehicle, has a crew of eight, carries breathing apparatus and foam making equipment. The International vehicle powered by a V8 motor embodies high protective sides for the crew. Water carrying capacity is 620 gallons for grass fires. Unit can also connect to E. & W.S. mains to fight home fires and can boost mains pressure through hoses and pump.

**RIDLEY LIONS CLUB**—Raised \$1 400 from a village fair to support Cambrai, Sedan and Swan Reach CFS units.

**ROBE DISTRICT COUNCIL**—New 5 1/2 to 6 1/2 tonne International will back up the Toyota Land Cruiser. Units stationed at Greenways, Bray and Robe bring the total to four, plus several tank trailers setup at strategic points.

**TATIARA F.F.A.**—Commissioned two units and officially handed over a new truck to Western Flat CFS 23.11.80, and a trailer unit to Laffer CFS 16.11.80. These units have since seen duty on a number of occasions.

**VIRGINIA CFS**—Opened new \$40 000 Fire Station 23.11.80. Building capable of housing up to four large vehicles. Features modern kitchen, toilet facilities, meeting room and office. Alarm system automatically raises the garage doors and switches on all the lights. Local ratepayers donated \$8 000 to build the new station.

**WOOLUMBOOL CFS**—Received new \$17 000 fire truck from Lucindale District Council, under arrangement that Council provides new truck to district brigade every two years. The truck is ex-Government from Melbourne, equipped by A. J. Stock and Co.

## New Communications Equipment

**BALAKLAVA CFS**—Purchased portable radio for additional communication at fire scene. Radio with battery charger cost \$850. Funds donated by Balaklava Community Service Organisation and subsidy.

**GLENCOE CFS**—Will purchase and install a \$1 100 base station radio to improve communications with other units.

**GOOLWA CFS**—Presented with special portable high frequency radio by Goolwa Apex Club. Funds for \$500 radio raised from local barn dance.

**KINGSCOTE DISTRICT COUNCIL AND CFS**—Have installed new 148ft. tower, cost \$6 300 on original site north of Kingscote. Jointly owned by St John, District Council Kingscote, CFS and Fleet Press, the new tower gives the Emergency Services a cover of 95 per cent of Kangaroo Island.

**MELROSE CFS**—Five solar panels are to be mounted near the Mount Remarkable peak to increase power to the CFS transmitter site. The fluoro-cell batteries would hold enough power to allow the transmitter to be extensively used during night fires. Traeger Transceivers will install system for \$2 200; panels and batteries will cost \$4 200.

**MOUNT REMARKABLE N.P.**—Will soon have a 12 m fire surveillance tower at a cost of \$4 000, in a 710 m summit. It will contain plotting equipment, radio facilities and it will be manned continuously in times of extreme fire danger and electrical storms, to monitor fire outbreaks from Port Germein to Horricks Pass.

**PADTHAWAY AND MARCOLLAT CFS**—Brigade's new U.H.F. radio which has alleviated congestion in the station's control room will enable direct communication with farm units, a number are fitted with U.H.F. radios. Radio was purchased and installed for \$550. The V.H.F. radio will continue to be used for communications between fire crews and Bordertown Headquarters.

**RENDELSHAM CFS**—Received new Mark II fire alarm system from Millicent District Council. This system allows all phones to be connected into one circuit. The station's siren is activated by one of the F.C.O.'S pressing a button on his phone.

**STIRLING NORTH CFS**—Have purchased a personal paging system. Consists of one base unit, connected to the V.H.F. base radio and ten personal 'pagers' for \$4 500. Financed solely by members over three years, the system is considered the most sophisticated made by Motorola. It can monitor the V.H.F. radios in fire trucks, and has a 'paging' distance of 20 km. It will be used in conjunction with the multi-phone link up, and siren.

**SUMMERTOWN CFS**—New siren tower is an imposing 21 m high structure which cost \$3 320. The siren is located inside the tower. It can be lowered by means of a pulley system, for maintenance or repair purposes.

**TWO WELLS CFS**—Have installed a new fire siren at their station. The siren cost \$1 200 and transmits a louder signal to call volunteers.

## Blue Print for Hills Fire Safety

The Stirling Council have under the guidance of Fire Supervisor Graham Thiem taken preventative measures to help prevent another 'Ash Wednesday' and control fires throughout the district; by drawing up a 'Blue Print for Fire Safety'.

Mr Thiem explained the steps taken—

- 'Erection of signs to indicate emergency water supplies.
- Supply of standard fire brigade fitting for water supplies.
- A map is being printed in street directory form showing the location of water supplies, fire sheds and fire access tracks.
- People in areas not connected to mains water are being encouraged to make available their large water storage facilities for emergency use. The Council would supply a standard S.A. Fire Brigade Fitting to ensure water could be tapped quickly in an emergency.'
- 'A number of residents have already come forward,' he said.
- 'Signs will also be placed near roadsides indicating the nature and direction of the water supply.
- The annual program of roadside mowing has been stepped up.
- Council has also increased its fire fighting capacity. There are now four fire tenders all with modern fire equipment, plus a 12 500 litre tanker, and a new 4 500 litre tanker fitted with a high pressure hose for use independently as a fire unit, said Mr Thiem.'

## 25TH ANNIVERSARY FOR UPPER STURT

Two members of the Upper Sturt CFS were presented with life membership during the 25th Anniversary celebrations, Mr Don Slater and his aunt, Mrs Betty Slater.

### CERTIFICATES

The Director of Country Fire Services Mr Lloyd Johns also presented the captain of the Brigade Mr Lindsay Petersen with his 20 year service certificate.

Ten year certificates were received by Messrs R. A. Armour, J. A. Farlam, R. W. Slater, A. McGough and J. Van Der Meer.

Members of the women's auxiliary who obtained 10 year certificates were Mrs P. M. Armour, C. F. McGough, H. Petersen, C. D. Slater and E. Farlam.

### IMPORTANT ROLE

Speaking at the 25th Anniversary celebrations of the Upper Sturt CFS Mr Johns

discussed the increasing risks taken by Hills Brigades and said, 'The Upper Sturt plays an important and vital part in the fire fighting task force in one of the serious fire prone areas in South Australia.'

### HISTORY

The first meeting to discuss the formation of the Upper Sturt CFS was held in 1956. The first uniforms were issued in October of that year and in 1958 the first part of the shed was built. A truck belonging to Mr Lindsay Petersen's father was used as the fire unit for the first twelve months.

Over the past 10 years the district has changed from a predominantly rural to mainly a residential area, thereby placing even more responsibility on the Upper Sturt CFS and its members.



### ASH WEDNESDAY

Action in the Ash Wednesday bushfire, Wednesday 20 February 1980, resulted in extensive scorching of the present Upper Sturt CFS unit (pictured above), and some tense moments for the brigades fire fighters.



Betty Slater and her nephew Don, receive congratulations from other members of the Upper Sturt CFS upon receipt of their life membership certificates. With them are (from left) Rodney Slater, Alan McGough; Les Petersen, Lindsay Petersen and John Petersen.

Photo by courtesy Mt Barker Courier

## Carey Gully celebrates 25 years of CFS

**On Friday 5 December 1980, Carey Gully CFS celebrated its 25th birthday, but for one member at least the story of fire fighting in the area goes back a lot further than that.**

Don Driver helped to fight his first fire when he was nine—and he's been fighting fires ever since—and he's now sixty-two.

Long before the CFS was formed, property-owners would work together to help each other keep their properties clean, burning off at the right time of year to try and prevent the big bushfires.

'In those days, we just had 44 gallon drums on the back of our truck. Hand pumps and knapsacks were all the equipment we ever had!'

Gradually, the property-owners around the district got together and decided to form a fully-fledged brigade—but there were no funds available as there are today.

One of Carey Gully's first units was nicknamed 'Old Stumpy' and cost \$200. It lasted well until about 1970 when members felt the need for a bigger unit.

Starting with a cab chassis, the men built up the body-work themselves.

Don and the crew are proud of the fact they designed it themselves and it is well adapted to the conditions in the steep terrain around Carey Gully.

Carey Gully CFS, like others in the Hills, are conscious of major changes which make fire-fighting more difficult.

'At one time, every property-owner would look after his place and keep it clean' Don Driver said. 'Now, a lot of people want gums right up to the house and don't clear the undergrowth.'

'Market gardens acted as a tremendous fire break—but there aren't so many now as people are moving into properties and letting them revert to natural scrub.'

'What's more, many of the men work away from the district, and aren't always around when the siren goes,' Don pointed out.

Three of the men who formed the unit back in 1955 and who are still active members, were presented with foundation and life member certificates.

They are Messrs. Don Driver, Ross Badenoch and Vern White.

Two members who have 24 years service, Messrs Gordon Badenoch and Norm Liebelt, were also made life members of the CFS.

The chairman of East Torrens District Council, Mr H. J. Wotton, congratulated the unit on reaching its 25th anniversary.

He paid tribute to those who had the foresight to form the unit and all those who had worked for it over the years.

Mr Lloyd Johns, director of CFS, spoke of the role of the CFS in the community and the need for constant vigilance.

Mr Johns then presented service certificates and chevrons as follows:

Foundation and life members certificate: Don Driver, Ross Badenoch, Vern White.

Life members certificate: Gordon Badenoch, Norm Liebelt.

10 year service: Trevor Burgemeister, Phil Wotton, Peter Driver, Mel Elliott, Neil Badenoch, John Woolcock, Des Ford.

Four chevrons: Trev Elliott, Dean Liebelt, Mike Keogh, John Little, Chris Herriot.

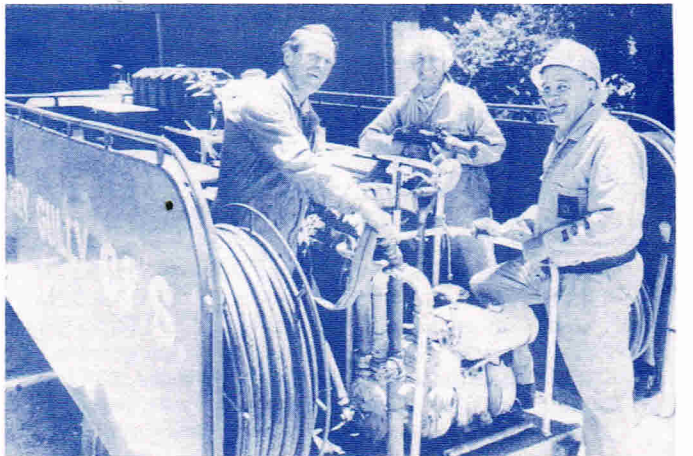
Three chevrons: Richard Temple, Paul Bean, Jack Bateman.

Two chevrons: Paul Liebelt, Ian Badenoch.

One chevron: Andrew Keogh, Terry Jackman, Mike Petty.

Guest speaker for the evening was Mr Len Beadell, well-known surveyor of the Woomera Rocket Range, Gun Barrel Highway, etc.

His stories of life in the bush, illustrated by slides kept the crowd enthralled for well over an hour.



Three of the stalwarts of Carey Gully CFS (from left) Messrs Gordon Badenoch, Vern White and Don Driver. Another foundation member, Ross Badenoch was unable to be present for the photograph. The well designed unit they have now, and the new fire station, are a far cry from equipment they started with.

photo courtesy Mt Barker Courier.

## EMPLOYER RECOGNITION BY CFS BOARD

The Country Fire Services Board is to recognise the community spirit displayed by employers who allow their employees (as members of the CFS) time off to answer call-outs to fires and other emergencies.

CFS Director, Mr Lloyd Johns, said a special certificate was being designed for presentation to these employers, as a token of the Board's appreciation.

'For the CFS to be successful as a volunteer service, it owes much to the community at large, and to those employers, in particular, who allow and encourage their employees to become involved in fire-fighting activities,' Mr Johns said.

'This co-operation by employers is often at great expense to them and their businesses as the call-outs can mean interruptions to production and other work-day activities.

'When a major fire or other emergency occurs, the time of any call-out can extend from an hour or two to one or more days, and we gratefully acknowledge the help given to our volunteers by their employers,' the Director added.

The certificates are expected to be ready for presentation later in the year.

### Booborowie Fire Supervisor Commended

Director,  
Country Fire Services.

Dear Mr Johns,  
I refer to the bushfire which took place between Booborowie and Hallett on the night 25/26 January 1981, and in which this Society was involved later in the treatment of injured stock.

The Society would wish to commend to you the conduct of the Booborowie Fire Supervisor, Mr Angus McInnes.

On the R.S.P.C.A. Group's arrival in the fire area, it was met by Mr McInnes who supplied a concise and accurate assessment of casualties, which he had gained from his air reconnaissance. He continued to supply accurate and timely information to the Group throughout the operation. Members of the Group were greatly impressed with Mr McInnes tireless and good humoured efficiency which contributed greatly to the speed and humanity with which the destruction of the badly affected stock was carried out.

It is a matter of some remark that the clearing of some 2 500 sheep casualties from a widespread fire could be completed within twenty-four hours of the start of the fire. The com-

munity spirit of the stock-owners involved in dealing with the injured stock deserves much praise, but the Society believes that it should make especial reference to Mr McInnes' excellent work in liaison and co-ordination of activity.

Yours sincerely,

M. J. HARRIES,  
Secretary

Mr. A. McInnes  
Fire Supervisor  
Booborowie

The congratulations of the Country Fire Services Board are also extended to you for the manner in which you supervised a dangerous and very costly situation.

Through the efforts of persons like yourself, the South Australian Country Fire Services will continue to give loyal and devoted service in the interests of this State.

Yours faithfully

Lloyd C. Johns,  
Director,  
Country Fire Services.

### PETROL VAPORISATION IN SPARK IGNITION ENGINES

Petrol may 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 recirculate 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 the mechanical pump where applicable. The electric pump should be of a solid state design to eliminate the possibility of contact breaker failure

resulting in pump failure.

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.

Figure II the restriction should let a litre of fuel per minute return to the fuel tank, therefore a 1.5 mm hole would be sufficient.

Fuel pumps on trucks should supply at least 2 litres per minute at approximately 50 kPa.

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.

FIGURE I AND II

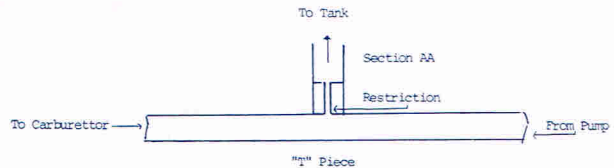
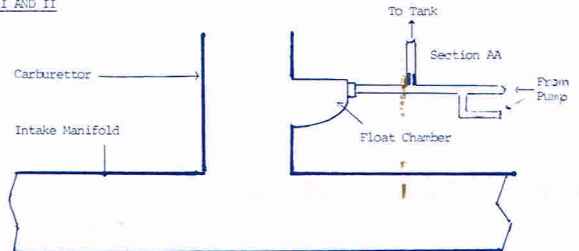
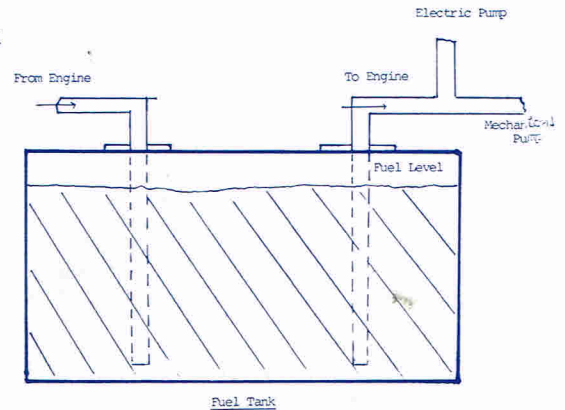


FIGURE III



### IMPORTANCE OF FIRE REPORTS

The media can only report to the general public daily information on the 'Fire Reports' received into CFS H.Q.

Credit and personal sacrifice by Volunteer fire fighters and brigades cannot be acknowledged unless we at CFS H.Q. are advised of 'All the fires, or callouts' that brigades attend.

It is only through receipt of accurate fire reports that statistics can be tabulated for future reference in determining probable causes of fires and problem areas. Promotion of correct fire prevention messages from known problem causes is equally important, in order that the public is made more aware of the fire causes and heeds the correct warnings.

By constantly promoting the service the CFS Volunteer fire fighters provide the S.A. community, people are now becoming more appreciative of the role of the CFS Volunteer fire fighter, which in turn may help to reduce the pressure placed on the CFS brigades, through less incidence of fire.



## Fire causes . . . Many and varied . . .

- Burn offs—fires that get out of control on properties are a constant worry to the CFS.
- Car—burnt out 350 ha grass, 6 km fencing; Greenways, S.E.
- Car—guttled by fire, \$2 000 damage; Mt. Barker.
- Car—overheated, started grass fire; Clare.
- Caravan—lost wheel, sparks from axle caused fire, 80 ha pasture, 20 ha scrub and fencing destroyed; Kingston.
- Children—matches started grass/stubble fire; Bordertown.
- Cigarette—smoking in bed resulted in 25 per cent of domestic fires in dwellings. (AFPA statistics).
- Cigarette—caused \$2 500 damage to home; Gorgetown.
- Deliberately lit—2 small fires burnt 7 ha; Belair Recreation Park.
- Dump—rubbish caught alight; Padthaway.
- Dump—fire erupted in rubbish; Halbury.
- Electrical—fault destroyed home; Kingston.
- Electrical—short circuit, fire destroyed holiday home; Pt. Elliot.
- Gas Fridge—exploded destroying 20 ft caravan; Gawler River.
- Header—fire destroyed 20 ha wheat, oat stubble, 100 bales of hay; Stewarts Range. (faulty sprocket caused bearing to overheat).
- Lightning—started in excess of 23 fires in South East and South Western Victoria. Destroyed stock, property, fencing, pasture and injured fire fighters.
- Rubbish—illegally discarded started dump fire; Saddleworth.
- Slasher—started fire, destroyed 100 acres grassland; Kenton Valley.
- Spontaneous Combustion—resulted in a dump fire; Auburn.
- Super Spreader—electrical fault caused fire, 120 acres stock feed lost; Kapunda.
- Tractor—short circuit caused grass fire; Chandlers Hill.
- Truck—electrical fault started grass fire, 14 ha grass/crops lost; Keith.
- Truck—prime mover blew tyre, caught fire spread to diesel fuel, truck lost \$50 000; Eyre Highway.
- Truck—electrical short caused \$9 000 fire damage, hay shed, hay and truck all destroyed; Bethel.
- Washing Machine—electrical fault caused fire damage to house; Cleve.
- Youths—(3) lit 'fire on total fire ban day', Langhorne Creek Dump.

*The above fires are only a few of hundreds the local CFS volunteers have attended, and spent many many hours of their own time and energy using their skills to save lives, homes, crops, property, stock and other assets from such fires.*

*Fires that in most cases could otherwise have been prevented or lessened had the people responsible checked and maintained their equipment more thoroughly, and had handy the necessary fire fighting equipment.*

### 16 February 1981

#### 'Hottest Day for 33 years'

Adelaide, S.A., had its hottest day since 22 January 1948 when temperatures reached 43.4°C (110.72°F) at 1545 hours (3.45 p.m.). All S.A. Country Centres sweltered. The maximum S.A. temperature was 47° at Marree in the Far North.

Country Fire Services H.Q. operations room reported a 'fairly quiet day' with grass fires at Mount Gambier and Port MacDonnell (South East); Happy Valley, Bridgewater, a house fire at Belair and a rubbish dump at Nuriootpa.

#### 16 FEBRUARY 1981

WERE THERE ANY FIRES YOUR BRIGADE ATTENDED ON THAT DAY, OR SINCE?

WERE THE FIRES/CALLOUTS REPORTED TO CFS H.Q. CONTROL CENTRE AND FOLLOWED UP ON A FIRE REPORT FORM?

## Police patrol Hills for arsonists

### S.A. police are patrolling the Adelaide Hills to detect bushfires and watch for arsonists.

The patrols, which started on Christmas Day, are part of a joint Police-Country Fire Services 'fire alert' program to combat bushfires.

Two four-wheel-drive vehicles, each with knapsack sprays and a car fire extinguisher, are being used.

Each is driven by a member of the Star force who contacts the CFS on entering the Hills.

After that, they are in contact with the CFS through the Police communications centre.

The acting officer-in-charge of the Star force, Sergeant Duncan Smith, said the patrols would investigate people acting suspiciously or vehicles in high risk areas and watch for fire ban breaches.

All Star force members had

been trained in firefighting by the CFS and S.A. Fire Brigade. At least nine were on standby to help at bushfires.

On days when the temperature exceeded 30°C, two blue police cars with Star Force members joined the patrols.

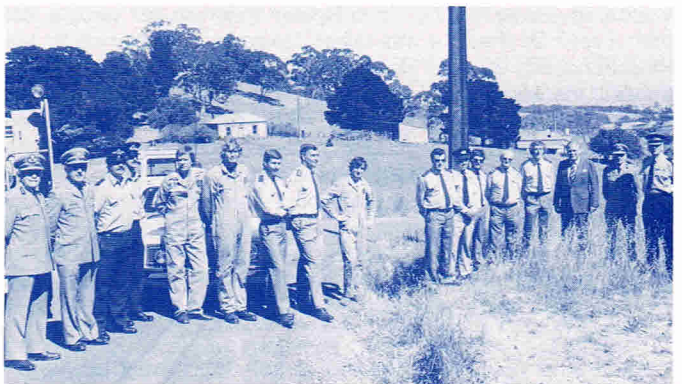
The patrols covered the council areas of Munno Para, Tea Tree Gully, Gumeracha, East Torrens, Stirling, Meadows and Mitcham.

The patrols had extinguished small fires on roadsides and small properties, but this was not its main role.

Farmers and landholders had praised the patrols and said they were relieved to have them in their area.

The patrols would continue until 31 March, but this could be extended depending on the weather.

**A television advertising campaign would be part of the fire alert.**



South Australia's Premier Mr Tonkin (pictured 3rd from right), selected Emmett Road, Brown Hill Creek as the venue for his media release announcing the joint Police—CFS 'Fire Alert' program.

Brown Hill Creek was the scene of the recent 2 day 'Hills Bushfire', Wednesday 10 December 1980.

In attendance at the 'Fire Alert' release were representatives from the Country Fire Services Headquarters, S.A. Police Force and members of the Belair and Aldgate CFS;

#### OPEN INVITATION TO ALL CFS MEMBERS

You are cordially invited to attend the  
**"1st TRADE DISPLAY OF FIRE EQUIPMENT"**

to be held in Australia, at

Country Fire Services Headquarters  
20 West Beach Road, Keswick, South Australia  
on Friday 15th May 1981—at 10 a.m. to 10 p.m.

30 Companies will Exhibit a wide and varied range of Fire Fighting Equipment along with 2 new design CFS Fire Appliances, the B1 and B3 Series units. These are available for your inspection.

Light refreshments will be served.

For further information please contact R.O's  
R. Gear, or D. Batten. Telephone (08) 297 6788.

**See you there!**

# The Effect of Heat and Smoke on the Human Body

By Mr A. Murray Clarke  
Consulting Surgeon  
Royal Children's Hospital, Melbourne  
A paper presented at the AFPA Fifth National Conference on Fire, June 1975

Comprehensive and detailed national and worldwide statistics are not available but we know that not an hour passes without someone, somehow, somewhere in the world being killed, injured, maimed or mutilated because his clothing or other fabrics have caught fire. Burning bedding constitutes a danger that we must rate next to that from burning clothes, but which has been widely disregarded in the past. Bedding fires often produce thick smoke which tends to precipitate and disastrous panic particularly in hotels, homes for the aged and the like. Smoking in bed is the cause of many of them. Occasionally an electric blanket is the cause.

In children the combination of clothing, flammable fluid (petrol, kerosene etc.) and a barbecue, incinerator or matches is real danger.

There have been numerous disastrous accidents with fire which have become world news and many lessons can be learned from them as regards what constitute hazards in buildings and furnishings. They show how for various structural reasons some places become death traps, and how safety regulations can be formulated to lessen the risk of serious conflagrations with loss of life.

One such famous fire was that which occurred at the Cocoanut Grove Night Club in Boston in which 491 people lost their lives. Of the 114 casualties taken by ambulance to the Massachusetts General Hospital only 39 lived long enough to be treated, the rest died on the way or a few minutes after arrival. Of the 39 only 3 were entirely without symptoms that showed their lungs had been damaged. Only a small proportion of the victims had extensive burns which would have killed them. I mention this to emphasise that where as your first thought may be that the effect of burning is on the skin, causing all grades of burning from blisters to charring and sometimes resulting in death, in actual fact in large fires and those in a confined space the lungs are most affected, and I would like to dwell on this aspect in some detail.

Another famous fire occurred at the Salt Lake City Airport when a Boeing 727 Jet Liner crashed. There were 91 persons on board and 43 persons lost their lives yet on impact there were no fatalities. This crash was described by the Civil Aeronautic Board as 'Survivable' which means that the forces encountered did not extensively disrupt the structural integrity of the cabin and cockpit and cause incapacitating injuries to passengers. The fatalities were all a direct consequence of the fire and resulting smoke and toxic fumes.

The majority of land and take-off accident victims die as a result of asphyxiation, exposure to lethal concentrations of toxic products of combustion, or from being burned by body contact with the flame source.

Research has been done in simulated aircraft fires—the human tolerance limits which could prevent an occupant escaping through his own efforts has been defined as:

1. Unbearable pain due to exposure of the skin to great heat.
2. Collapse due to inhalation of carbon monoxide.
3. A momentary exposure to an air temperature of 390 degrees fahrenheit as a respiratory limit. Mercifully the conditions in a severe cabin fire cause death within a few seconds.

The effect of heat and smoke on the lungs is therefore very important.

In our own practice and in most domestic accidents extensive burns affecting the face are the result of clothes being set alight from unguarded fires or by children playing with matches and not from people being trapped in burning buildings. We had a horrible case where a child was playing with others and climbed into a receptacle for waste paper which somehow was lit. The exact way this accident happened was not determined. There

have also been a number of children who have set alight to themselves inside a locked car.

Usually our victims run around breathing normal air until the flames or burning clothing have been extinguished. However with face and upper trunk burns, lung damage must always be suspected. Suspicion is aroused when the burns have been sustained in a closed space, when there are flames burns involving the nose and mouth and when the hairs in the nostrils have been singed.

Quite a lot of research work has been done on rats and this has shown that smoke and humidity are important as temperature in causing pathological changes in the lungs.

This shows itself clinically in three stages. First, there is shortness of breath and difficulty in breathing. This is followed by pulmonary oedema or a flooding of fluid into the lungs with the patient drowning in his own secretions, and swelling of the lining of the windpipe and lung passages so that the patient is unable to get enough oxygen and is asphyxiated.

Later if the patient survives he is liable to succumb to bacterial invasion of his lungs and pneumonia.

The practical application of this is that by covering the face with a wet cloth pulmonary injury can be reduced. The 3 survivors of the Cocoanut Grove disaster who sustained no damage to the respiratory tract had done just this.

Smoke from burning wood, cotton, paper or plastics contain toxic products including carbon monoxide, hydrogen cyanide and a number of organic irritants.

The smoke may do damage both from its heat and from the organic irritants.

Also dense smoke can irritate the eyes and obscure vision so that the victim cannot locate and control the source of the fire, and cannot see to escape in time to prevent exposure to the lethal concentrations of toxic fumes.

Both hypoxia (that is lack of oxygen) and carbon monoxide and other gases affect the escape response so that the victim may be found dead in circumstances where escape was quite practical. This is particularly so where long periods of smouldering have gone on from cigarette ignition of mattresses or furniture.

The effect of lack of oxygen is progressive lassitude, somnolence lack of motivation and faulty judgement as well as lack of control and muscular activity. It can also lead to coma and permanent brain damage.

continued page 28

## HOW TO MAKE THE 'FIRE ALERT' TV SCATTER. (Helicopter/Police Smoke Spotting Patrol)

### The Ingredients:

- TAKE**
- A large contingent of Salisbury and Northfield CFS members with 2 fire units.
  - 1 State Planning Authority Fire Unit with 2 members.
  - 2 four wheel drive Police patrol vehicles, 1 blue police sedan with men of the Police Star Force.
  - Wales State Rescue helicopter.
- and
- 1 Standard privately owned vehicle (arsonists vehicle).
- ADD**
- 1 TV cameraman, 1 TV producer (John Francis, SAS Channel 10 TV) and a television script ...  
Film the scripts sequences (refer 30 second TV script CFS/BF9/81) ... and develop film.
- MIX WELL** ... then,
- STIR** In some graphic fire film footage ... and edit film.
- THE RESULT** 1 × 60 second and 1 × 30 second 'FIRE ALERT', helicopter Police smoke spotting patrol TV commercials (scatters).

# 'FIRE ALERT' TV SCATTER

VIDEO

AUDIO



Helicopter on 'Smoke Spotting Patrol'.



Arsonist spotted lighting a fire.



Arsonist leaving fire scene.  
Following police pursuit, suspect is apprehended and questioned.



Arrival of CFS Brigade (Salisbury CFS), with helicopter hovering over fire scene.

CONTROLS ON THE LIGHTING OF FIRES IN THE OPEN, CAMPFIRES, BARBECUES AND INCINERATORS ARE NOW IN FORCE.

HELICOPTER AND LIGHT AIRCRAFT SMOKE SPOTTING PATROLS WILL BE ALERT FOR PEOPLE WHO DO NOT OBSERVE THE FIRE LAWS . . . AND WILL DETECT WOULD BE ARSONISTS.

BEWARE . . . SPECIAL POLICE PATROLS WILL INVESTIGATE ANY SMOKE SIGHTINGS OR FIRES . . . PERSONS BREAKING THE LAW CAN BE FINED A MAXIMUM OF \$1 000.

ARSONISTS DETECTED COULD BE GAOLED FOR LIFE.

FIRE BAN INFORMATION IS AVAILABLE FROM YOUR LOCAL DISTRICT COUNCIL OR CFS HEADQUARTERS 24 HOUR INFORMATION SERVICE.

HELP US TO PREVENT BUSHFIRES.



CFS Volunteer Fire Fighters in the 'Eye' of the SAS10 TV camera, extinguishing the grass fire.

## The effect of heat and smoke—continued

The gas which produces the most deaths in real fire situations is carbon monoxide. Carbon monoxide has the property of combining with haemoglobin to form carboxy haemoglobin displacing oxygen so that haemoglobin can no longer carry oxygen to the tissues and in particular to the brain. In sufficient concentration carbon monoxide will give collapse followed by coma, intermittent convulsions, depressed heart action and respiratory rate and death.

The coming of the plastic age with newer synthetic man-made materials for practically all types of products including clothing, household furnishings and various types of building materials has increased the danger of possible toxic effects from the degradation and products of combustion.

The hazards of fire from a plastic material was strikingly noted in the Cleveland Clinic fire (1929) in which X-ray films composed of the highly combustible nitrocellulose caught fire and brought death to 125 persons. Deaths were not due to the fire directly but due to the production of carbon monoxide and nitrogen oxide.

Let us turn to the effect of heat on the skin.

The skin is the largest organ in the body and its important functions are temperature control, water control and protection from the entry of bacterial organism into the body. These are the reasons why we cannot survive without skin.

The temperature control is illustrated by the fact that animals with much skin loss lie in the state of hypothermia or exceedingly low temperature and there is the classic case of the boy gilded all over to represent an angel for the coronation of Pope Leo X who died in a high fever. In recent times the same thing has happened to others such as chorus girls who have been painted all over with a non-porous material.

Water loss in badly burned patients has been estimated at 10 litres a day.

The importance of a break in the skin for bacterial invasion is obvious to all—septicaemia is, after burns shock, the commonest cause of death in burns unless adequate precautions are taken.

The skin consists of 2 zones.

- A. The outer zone or epidermis which consists of many parallel layers of cells. Because of these many parallel layers we are able to split the skin with a skin grafting knife and use layers of varying thickness to cover the burn wound.
- B. An inner zone or dermis overlying the fat or subcutaneous tissue. This consists of felled connective tissue with a varying number of elastic pores and numerous nerves and blood vessels. Through this pass the skin appendages—hair follicles, sweat glands and sebaceous glands. These are most important from the point of view of healing in burns and other wounds because they have numerous epithelial cells which can multiply under suitable conditions closing the breaks in the skin without requiring skin grafting.

The depth of the burn is determined by four factors:

1. The degree of heat.
2. The time the heat is in contact with the skin. The heat penetrates the skin and can destroy the deeper cells—that is why cold water should be used as a first aid—to as quickly as possible reduce the temperature of deeper cells.
3. The part of the body in contact with heat.
4. The age of the patient.

The skin on a sunburned working man's forearm is much tougher and thicker than the skin of a very young child. That accounts for the surprising damage that even a cup of tea can do a toddler's skin.

The physiological reaction in the skin to heat is first of all a dilation of smaller blood vessels. This results in an increase of blood to the part, more and more blood being pumped in. As this

phenomenon continues, the blood vessels become so engorged that the blood flow first slows down and then ceases with the result that oxygen can no longer be carried to the part and the cells die.

Sometimes the heat itself has just killed the cells of the skin and also the secondary skin appendages. Apart from the area of skin destroyed the severity of the burn depends on the number of cells destroyed and on how many epithelial cells are able to survive and multiply.

Sometimes there is complete destruction of the epithelial elements of the skin and it can go deeper destroying fat muscle and even bone. Unless these burns are small enough to heal in from health skin on the sides they will require skin grafting to close them.

The appearance of a typical deeper burn shows three areas:

1. A central position which is white (or brown is burned by flame) which indicates coagulation of the skin. This is dry and quite insensitive to pin prick. It may even have a waxy mummified appearance where the fat has disappeared and small clotted vessels can be seen shining through.
2. A surrounding portion which is purplish or dark red where circulation is very sluggish. This circulation can either cease with resultant death of tissue or occasionally can improve.
3. An outer portion which is very moist and bright red but blanches on finger pressure and is sensitive to pin prick. This area should heal in about ten days.

Most burns are a mixture, superficial and deep, and areas described above may be quite small so that the whole burned area may have a mottled appearance. Eventually the patient must be covered with his own living skin—it may either have grown in from the sides of the burn or from islands of epithelial tissue such as from sweat glands of hair follicles, or it may have been placed on in the form of skin grafts.

However one of the greatest and most dramatic advances in treatment in recent times has been the use of temporary biological dressings. These consist of skin grafts cut either from living human donors usually relatives, or taken from people who have died from accident or old age or from animals such as pigs. These skin grafts may be used freshly cut or may be freeze dried and stored for months before use.

They all take equally well and can be used like the patients own skin except they are temporary.

Topic courtesy 'The Fireman'—Operations Supplement, February 18 1976

## Edinburgh Unit Commissioned—continued



The Ladies Auxiliary and members of the local community treated the guests to a superb luncheon. Congatulations to the women, . . . there is nothing better than 'country fresh' food.

# World trends in the use of halons

(PART III)

continued from part II, The Volunteer Vol. 7, October 1980

## COMPACTNESS OF HALON 1211

The high liquid densities of Halons 1301 and 1211 result in a dramatic reduction of storage space requirements for systems using these agents compared to those using, for example, CO<sub>2</sub>. A Halon 1301 system will require about one-fifth the storage volume of an equivalent CO<sub>2</sub> system. In this respect Halon 1211 has a liquid density higher than 1301 and hence requires even less storage space than does 1301. This increased compactness of Halon 1211 is most advantageous in hand appliance, where the physical size, as well as the weight of the appliance, influences its handling characteristics. In fixed industrial and commercial systems, the small differences in storage between Halon 1301 and 1211 is seldom of paramount importance.

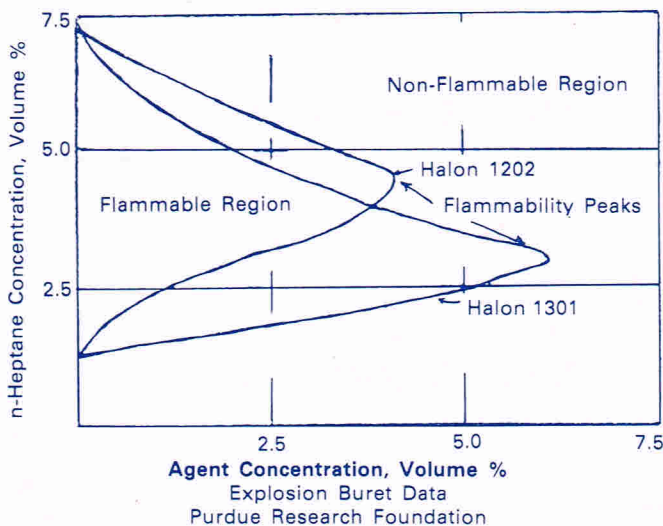
It can also be seen that the values for heat of vapourisation are not significant enough to play an important part in extinguishment by cooling.

The vapour pressure of Halon 1301 at normal temperatures is sufficient to expel the agent from storage containers. This has the disadvantage of requiring much heavier hardware, which is particularly significant in portable appliances. In practice, 1301 systems are pressurised to higher levels in order to reduce the variations in pressure resulting from temperature changes. Such pressure variations would result in widely differing discharge rates. The heavier hardware required, coupled with poor throw from the nozzle are debilitating factors in the use of 1301 for portable extinguishers.

There are many means of evaluating the effectiveness of a fire extinguishing agent. These methods range from laboratory studies under carefully controlled conditions to fire tests on various so called 'standard' type fires. Both methods have their merits and also severe limitations.

Over the years, refinements of laboratory techniques have enabled values to be calculated for extinguishing agents over a wide range of flammable liquids. In the case of our halon agents (and, of course, the other vapourising agents) the term 'peak flammability' assumes some significance. The peak in flammability is that minimum volumetric concentration of the agent at which no mixture of fuel and air is flammable. The graph shows how the flammability peaks arise using an explosion buret technique<sup>12</sup>.

## FLAMMABILITY CURVES FOR HALONS 1202 AND 1301



## FLAMMABILITY PEAKS

Halon Name	Vol. %	Wgt of agent (gm)
104 Carbon tetrachloride	11.5	79.00
1001 Methyl bromide	9.7	41.13
1202 Dibromodifluoromethane	4.2	39.37
1211 Bromochlorodifluoromethane	9.3	68.71
2402 Dibromotetrafluoroethane	4.9	56.87
1301 Dibromotrifluoromethane	6.1	40.57
Carbon dioxide	29.5	57.94

It is of interest to note that since the molecular weight of these materials varies so widely, both the volume and the weight required to obtain peak concentration are both of importance. CO<sub>2</sub>, for example, while relatively ineffective on a volume basis, compares favourably on a weight basis.

There are several factors to consider. Firstly, the ability of an agent to prevent flame propagation is not necessarily correlated with the ability to extinguish a flame once it has been initiated, and other equipment had to be devised to test flame propagation and inhibition. Secondly, peak concentrations vary as widely as the number of flammable liquids that are available.

Because of the different systems used to determine relative effectiveness of agents some differences in statistics are apparent, and any serious attempt to study laboratory figures should be accompanied by a knowledge of the source of these figures and the method used to obtain them.

When we begin to evaluate agents in more practical fire situations, new variables are introduced, some of them being:

1. Flammable fuel used.
2. Agent application rate.
3. Agent application pattern.
4. Fire geometry—round pan fires differ from square pan fires in characteristics and deep ones differ from shallow ones.
5. Fuel depth.
6. Atmospheric conditions, especially wind.
7. Ambient temperature.
8. Application techniques, and skill of firefighters.
9. Pre-burn time.

The effect of these variables was certainly brought home to me earlier this year when our company carried out evaluations for rating purposes as required by Australian Standard 1850-1976.

Whilst the physical requirements of the standards were maintained (such as fuel depth, tray size, etc.) some most significant variables were present. For example, on one day, a combination of high humidity and total lack of wind made extinguishment extremely difficult.

It seems apparent to me that such variations can never be eliminated from outdoor tests but in general terms the results of ratings achieved for standard bicarbonate powder and monnex, BCF and CO<sub>2</sub> (on Class B fires) were quite illuminating.

New Zealand Standards Association should look closely at this new Australian Standard as there is much in favour of it as an extinguisher criterion.

## GENERAL OBSERVATIONS

In evaluating and comparing the effectiveness of Halon 1211 and Halon 1301 it is advisable to consider my previous statement about the two runners, but general observations are as follows:

1. BCF will continue to maintain an advantage for use in portable equipment because of the 'throw' characteristics and the lighter hardware requirement.
2. BCF is a more effective agent on certain types of fire where reflash is a problem (this is because of the low boiling point of BTM).
3. The Wright Report<sup>13</sup> suggests that (for USAF requirements) Halon 1211 best satisfies all the requirements of an optimum vapourising liquid for ground fire protection.

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## Use of Halons continued . . .

4. The Wright Report also suggests that it offers the possibility of an effective, low toxicity agent that can be used in a low pressure fixed in-flight system for aircraft.
5. The physical properties of Halon 1301 tend to favour its use in total flooding applications where its high volatility permits it to be applied to the primary area as a gas.
6. Both agents are effective to a greater or lesser degree on Class A and B fires, and since both are electrically non-conductive, they are safe to use on Class C fires.
7. Both halons are stated as being 'clean' agents in that they leave no residue after extinguishment and disbursement.

## TOXICITY OF HALONS

Toxicity is probably the principal factor which has spurred on research and development in vapourising extinguishing agents, and there appears to be an abundance of papers on toxicity related to both animal and human studies.

Even at this stage of development it is generally realised that virtually any fire extinguishing agent is a compromise between the hazards of the fire, smoke, fumes and a possible increase in hazard due to the toxicity of the extinguishing agent used. The problem resolves itself into selecting the fire extinguishing agent which reduces the total hazard most.

In researching the subject of toxicity of halons, one of the biggest problems I struck was in defining just what was meant by the term toxicity. Many in-depth programs have been documented but most of the writers, seemingly experienced toxicologists, did not define in layman's terms what they were testing. For an understandable answer I have turned to a paper published by David Clark and Charles Reinhardt<sup>14</sup> who define toxicology as such.

'The human body functions through a complex set of chemical and physical processes which maintain it in a state of metabolic equilibrium. Most foreign chemicals are capable of interfering with this delicate balance to produce temporary or permanent injury, or even death. The study of the deleterious effects of substances on natural human or animal functions is called "toxicology".'

Foreign chemicals can enter the body in three different ways to produce toxic effects: by ingestion, by inhalation or by absorption through the skin. With Halons 1211 and 1301 the primary route of entry is by inhalation. Because both are volatile compounds skin absorption is too minimal to be of toxicological significance.

In the case of the halons, we have three potentially toxic situations:

1. Toxicity of the compound when released into the atmosphere in inhaled by humans.
2. Toxicity of the breakdown products following reaction of the halon with fire.
3. Toxicity of the products of combustion.

All of the earlier work on toxicity studies was undertaken using animals as subjects.

The toxicity of a gaseous chemical is frequently expressed in terms of the concentration in the atmosphere required to produce death. From this expression we encounter several toxicological terms:—

- ALC Approximate lethal concentration—defined as being the lowest concentration of a substance which is lethal for one or more of a group of animals exposed for a given time.
- LC100 The minimum concentration that will kill 100% of the test animals.
- LC50 The concentration that will kill 50% of the test animals.
- LC0 The maximum concentration that will cause no deaths during or after the exposure time.

Having defined concentrations, we also have to consider another variable—time. Short single exposures, up to several hours duration are called 'acute', whilst exposures

of longer duration, and multiple exposures are called 'chronic'. We are most likely to be concerned with acute exposures resulting from firefighting actions or accidental discharge of gas into a confined space.

Early consideration on the toxic effects of halons was based on experimental exposures to animals. In the last decade a considerable amount of human studies have taken place, especially in the USA, and in general these tend to coincide with the effects of the gases on animals. Halons 1301 and 1211 can either stimulate or depress the central nervous system to produce a feeling compared with intoxication or the initial stages of anaesthesia, with an attendant impairment of mental and physical performance. Little effect is noticed in the first 30 seconds of exposure, and this appears to be the amount of time necessary for the body to absorb a sufficient quantity of agent to bring about the onset of the effects. After, this, the effects appear rapidly.

Recovery from the effect of exposure to halons was, in the experimental studies, always rapid and complete once the subject breathed fresh air again. No evidence has been found to suggest that halons could accumulate in the body, even after repeated exposure.

On the basis of experimental data it was concluded that maximum safe exposures for man were 7 per cent-10 per cent Halon 1301 for one minute and 4 per cent-5 per cent Halon 1211 for a similar period.

We have access to NFPA Standards which are based on the UL table of toxicity ratings for extinguishing agents. Accordingly these standards incorporate adequate safety margins so that personnel are not at risk when the agents are used for total flooding systems.

In 1968, the Underwriters Laboratory adopted a proposal which meant withdrawal of recognition of those agents having a natural state toxicity of Group 4 or lower. The net effect was the dropping of Halons 104, 1011 and 1001.

At temperatures above 537°C Halon compounds decompose into irritating and potentially toxic by-products which, if present in sufficient concentrations, can cause irritation of the respiratory system, skin and eyes. This irritant nature—and if you have caught a whiff or two from a fire—is in itself a built-in alarm system which will cause you to take evasive action well in advance of toxic levels.

The hazards of toxic smoke, heat, carbon monoxide and oxygen depletion present in all fires far outweighs any hazards to personnel due to the use of either 1211 or 1301 Experience has proved the low toxicity of halons. Over a period of about fifteen years, several hundred thousand portable halon extinguishers, and, in more recent years, halon total flooding systems have been used effectively without producing any adverse health effects.

## SPECIALISED USES OF HALON FIXED SYSTEMS

In this last section of the paper I will be referring to special hazards systems which have been designed, developed and installed by Gravier world-wide, either in co-operation with other bodies or as special company development projects.

(1) Most of us tend to associate fixed halon systems with computer protection. In New Zealand, and overseas, this type of protection has been widespread. Both Halon 1211 and 1301 are in use, with 1211 on a lock-out system.

(2) One of the most elaborate aircraft systems is that installed in the BAC aerospatiale Concorde. Five Gravier systems are incorporated in the aircraft—fire and overheat detection systems, extinguishing systems, explosion suppression systems and optical flame break-out detection systems.

Explosion suppression systems incorporating Halon 1211 protect fuel tank gallery and ventilation ducting agent lightning strike, refuelling flashes, and electrostatic bonding breakdown.

(3) Gravier world-wide has developed a number of fixed Halon 1211 systems for military fighting vehicles, the latest

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## Use of Halons continued . . .

being the newly acquired Leopard tank. Purchased by the Australian Army at a cost of some \$A900,000 each, these vehicles represent an investment which exceeds the cost of many buildings for which fixed protection is mandatory.

At Mt Newman, Western Australia, ore carrying 'haulpak' trucks operate.

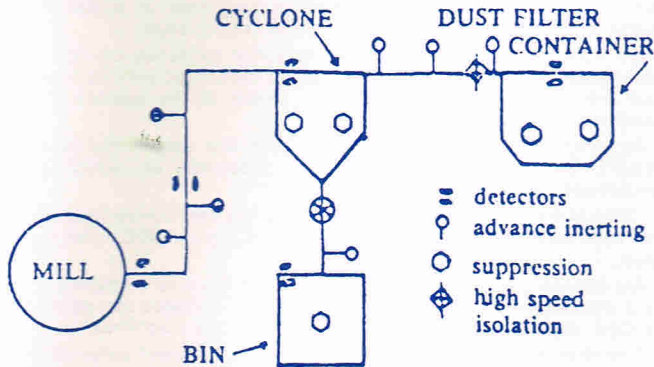
The largest of these units, when fully laden, weighs 378 750 kg and carries 124 m<sup>3</sup> of ore (162 tonnes).

Each vehicle is 16 m (53 ft) long, 1.26 m (24 ft) wide, and 5.06 m (16.5 ft) high.

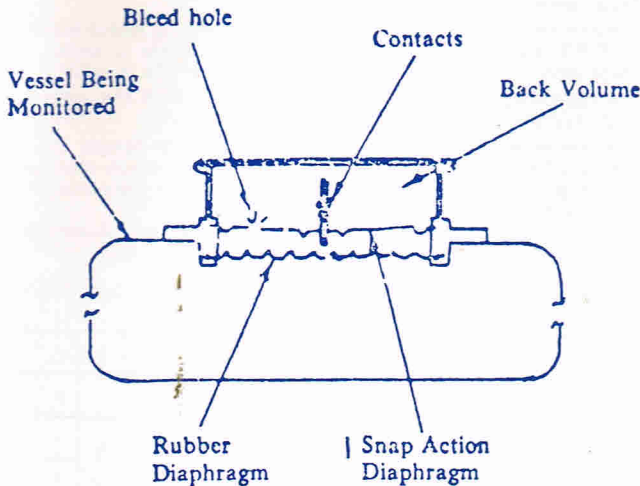
Each costs in the vicinity of \$A500,000.

With 909 litres of oil in the crankcase, 700 litres of hydraulic fluid and a fuel capacity of 2 650 L, each unit presents a formidable fire hazard. The Halon 1211 fixed system for the engine compartment is designed to enable the discharge of 45 kg of Halon 1211.

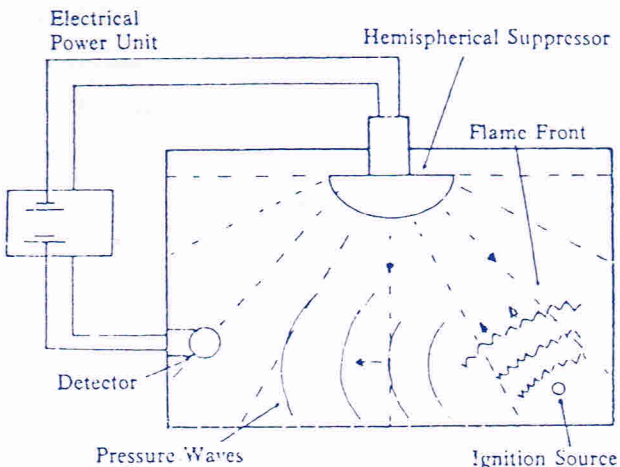
Motor racing fire protection has been a continuing development and Graviner has marketed a Halon 1211 system designed to provide maximum driver protection in the event of a crash.



**TYPICAL I.E.P. SYSTEM**



**I.E.P. DETECTOR**



**SIMPLE EXPLOSION SUPPRESSION SYSTEM**

## INDUSTRIAL EXPLOSION

One of the most interesting and expanding forms of fixed protection is in the industrial explosion field.

The Graviner organisation pioneered explosion protection development which began at the Royal Aircraft Establishment during World War II. The possibility of suppressing flammable vapour explosions resulting from hits on aircraft by incendiary ammunition was investigated and, while viewing the chemistry of fuel explosions, oscillograph records showed there was a short time interval between the ignition of a vapour/air mixture and the development of the maximum explosive force.

Particularly it was noted that the initial rise of pressure to something of the order of 10.5KPa (1.5 psi) was slow in comparison with the speed of the pressure rise which followed. It was found that in an ideal vapour/air mixture in a one gallon tank, the pressure rises from zero to 3.5KPa (.5 psi) in 5 milliseconds, to 10.5KPa (1.5 psi) in 10 milliseconds and to about 630KPa (90 psi) in a little over 40 milliseconds. The comparatively slow rate of rise in the first 15 milliseconds suggested to researchers that an explosion could be suppressed before it progressed beyond control if only it could be detected in time.

They found this was possible and hence was conceived the principle of present day explosion protection which is beginning to play such an important part in industrial safety.

At the conclusion of hostilities researchers turned their attention to the problems of controlling dust explosions and it was found that these were relatively more easily controlled than fuel cell (vapour/air) explosions.

Typical examples of the various applications of explosion protection include plants used for pulverised fuel, dust extraction of plastics, grinders, cyclones and filters, spray driers, pneumatic meal conveying systems, bucket elevator systems, wood flour milling, penicillin manufacture, icing sugar grinding and sulphur grinding.

There are four basic methods of explosion protection:

1. Advance inerting.
2. Suppression.
3. High speed isolation.
4. Venting.

Design considerations for particular risks may incorporate one, a combination of two or more, or all four, depending on requirements and potential hazard.

In all the methods used, early detection is the basis of the successful system.

The detector will operate when either a predetermined rate of pressure rise or static pressure setting is exceeded, thus ensuring the earliest possible detection of an explosion whether it be fast or slow.

### Advance inerting: (1)

Advance inerting is usually incorporated in ducting and the principal of operation is one of inerting the atmosphere in a ducting to prevent the movement of an explosion front. The use of high rate discharging bottles provides rapid inerting—as much as 35 L of Halon 1211 can be discharged into a ducting in one-tenth of a second.

### Suppression: (2)

The suppressant—Halon 1211 is introduced at very high speed to extinguish the explosion flame front before pressure rises to danger point.

### High Speed Isolation: (3)

The very rapid isolation of one section of a plant from another is a most important consideration in explosion protection. A typical high speed isolation valve consists of a butterfly flap which is closed by means of a powerful torsion spring immediately the valve is operated. Closure of the butterfly flap is effective in 80 milliseconds, and flap sizes may extend to 1 m in diameter.

**Use of Halons continued . . .**

**Venting: (4)**

One of the problems associated with venting is that time is of the essence and venting is never sufficient to release all the pressure, and thus only partial venting can ever be achieved.

**Automatic Shutdown:**

Incorporated within any system can be a facility for automatic shutdown, reducing the risk of any possibility of fire and/or explosion spread.

This brief general description somewhat glosses over the requirements of explosion suppression, but I am sure you can appreciate the life and property saving value of this most important and rapidly developing area of fixed protection.

**Conclusion**

No one can accurately foretell what future halons have in fire protection. I would hazard a guess in stating that we will see an expanding use for halon protection as technology, which is ever advancing, brings with it the attendant hazards of fire and explosion.

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**Bushfire hazard in car exhaust law, say experts**

New legislation in New South Wales which requires all vehicles built after 1985 to be fitted with converters to control exhaust fumes could turn cars into a serious bushfire hazard, say two CSIRO experts.

Similar legislation is likely to be introduced by other States.

But a CSIRO team which has examined the converters has concluded that their high operating temperatures would make car exhausts almost 200C hotter than the maximum safe temperature.

Mr Peter Hutchings and Mr P. Woods, from the CSIRO's Division of Forest Research, have told the New South Wales Country Fire Authority the new systems "could readily ignite dry grass".

Mr Hutchings said yesterday: "The new converters could pose a great fire risk."

**'INTENSE HEAT'**

"We believe the emphasis should be placed on the dangers of these converters if they become commonplace on the roads and are not properly maintained, since any faulty engine which emits flame near dry grass or other matter presents a serious fire risk."

Their report follows an incident in the Northern Territory in which a car fitted with a converter apparently ignited a grass fire.

"Overseas evidence indicates that if vehicles are to be equipped with converters their potential for causing fires in pastoral and forest areas will increase greatly," the report says.

Mr Hutchings said there was substantial evidence of individual accidents which had occurred abroad in cars fitted with converters, and these raised doubts about the safety of the system in this country.

Incidents had been reported in which the carpet inside a car caught fire and there were several occasions on which grass underneath a car had been ignited.

"This is because of the intense heat in the new converters, which are kept with high external temperatures, up to 540C," the report says.

Mr Hutchings said yesterday: "We fear there is a chance these cars are designed in such a way their lower surfaces can come into contact with long grass and scrub and cause bushfires."

The report says that anything hotter than 350C will automatically spark a flash fire when it comes into contact with wood or grass.

One car engine with emission controls examined in the report was far above the safety level and much hotter than any vehicle without emission controls.

The engine was hottest when stationary, a finding which alarmed the CSIRO team because "dry grass is most likely to come into contact with the exhaust system while the vehicle is still".

The report concludes that an engine fitted with the emission control system was a "significant bushfire hazard".

It recommends that manufacturers consider fire danger in rural areas in all aspects of car design and meet emission standards "without producing unduly high temperatures on the surfaces of exhaust systems".

ex "Weekend Australian"

**FIRE MAZE**

Find 10 causes of Fire and remember them - always (Down, Across or Diagonal)

S	L	B	N	D	R	P	L	B	F	G	I	A	C	E
L	R	A	R	S	O	N	I	S	T	B	X	Q	M	N
V	S	T	L	B	P	X	G	M	H	G	R	B	P	Q
S	X	C	L	T	W	E	H	D	B	M	L	W	I	P
Q	R	I	S	T	U	I	T	V	W	X	Y	A	Z	L
M	N	G	A	R	D	E	N	R	U	B	B	I	S	H
P	B	A	D	E	F	G	I	X	O	Y	L	B	N	S
D	E	R	F	H	R	B	N	S	O	L	A	A	R	B
L	F	E	A	H	D	B	G	R	T	H	E	R	M	N
M	A	T	C	H	E	S	T	L	S	L	R	B	A	O
N	Z	T	Y	D	C	A	U	V	D	X	Q	E	C	N
P	W	E	L	F	F	A	T	N	H	F	B	C	D	P
Q	V	X	B	R	F	P	A	E	B	P	E	U	L	M
R	S	A	N	P	H	C	L	S	R	O	Z	E	W	E
T	U	B	D	O	I	R	P	O	B	S	Q	X	Y	F

"Prevention is better than Cure"

