

PEOPLE WHO EXPERIENCED DARWIN CYCLONE TRACY:

HUMAN RESPONSES

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Darwin's Population from 24th December 1974 and Immediately Following

There is some inconsistency in published statements regarding Darwin's resident population as at December 1974 and the actual number of people physically in the city on the night of 24th December 1974 (Mitchell 1978 and 1981, Stretton 1975 and 1976, Darwin Reconstruction Commission undated). The following figures are a reasonable approximation of the population situation.

Regular residents 24.12.74		49,000
Absent on recreation leave, etc. 24.12.74		<u>5,500</u>
In Darwin night of 24.12.74		43,500
Evacuated by air	25,628	
Evacuated/Departed by road	<u>7,234</u>	<u>32,862</u>
In Darwin night of 31.12.74		<u>10,638</u>
In Darwin, 2nd January 1975		11,019

Comparison Groupings of Darwin People

Two groups of Darwin's residents (at 24th December 1974) experienced Cyclone Tracy in quite different ways. One group knew the fury of the storm and emerged from shelter on 25th December to see the devastation of their city and to guess at the extent of their own personal loss. The other group heard the story of the destruction of their city, hopefully yet fearfully guessed at the extent of their personal loss and (most of them) returned from peace, order and security to see the reality of the devastation and their loss. In this paper, for convenience, I shall describe these two groups: the former as INDARWINS(N=551), the latter as OUTDARWINS(N=101). The responses of people in each of these two groups to Tracy and to resettlement after Tracy, might be expected to be different.

Other groupings of Darwin's people used in response comparison pairings in a follow-up study carried out six years after Tracy struck (Milliken, 1983) were: by ownership of dwelling by extent of destruction of dwelling, by evacuation or not after the cyclone, by marital status, by having or not having dependents in Darwin, by residence still in Darwin or residence elsewhere.

In this paper, the subgroups in these "conditions" are designated OWNERS (N=420)/NON-OWNERS (N=577), MAJORLOSERS (N=329)/MINORLOSERS (N=91) (major=house 40% or more destroyed, minor=less than 40% destroyed), EVACUEES(N=253)/NONEVACUEES (N=399) (the large number of people who left Darwin by road immediately after Tracy, frequently are not subsumed under the title 'evacuees'), MARRIEDS(N=511)/SINGLES(N=102) (this describes a person's defacto situation at 24th December irrespective of legal marital status or dependent children), DEPDARWINS(N=541)/NODEPDARWINS (N=112) and STAYERS(N=276)/LEAVERS(N=376).

Other "People" Groups

A powerful modifier of Tracy-triggered circumstances was the extent and nature of the human response from people who did not experience Cyclone Tracy. Members of the Commonwealth Government of the day, "Australian" officials of the Salvation Army and similar organisations, many members of the Defence Forces, the senior executives of Insurance Companies, the executive staff of the National Disaster Organisation, Canberra-based staff of a number of Commonwealth Departments and of the Cities Commission, some members of the Darwin Reconstruction Commission, Australia's people everywhere--the response of these groups was important in minimising for all Darwin's people the stress of the circumstances of the days of their greatest need. Despair was not a necessary concomitant of devastation.

Basic 'Response' Information

The Australian Housing Research Council commissioned the Darwin Post Disaster Housing Study (Report in two volumes released by the Council in November 1983). The section of the study Sociological, Psychological and Economic Effects of Rehousing Darwin's People, was commenced in January 1981. Just over 1000 of Darwin's 24th December 1974 residents responded to a preliminary questionnaire. Of these over 650 responded to a second questionnaire seeking a range of "response" information. The number of respondents to the questionnaire, at significant locations in January 1981, were:

<u>Location</u>	<u>Preliminary Questionnaire % of N = 1010</u>	<u>Main Questionnaire % of N = 652</u>
<u>Still in Darwin (STAYERS)</u>	(48)	(42.5)
At pre-Tracy address	20	18
Not at pre-Tracy address but in same suburb	4	3.5
In a different suburb	24	21
<u>Left Darwin (LEAVERS)</u>	(52)	(57.5)
Still in N.T.	3	2.5
In another State	49	55

(Comparison of the 1974 and 1980 electoral rolls revealed that 60% of Darwin's 1974 voters were no longer enrolled in Darwin.)

The information supplied by these respondents is the source of almost all of the person response findings reported in this paper.

Indicators of the Effects of Tracy

The questionnaire contained items aimed at registering the influence of Tracy and of the rescue/restoration and rehousing programmes on the persons affected directly by the cyclone. Nine personal self-assessment variables were used to cover the life-space areas of health, people support network, finance, living environment, and attitudes to living in Darwin. December 1974 and May 1981 assessments were sought. Assessments were sought also of assistance received, of feelings if out of Darwin on 24th December, of feeling after evacuation from Darwin, of rehousing/repair/rebuilding facilities, of feelings in respect of Cyclone Max (March 1981), of reasons for leaving Darwin. Cross-tabulations were made of STAYERS/LEAVERS as a dependent variable of the other comparison pairings. Cross-tabulations were made also of other factual variables with the "comparison pairings".

INDARWINS/OUTDARWINS

101 of the 652 Main Questionnaire respondents were OUTDARWINS. The composition of the INDARWINS and the OUTDARWINS is similar:

<u>Characteristic</u>	<u>OUTDARWINS</u> Percentages	<u>INDARWINS</u> Percentages
Sex - Males	50	49.3
Females	50	50.7
Age - 18 to 34 years	51.5	52.6
35 - 54 years	41.6	39.4
55 years & over	6.9	8.0
Marital Status - married	83.0	83.4
- single	17.0	16.5

Should the two groups prove to be different on the set of "response" variables, the differences could arise from one group actually sitting out the cyclone or from the other group experiencing the anxiety of uncertainty and the frustration of delay in returning, or from a mixture of both. Of the nine personal self-assessment variables assessed both as at December 1974 and as at April 1981, only one of the eighteen comparisons was significantly different:

Health Generally 1981 ($\chi^2 = 6.57$, $df = 2$, $p < 0.05$). The direction of the difference favours the INDARWINS. This one significant difference is notable, but it is insufficient to support the conclusion that sitting out a cyclone as against sitting waiting for possible "bad news" has a differential effect on people.

The responses on two other variables were tested; differences were not significant - the influence of Good (safe) Housing on the decision to leave Darwin or to remain, and the opinion expressed as to Help sought and the sufficiency of the Help given.

More OUTDARWINS than INDARWINS have left the city permanently but the difference in number is not significant at the 5% level. The pattern of reasons for leaving Darwin permanently given by those who left Darwin in 1975 was strikingly similar (the value of χ^2 with $df=4$ was only 1.29 whereas a value of 9.488 is required for significance at the 5% level). Rank order correlations between the two groups in respect of 20 personal reasons for leaving and in respect of 11 groupings of those individual reasons were .72 and .92 respectively. Responses of the two groups to the experience of Cyclone Max (passed just north of Darwin on March 13th, 1981) were not identical; but differences were not significant.

Some features of the responses of the OUTDARWINS seem worth reporting. Just over 50% cut their holiday short to return to Darwin. These are represented in the same proportion in both STAYERS and LEAVERS. 66 of the 101 reported their experiences with officials in seeking to return to Darwin:

Officials Unhelpful	16
Officials Just Doing their Jobs	18
Officials Helpful	32

91 reported their anxiety whilst awaiting return to Darwin in the following numbers:

<u>Experience</u>	<u>STAYERS</u>	<u>LEAVERS</u>
	N(%)	N(%)
Almost sick with worry	2(6)	4(7)
Worried but got on with what could be done	7(21)	20(34)
Accepted the uncertainty but pressed hard to get back	24(73)	34(59)
	<u>33</u>	<u>58</u>

There is no reason to believe that the anxiety of the waiting period increased the incidence of long-term anxiety or instability amongst OUTDARWINS.

OWNERS/NONOWNERS

62% of accommodation units in Darwin in December 1974 were privately owned. The survey included 66% (656 out of 997) of respondents occupying privately owned accommodation (houses, flats, units, caravans etc.) There were 420 of the 997 (42.1%) who were owner-occupiers, i.e. OWNERS. A difference in response to cyclone damage to accommodation units (to "own residence") might have been expected of OWNERS and of NONOWNERS.

Private houses were occupied 49.3% by OWNERS, 50.7% by NON-OWNERS. 45% of OWNERS left Darwin between December 1974 and 1981; 57.6% of NONOWNERS left Darwin in the same period. Of OWNERS-STAYERS, 61% were at their pre-cyclone address in 1981; 25% of NONOWNERS-STAYERS were, in 1981, at their pre-cyclone address.

81% of privately owned accommodation units were damaged to the extent of 40% or more. About the same proportion of "public sector" units were damaged to the same extent. Of 338 respondents who reported living on in their damaged residences (either with no break or a very short break after December 1974) 206 or 61% were OWNERS. of the 338, 174 or 51.5% were STAYERS, (42.5% of all 652 respondents were STAYERS.)

OWNERS were roughly proportionately caught up in the evacuation exercise: 39.9% of evacuees were OWNERS. (There were 42.1% of OWNERS in the prime survey sample.) Return to Darwin after evacuation and staying on was of the following order for the various groups considered:

	Evacuees Returned to Darwin	Returnees who became <u>STAYERS</u>	All Evacuees who became <u>STAYERS</u>
OWNERS	88%	62%	54%
NONOWNERS	57%	54%	32%

OWNING was certainly a predisposing factor for STAYING but is not shown to be paramount in determining STAYING or LEAVING, e.g. 54% of NONOWNERS RETURNEES became STAYERS.

MAJORLOSERS/MINORLOSERS

The extent of the damage to residence was not a determinant of STAYING or LEAVING:

	<u>Respondents (N=420) REPORTING DAMAGE OF</u>			
	<u>Less than 20% (N=29)</u>	<u>20% to 40% (N=62)</u>	<u>41% to 80% (N=115)</u>	<u>81% & over (N=214)</u>
STAYERS	59%	53%	65%	54%
LEAVERS	41%	47%	35%	46%

OWNERS were over-represented in the number of reports of residence damage and in order to include as many respondents as possible, several other "loss" areas were examined.

The situation was different for durable goods loss/damage.

Respondents (N=617) Reporting Damage

	<u>Little</u>	<u>Significant</u>	<u>Much</u>
STAYERS	55%	44%	31%
LEAVERS	45%	56%	69%

A change in individual Financial Position from 1974 to 1981 was reported by 270 STAYERS and 365 LEAVERS. They reported the situation in 1981 as:

Attributable Directly to Tracy

	<u>Better</u>	<u>The Same</u>	<u>Not as Good</u>
STAYERS (100%)	34	44	22
LEAVERS (100%)	28	42	30

Attributable to Rehousing

	<u>Better</u>	<u>The Same</u>	<u>Not as Good</u>
STAYERS (100%)	23	56	21
LEAVERS (100%)	17	53	30

More than 640 respondents reported on Insurance payouts and Government Compensation grants for the under-insured.

Percentages in the different categories were:

<u>Insurance</u>	<u>STAYERS</u>	<u>LEAVERS</u>
Insured	70%	70%
Not Insured	<u>30%</u>	<u>30%</u>
Claimed and Received:		
A fair deal	86%	77%
Not enough	9%	13%
A rough deal	<u>5%</u>	<u>10%</u>
<u>Compensation</u>		
Applied for	73%	79%
Not applied for	<u>27%</u>	<u>21%</u>
Applied and received:		
Reasonable help	61%	51%
Less than fair	36%	40%
None	<u>3%</u>	<u>9%</u>

In reporting their Financial Position in 1974 and in 1981 respondents were significantly different as between STAYERS and LEAVERS:

Financial PositionPERCENTAGES

	<u>STAYERS</u>		<u>LEAVERS</u>	
	<u>'74</u>	<u>'81</u>	<u>'74</u>	<u>'81</u>
Reasonably Good	55	50	66	51
Fair-getting by OK	41	38	31	37
Just holding, or hopeless	4	12	3	12

EVACUEES/NONEVACUEES

Of the 250 EVACUEES reporting some residence damage, 59% were back in Darwin by 30th June 1975; and of the remainder, 30% did not return to Darwin at all.

82% of NONRETURNEES said that they fitted into living elsewhere, that they were concerned about Darwin but they would wait and see what happened. (8 of these people were OWNERS and another 5 had been negotiating to buy.) 76% of RETURNEE-STAYERS and 60% of RETURNEE-LEAVERS reported themselves as uneasy, unsettled and anxious to get back to Darwin.

EVACUEES as a group had a quite different composition from NONEVACUEES in respect of Sex, Age and Marital Status. Therefore, comparisons of responses of the two groups, to the same situation generally cannot be valid. One observation is worth making: when the accommodation situation was at its lowest ebb in Darwin (1975) the greatest annual outflow of RETURNEES took place; but in that year the proportion of all permanent departures was less for RETURNEES than for NONEVACUEES.

It is difficult to compare the University of Queensland 1975 Tracy Study with the 1981 Rehousing Study in respect of the evacuation of Darwin. Just under one third as many people left Darwin in their own transport immediately after the cyclone, as left by air in the "Evacuation" exercise. No one was forced to leave but women and children were strongly encouraged to leave. Many husbands drove with families to a "rescue" location, "deposited" their families and returned to employment in Darwin. Many of the respondents from this group would not appear as EVACUEES in the Rehousing Study; but they would have been in the target group for the University of Queensland study.

The evacuation exercise as such seems not to have been a cause of great distress. The distress arose from the frustration of being unable to exercise the right of return because the rehousing programme did not move fast enough. It is likely, that longer-term adverse psychological effects on EVACUEES, attributable directly to evacuation were small, perhaps even negligible.

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THE SOUTHLAND FLOOD
AN ORGANISATIONAL APPROACH TO DISASTER RECOVERY

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INTRODUCTION

A disaster seriously disrupts the personal, social, economic and political interactions of the individual and family. Such disruption places the individual and family in unfamiliar stressful situations, as they attempt to gain assistance and find solutions to the numerous problems that confront them. Disaster relief for the individual involves a large number of organisations and departments.

Since the first Civil Defence Act in 1962, civil defence responsibilities in New Zealand have terminated once the threat to life had diminished. With no organisations to coordinate the post disaster recovery, the stress placed upon the individual and family increased considerably as they tried to get the necessary assistance through a myriad of private aid groups, government departments and insurance groups.

With these problems identified the Civil Defence Act 1983 made provision for the coordination of those agencies involved in disaster relief and recovery. The Southland flood of January 1984 was the first opportunity for the new legislation to be used.

This paper provides a synopsis of the Southland flood and sets out the organisational approach that was adopted for relief and recovery in the affected communities.

Currently, a research programme is being developed to examine human behavioural aspects of the disaster, in particular the long-term effectiveness of the organisational response to the disaster. From the results it is hoped to improve the disaster recovery capabilities of civil defence organisations and government departments.

Introduction to Civil Defence in New Zealand.

"Civil Defence" is defined as measures necessary for public safety, designed to prevent, reduce or overcome the effects of earthquakes, explosions, floods, storms, tsunamis, land movement or the spillage of dangerous gases or substances.

Civil defence is the responsibility of local and regional government, central government and all government departments. All these agencies must plan for their use in a civil defence emergency.

A civil defence emergency is normally only declared when the resources of the emergency services are unable to cope with a situation that threatens public safety.

New Zealand has had an Act of Parliament covering civil defence since 1962. The Act sets out the statutory structures, powers and responsibilities of government during a state of civil defence emergency. In December 1983, amendments to the Act were consolidated and new sections added to produce the Civil Defence Act 1983. The new Act made special provision for the disaster recovery phase to ensure the efforts of the community and government agencies were coordinated, thereby assisting the disaster victims re-establish their lives.

THE SOUTHLAND FLOOD

The Southland flood was the first opportunity to use this section of the Civil Defence Act 1983. The flood was the largest disaster in New Zealand since the devastating Napier earthquake in 1931. An estimated 5000 people evacuated their homes and \$50 million worth of property was damaged. Many of the evacuees were able to return to their homes within a short time. Unfortunately, for some 1400 evacuees whose homes were inundated, caravans, rented homes and billets have had to suffice as they await the rebuilding or restoration of their homes.

Background

On 26-27 January 1984 a low pressure weather front passed slowly over the southern part of the South Island. During a twenty-four hour period, rainfall in the Southland Catchment ranged between 600mm in the hills and 143mm in Invercargill City (population 49,000).

As a result of this intense rainfall, the rivers throughout Southland overtopped their banks. The Makarewa River ran six metres above normal and just below its confluence with the already swollen Oreti River breached the stopbanks flooding the Invercargill suburbs of Otatara, Grasmere, and parts of Invercargill Airport. (Map 1).

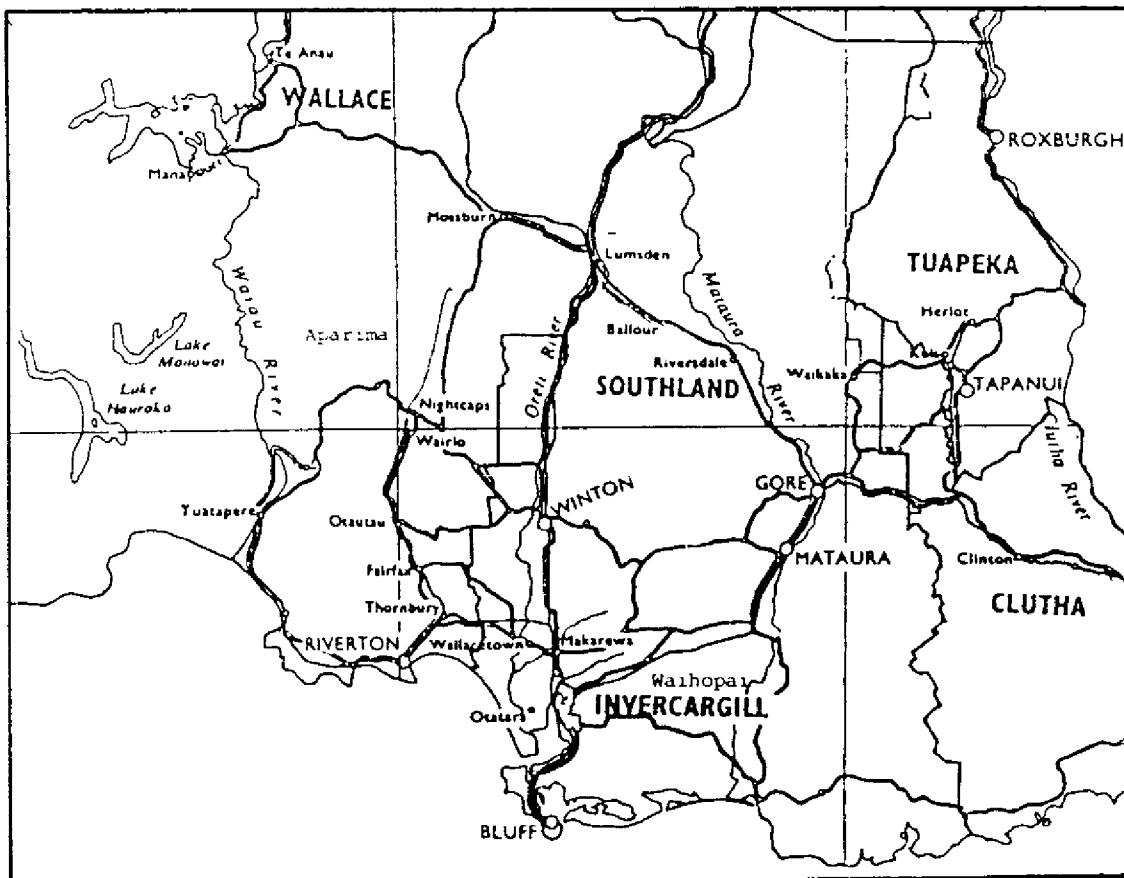
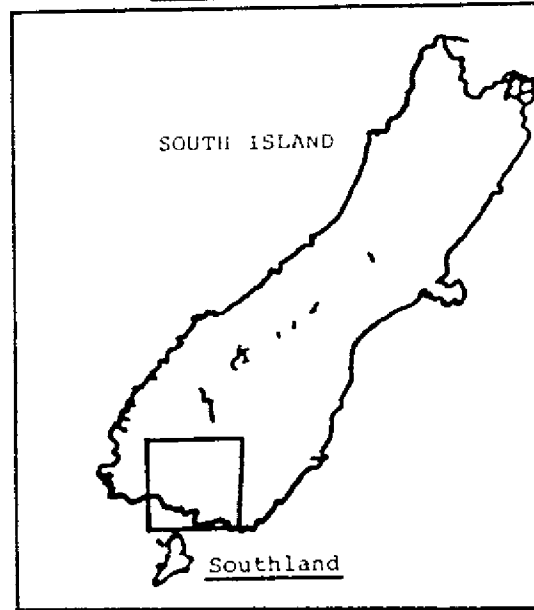
Floodwaters from the Waihopai River affected the northern residential areas of Waikiwi and Thompsons Bush, while the swollen Otapuni Stream, effectively cut Invercargill in two causing extensive damage to the commercial and industrial areas of Invercargill.

A state of local civil defence emergency was declared at 0400 hours on 27 January. This was extended to a state of regional civil defence emergency at 1000 hours because of widespread, serious flooding in the rural towns.

The local and regional civil defence organisations responded accordingly providing public information, rescue teams, evacuation and welfare centres, and catering teams to ensure the needs of evacuees were met.

Map 1

THE SOUTHLAND REGION



At 2000 hours on 27 January, the flooding problems increased as the high tide caused the Waihopai to breach its stopbanks completely flooding the airport and exacerbating the flooding in the suburbs of Grasmere and Waikiwi.

A total of 1205 dwellings in Invercargill were affected by the floodwaters, 730 suffered prolonged inundation. Official registration centres, established by Civil Defence, registered over 1700 evacuees. However, many evacuees bypassed the civil defence registration procedure and stayed with friends and relatives. Since the civil defence organisation had no record of these people they were unable to assist concerned relatives who telephoned from around the world. The only assurance that could be given was that no lives had been lost.

In Southland region, Wallace County evacuated 860 people from the small towns of Otautau and Tuatapere as the Aparima River and Waiau River flooded the towns.

The community of Otatara (population 2,500) was completely isolated as floodwaters from the Waihopai and Oreti Rivers covered the only road link between the community and Invercargill.

In all flooded residential areas, sewage pollution became a major problem and necessitated the cordoning off of some residential areas, until the health risk diminished. Such action did not endear either the civil defence organisations, police or army to the evacuated population.

The disaster resulted in a major dislocation of population and disruption of residential and commercial areas. Clearly, the recovery programme required was beyond the capability of any one organisation or government department in Invercargill.

THE RECOVERY PROGRAMME

The Disaster Recovery Coordinator

Using the new powers provided under the Civil Defence Act 1983, the Minister of Civil Defence appointed a Disaster Recovery Coordinator. The Coordinator was responsible for -

"the direction and coordination of the use of all resources and services made available by departments, organisations, local authorities, regional or united councils, and territorial authorities for the restoration of necessary services, amenities and habitations." (Section 71 (1))

From his appointment on the third day of the emergency, Mr R.T.

Baines (Resident Engineer, Ministry of Works & Development), initiated the formation of committees that would deal with the housing, food, and financial problems of the evacuees, once the civil defence emergency was lifted.

While the emergency was still in force the needs of the evacuees were coordinated by the regional civil defence organisation, in liaison with the Disaster Recovery Coordinator. The civil defence welfare section, a small group of devoted people, worked non-stop for fourteen days coordinating the 'clean-up' resources, finding billets, caravans and temporary housing for flood victims.

The 'clean-up' phase was completed within a short time, the community (and government departments) providing assistance, gutting flood-damaged houses, clearing sections and distributing lime over the raw sewage that covered the ground. Most services were quickly restored, although the airport was to remain inoperable for ten days. During this period, the information centres, established by civil defence, gave advice on insurance matters and gave assistance to those seeking professional counselling.

The welfare section bore the brunt of the initial recovery programme, being inundated with enquiries, offers of billets, caravans and houses for evacuees, furniture, food, toys and clothing. Having coped with welfare through the impact phase, the small team, who were already under pressure, now had to organise and coordinate the needs of the victims. Tight controls were placed upon the movement of flood relief donations into Southland. Requests were made for money to assist the Mayoral Relief Fund and donations of clothing, food, etc. were discouraged until the needs of the flood victims could be ascertained.

With so many of the evacuees not registered by civil defence, no clear indication of flood victims needs could be gauged. To ascertain these needs and clarify the direction of recovery and thereby accelerate the recovery programme, the regional civil defence organisation and Disaster Recovery Coordinator conducted a survey. The questions were directed at finding -

- (a) the accommodation requirements of the victims (whether they required a house or caravan, and how long they would expect to be in this accommodation);
- (b) the furniture needs of the victims;
- (c) the counselling requirements of victims;
- (d) the requirement for tradesmen to restore houses.

The flooded residential areas of Invercargill were clearly defined, so eighty trained volunteer counsellors were sent to interview people. Since few residents were able to occupy homes, residents had been advised through the media to go to their properties to assist in the completion of the survey. Over 750 residents were interviewed.

Within twelve hours of the survey being completed, some provisional results were available to the civil defence organisation as the data had been programmed into the Invercargill City Council computer. The computer output provided valuable information to the civil defence organisation and the Disaster Recovery Coordinator, who were then able to send trained counsellors to people who required assistance, provide housing or caravans for people still billeted with friends, and get some indication of the furniture requirements of victims. Later, the survey was extended to cover the rural areas affected by the flooding.

The survey was designed quickly, and as a result the information gained was often not as specific as would have been desired. As a consequence, a small force of workers was employed to extrapolate and expand on information gained.

The Disaster Recovery Coordinator, assisted by the Invercargill City Engineer, Building and Health Inspectors, also undertook rebuilding resources survey and prepared estimates on the amount, type, and availability of building materials required for the restoration of damaged houses.

Accordingly, members of the Master Builders Federation, Builders Hardware Association and Builders' Supply Merchants were notified to ascertain the availability of material and tradesmen. These organisations reported they could provide the necessary materials and tradesmen to cope with the major recovery programme. Unfortunately, this has not proved correct, and as a consequence the rebuilding programme will not be completed by winter, leaving many families in temporary accommodation for some months to come.

Apart from the surveys, the Disaster Recovery Coordinator organised committees to deal with the welfare, housing, food and furniture needs of flood victims once the emergency was lifted.

Welfare Committee

Representatives of the Department of Social Welfare, the Southland Council of Churches, Presbyterian Social Services, Psychological Services, City Council representatives, Southland Hospital Board and the Health Department were called together to form a Welfare Committee.

The committee was tasked with -

- (a) the coordination of all welfare activities as required by flood recovery operations;
- (b) counselling and support of flood victims referred to them by local authorities;

- (c) direction and advice to other committees in regard to the distribution of goods and accommodation; and
- (d) the maintenance of sufficient records to allow follow-up action and on-going support.

To carry out these tasks, a Flood Recovery Welfare Coordination Centre was established to coordinate the counselling services of the Social Welfare Department, and involved both professional counsellors and psychologists and volunteers from church organisations. Budgetary and marriage guidance advisors were also made available.

Accommodation

A Temporary Accommodation Committee was constituted by the Coordinator to deal with the housing needs of the victims. Sponsored by the Housing Corporation, the committee was responsible for -

- (a) monitoring and maintaining registers of caravans, houses and billets; who they were allocated to; and a register of caravans still available;
- (b) Monitoring the quality of house repairs; the costs and giving advice on repair matters (the primary responsibility for this was given to the Housing Corporation).

Legal tenancy agreements were drafted by the Invercargill City Council and Civil Defence, for the renting of houses and caravans. Financial assistance for accommodation and billets were met by central government, through the Department of Social Welfare.

Early on in the emergency it was found that billets were an unsuitable long-term accommodation solution. Personal conflicts and family problems caused by the floods were often compounded in a billeting situation. Accordingly, people were provided with a house or caravan accommodation. Most caravan occupiers located themselves on their own properties and began work on rebuilding their homes.

Smaller committees were also established to deal with the distribution of toys, food and clothing to flood victims.

Liaison and information flows between the civil defence organisation and the Disaster Recovery committees was essential if the committees were to function effectively once the state of emergency was lifted. Survey results were made available to organisations appointed to the committees to indicate the problems being encountered and the resources required.

With the lifting of the civil defence emergency on 15 February, responsibility for assisting disaster victims previously undertaken by civil defence was assumed by the local government organisation, Invercargill City Council and the Disaster Recovery committees. To ensure that liaison was maintained between local government, the Flood Recovery committees and disaster victims, a Flood Relief Officer was appointed by Invercargill City Council.

The Disaster Recovery Coordinator continued to assist the City Council and to monitor the work of the Disaster Recovery committees until 11 March 1984.

These committees will remain in operation for many months, particularly the welfare and accommodation committees. The welfare committee is maintaining its Flood Recovery Welfare Coordination Centre and providing professional counselling to flood victims. The housing problems will be an on-going matter. Already problems and delays are being experienced in rebuilding and restoring properties. However, where work is being done the Housing Corporation are closely monitoring the quality and cost of rebuilding work to ensure the victims do not suffer further from expensive or poor quality restoration work.

CONCLUSION

The recovery programme instigated after the Southland flood may appear to have run smoothly, but in fact it did not. Personalities within organisations clashed, organisations were unsure of their responsibilities and the flow of information to organisations and the public was sometimes irregular, incomplete and wrong. However, despite these problems, a structural organisation was established which greatly assisted the recovery of the Southland community. The problems of the flood victims are being dealt with and disaster victims know where assistance and advice can be sought.

Early indications are that the Disaster Recovery concept worked effectively and the value of establishing an umbrella organisation to deal with the long-term requirements of disaster victims was shown. However, more research on these matters will be undertaken. As a result of this research, it is hoped the disaster recovery function will become a separate national civil defence plan, which will provide guidance to local and regional government organisations and Government departments in providing for disaster recovery.

THE ROLE AND REACTIONS OF A MENTAL HEALTH TEAM
INVOLVED IN THE VICTORIAN BUSHFIRE AFTERMATH*

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SUMMARY

The reactions of a volunteer mental health team which convened in the aftermath of the 1983 Ash Wednesday bushfires are reported. A questionnaire designed to explore psychological and physical responses was completed by all of the 19 staff who made up the team. Using both open ended and closed questions, the questionnaire tapped such areas as motivation, goals, expectations and observations, initial and later emotional and physical reactions, fantasies and evoked memories; an evaluation of the service and the experience was also included.

Analysis of responses indicated that team members experienced considerable stress during their post-disaster work but also gained a great deal on both professional and personal levels. Sources of stress are discussed as are recommendations for their alleviation.

- * A revised version of this paper will be published in the Australian and New Zealand Journal of Psychiatry in December 1984. The revisions reflect a critical review of our data and interpretations.

The disaster which provided the impetus for this study was the Ash Wednesday (February 16th, 1983) fires that swept through certain areas of Victoria and South Australia. This disaster made world headlines, was covered extensively by the media, via newspaper articles and, more particularly, television documentaries portraying dramatic scenes of the fires, the devastation and their effect on the local people.

There was immediate and widespread community response to this disaster, in all forms. Australians are known for their generosity and willingness to assist those who have suffered. The name "the lucky country" also implies that Australians are geared to the "unlucky", and there is often a rush to respond, once the need is known and advertised.

The Macedon area of Victoria is composed of the townships of Gisborne, with its component of factories, businesses and trade, Macedon, lying at the foot of the mountain, an attractive town or village with its own style and country atmosphere, and Mount Macedon, known as "the Mount". This was the home of several of Victoria's wealthy and influential families who owned splendid houses set in beautiful gardens. Some were classified under the National Trust and were open to the public at certain times of the year, so that the burning of these homes represented a national as well as a personal loss.

The particular feature of the bushfire in this area was the enormous number of homes that were lost (approximately 450), the devastation of the countryside, but the relatively small number of seven deaths, all in the elderly age group. Similarly there were only a few who suffered serious injuries or burns. The emotional trauma that was experienced by the vast majority of the community related to the evacuation of about 5000 people, and the escape from the horrendous fires to areas of comparative safety. Many families went first to one home or centre and then, as the fires drew closer, to another as the necessity to move again was apparent. It should be noted that we were told innumerable times that the fires in the district occurring on February 1st, 16 days earlier, which caused the loss of 24 homes and much of the bushland, cleared the way for the community to make its escape over the mountain. Nearly all retreated by car, and we learnt of families driving with virtually no petrol, of engines burning hot or stalling, and of the occasional accident, where a driver was unable to see because of the blinding smoke.

Listening to these real life stories, we were invariably aware of the fear, the tremendously heightened emotion experienced under conditions of severe stress, of the excitement, particularly as described by children, and of the enormous relief at being alive, at being reunited with one's family, of

finding that nearly all one's friends had also survived. We were also made aware then and later that the lack of communication by those responsible for alerting the public to the danger was regrettable. Some families only escaped because their neighbour warned them, others were given 2-3 minutes to pack and go. The State Emergency Service and the Country Fire Authorities working through the night were, we believe, not able to meet the effect of the most extraordinary weather conditions, the blasting furious north winds, the sudden changes of direction of these winds which caused flames to leap to heights of 200 feet and fire bombs hurtling through the air at unbelievable rates. It was for a few hours a holocaust, a time of intense heat, danger and grave concern.

This paper describes the actions, reactions and resulting recommendations of a team of mental health workers which convened to provide services to Macedon and Mt Macedon victims of the Ash Wednesday bushfires.

OUR ACTIONS

The volunteer multi-disciplinary team, made up primarily of staff from Prince Henry's Hospital, Melbourne, first met on the day after the fires at the instigation of the third author. He and the senior author had a previous interest in the psychological effects of trauma and disasters, had participated in a disaster exercise and had made a video tape describing common reactions of disaster victims and rescuers.

The team felt strongly that intervention should take place as early as possible and was frustrated during the period immediately after the fires that its offers of assistance were not immediately accepted by the mental health bureaucracy. One team member had talked to a colleague with property in the Macedon area; he recommended that the team not wait to be called but simply go. Thus, four days after the fires, five team members went to Macedon. They talked their way through the various barricades, chatted with people that they met on the streets, and set up links with the local general practitioners and hospital.

On that very first visit to Macedon, the team members took with them some copies of a pamphlet describing common reactions to disasters and ways of coping with these. As initial reactions to the pamphlets were very positive, more of these were run off for immediate use and an illustrated pamphlet, "After the Crisis is Over", focusing on children was developed by the second author. (Indeed, within a few weeks, over 10,000 pamphlets had been distributed by the Health Commission of Victoria to the various bushfire areas).

During the following week, the team's presence in the community was established through negotiations with the general practitioners and hospital, and contact with representatives from Community Welfare Services and the Health Commission. By the

end of that week it had been decided that our team and one from a State psychiatric hospital would each provide personnel for a joint service, the latter having the ultimate authority. A caravan would be set up at the Gisborne Shire Offices (about 10 kilometres from the Macedon area) where victims had to come for disaster relief. The caravan was to be called the Stress Counselling Service. It was also decided that personnel would be available at the hospital for two hours each day so that general practitioners could schedule people to see them.

Already at this stage, some conflict was becoming evident about the way in which we should go about our work. The general practitioners, for example, were insistent on a traditional, hospital based model where they could refer "patients". One step removed from this was the caravan based model. This, however, still required disaster victims to make the first step in approaching a counsellor. Again, it was based on the assumption that referrals would come in, though the network for receiving referrals was widened to include various social service agencies, teachers, and community leaders.

Our knowledge of disaster work indicated that the basic principles of immediacy, proximity and flexibility be instituted in this disaster, as in other disasters. These principles were a natural extension of the ethos of liaison psychiatry practised by the Prince Henry's Hospital team of reaching out to populations in need rather than waiting for their arrival which may never eventuate.

We thus started visiting people in their houses or in their caravans, always receiving a very welcoming reception, and invariably being given the names of friends and relatives who were also thought to need the opportunity to talk through their experiences. This process continued for about four weeks during which team members estimate they talked with about 450 individuals and families. Contact was also made with various groups in the area, such as the local counselling and guidance services, teachers and various women's groups.

The conflict concerning the degree of formality or informality of the service provided escalated, and finally our team was requested to leave the area. Perhaps these events can only be understood in the context of the lack of clarity in the State disaster plan concerning mental health intervention, personal and team rivalries, and current political issues.

OUR REACTIONS

Taylor (1982) used the term "tertiary victims" of a disaster to refer to "those whose occupations and duties require them to respond to any major alert in the community and to assist

with any subsequent rehabilitation and restoration work". In recent years, a number of writers have started to focus on this group and there is some indication in the literature that tertiary victims are themselves a vulnerable group.

For example Frederick (1977) notes that "personal contact with officials and crisis workers in -- recent disasters -- have (sic) highlighted the need for support of the mental health crisis workers themselves. Under such pressure, physical exhaustion inevitably takes its toll, along with the added ingredients of emotional stress and trauma. It often becomes necessary for workers to wear many hats, so to speak, by engaging in numerous activities which transcend the specific areas of expertise and training for which they have been oriented". Lindy et al (1981) observed that "A frequent cycle seemed to plague those of us working in outreach: resistance, zeal, over-extension, frustration, and anger". Raphael (1977) notes that feelings of helplessness and frustration are common in rescue workers and that anxiety, anger and horror may need to be worked through at a later date.

Perhaps the most extensive work in this area is that reported by Taylor (1983) and Taylor & Frazer (1982). In discussing questionnaire and interview data on the body handlers after the Mt Erebus plane crash, Taylor notes "everyone complained of physical fatigue and many of melancholy moments during breaks in their work. 81% reported changes in their appetite; 85% in their sleep; about half reported changes in their feelings and their need to talk; and one-third reported a change in their social activities. After 28 days, the appetite and sleep reports were much the same, changes in feelings and activities increased, and the need to talk diminished". Other symptoms which emerged included bad dreams, sleep disturbance, and tension. At the 20 month follow-up "only 8 of the 100 continuing respondents expressed the need to talk over their experiences. Eighty considered that they had overcome any problems quite satisfactorily, but 15 others still had occasional and isolated "flashbacks" in which emotionally charged episodes returned to them momentarily. Three of the 15 reported general emotional problems as well as the "flashbacks" (Taylor & Frazer, 1982). Five expressed anger that seemed out of proportion to the events they described, and four mentioned their marital troubles. One reported having undergone "a complete personality change" and another having become "more solitary with a cessation of sexual activity".

Raphael et al (1983-84) have also recently published a study focusing on the effects of disaster work on the helpers. Their questionnaire survey of about half of the rescue, organizational, support and medical personnel involved in rescue work following the Granville rail disaster revealed that almost all found the experience stressful, 70 per cent expressed evidence of some strain, and about a quarter had symptoms of anxiety, depression, and insomnia in the months after the disaster. On

the other hand, the authors note that "the experience of working in a disaster can have enriching effects as described by 35 per cent of the respondents who felt more positive about their lives as a result of their involvement in the disaster".

THE QUESTIONNAIRE

With the aim of exploring the issue of helper reactions, a questionnaire was distributed to the 19 members of the Prince Henry's team.* All 19 questionnaires were filled out anonymously and returned. It should be noted that this research was exploratory in nature. The participants had widely varying experiences in Macedon and had, in fact, spent very variable amounts of time there. They included ten males and nine females, seven psychiatrists, five psychiatric registrars (all but two in senior years), four psychologists, two nurses and one social worker. Nearly all had at least some experience in disaster work or bereavement counselling.

The questionnaire consisted of both closed and open ended questions. In addition to demographic data, the major areas covered were helper motivation, goals, expectations and observations, initial and later emotional and physical reactions, fantasies and evoked memories, and an evaluation of the service and experience.

Questionnaire Results

Motivation : In response to a list of possible factors contributing to team members' decision to join the team, 18 of the 19 volunteers indicated that feelings of compassion played a considerable or moderate role. Seventeen indicated a similar role for interest and/or skill in crisis intervention and 16 noted a considerable or moderate desire to learn about disasters and their effects. Twelve team members noted a considerable or moderate desire to be in the action and the same number a personal need to accept responsibility for psychiatric stress.

Therapeutic Goals : Thirteen of the 18 team members who responded to an open ended question concerning goals noted abreaction and ventilation. The provision of support was indicated in eight team members' responses, and prevention of future psychiatric distress by six respondents. Four noted identification of victims needing more intensive intervention as a goal.

Expectations and Observations : In order to assess stress on team members, open ended questions were asked about expectations and observations of both the countryside and disaster victims,

* Copies are available from the senior author

and responses analysed for discrepancies. For eight, observations of the countryside were worse than expectations, for six, they were not as bad and for five, there was no discrepancy. Of interest is the fact that thirteen of the nineteen used the word "devastation" in describing their expectations and observations.

Only three respondents felt that their observation of victims were what they expected and all of these answers were qualified. Whereas nine team members expected to see shock, only three observed it; similarly, fourteen expected grief, sadness, depression and distress, but only seven observed these. On the other hand more team members observed manic behaviour than had expected it (seven versus three), and similar responses were noted for anger (five versus three).

Emotional and Physical Reactions (at first encounter and after 3-4 visits): In describing their first reactions in their own words, most team members gave strongly worded responses. For example, one noted "feelings of awe at the change in the countryside, as though I was being 'hit' by those dark, burnt trees" while another wrote "I was shocked, very sad, speechless initially, very upset". In response to a list of possible emotional reactions at first encounter, over two-thirds of the team members indicated that they experienced the following to severe or moderate degrees :

1. shock/bewilderment;
2. dependency/need for team support;
3. confusion/uncertainty;
4. depression/sadness;
5. helplessness.

Anxiety/distress, euphoria/excitement and anger/rage were noted by only a few. Two-thirds indicated severe or moderate fatigue, and one-third disturbance of sleep patterns and increased muscle tension. Other physical reactions, such as restlessness, headaches, stomach and bowel upsets, were relatively uncommon.

After 3-4 visits, emotional and physical reactions had decreased. Depression or sadness was still of moderate intensity in eleven team members as was dependency and need for team support. Ten noted that they still experienced severe or moderate fatigue.

In addition, nine indicated that they had become ill during their disaster work (usually colds and influenza), five had car, and three, domestic accidents, and eight felt their eating, smoking and/or drinking habits changed.

Fantasies, Thoughts and Dreams: In response to open ended questions, seven team members reported dreams or thoughts of themselves in the fire situation. A similar number described earlier traumatic experiences that were reactivated. For example, one person "kept thinking of my experience in the war, especially travelling home and wondering if our family home had been bombed".

Evaluation of the Service: All 19 team members thought the service they provided was helpful, eight to a considerable extent, eight to a moderate extent and three a little. In response to an open ended question concerning how the service was helpful, 10 team members stressed the provision of support, mainly through empathic listening. Eight team members felt that allowing ventilation and catharsis was of assistance.

Most team members experienced no difficulties in working with other organizations in the community. There were, however, many difficulties in working with the other mental health team. Nine of the Prince Henry's team assessed these as "considerable" and another five as "moderate" in degree. These were attributed to two major factors : seven team members pointed to the disruptiveness of differing philosophies or conceptual frameworks, and seven to the detrimental effects of professional rivalry and jealousy.

Personal Evaluation : Team members were asked to fill in a check-list concerning their evaluation of emotional, educational and social aspects of their experience. Almost all (18) found the experience to be emotionally valuable to a considerable or moderate extent. Most, however, also found it considerably or moderately frustrating (13) and stressful (9). Eight noted that the experience was depressing.

Most indicated that they had learned to considerable or moderate degrees about the effects of disaster (18), stress counselling (15), the local community (15) and organisational/administrative issues (12).

15 respondents indicated that they had gained from personal contacts with other team members, and 12 from contacts with members of the community.

Of the 17 respondents who answered the question, 14 indicated that the experience gave them new insights into their conceptual thinking about their professional work. For five, this was an increased appreciation of the value of community work, while four noted the value of seeing the evolution of post traumatic neuroses.

Ten of 16 respondents indicated that the experience gave them new insights into their own personalities. There was little uniformity in description of these.

DISCUSSION OF QUESTIONNAIRE RESULTS

While the limited sample size and varied experience of the team members may impose limitations on the generalizability of the questionnaire data reported here, it is felt that the 100% response rate and care taken in completing the questionnaire lend considerable validity to the conclusions which may be drawn concerning the experience of a volunteer mental health team working in the immediate aftermath of a major disaster.

Motivation to become involved in this type of work was, for the most part, attributed both to professional factors (desire to provide a service, gain experience and learn about disasters and crisis intervention techniques) and the humanistic motive of compassion. This latter was powerfully evident in the whole community, both in and outside the fire affected area and suggests a need for further research into the altruism, compassion and dedication that are observed following a disaster.

Therapeutic goals were those expected from professionals working in the disciplines of psychiatry, psychology, social work and nursing. It was believed that assisting the ventilation of the emotional shock, by facilitating abreaction and providing support, would be beneficial. Although only six members noted that their goal was the prevention of future psychiatric distress, this was accepted as the "raison d'etre" of the team's involvement in the disaster.

The questionnaire responses provide evidence of the impact on both emotional and physical health that the disaster work had on the team. The large majority felt shocked, confused, saddened and very tired. About half became ill, had accidents and/or noticed changes in their eating, smoking or drinking habits. They recognised feelings of helplessness and the need for team support. It is important that this finding be acknowledged so that supportive networks are provided for the helpers from outside the disaster-affected area, as well as those living and working in the community. The fact that 16 out of the 19 members were either psychiatrists or psychologists shows that even those with lengthy training and considerable experience of psychological trauma found they were considerably stressed. It is our impression, furthermore, that those of the team who gave the most of their time and energy experienced the most personal stress, an observation which highlights the importance of scheduling adequate rest periods for disaster workers.

Sources of stress were numerous and varied. While about half the team found the burnt out countryside to be worse than they had expected, their observations of the victims were the opposite. This is an important finding and may reflect the fact that no member of our group visited the area in the first three days after the fires. On the other hand, it is more likely due to ignorance about the actual behaviour of disaster victims. Other researchers have also commented on their failure to observe

the commonly expected major emotional shock, psychological dysfunction and mental illness immediately following disasters (Quarantelli & Dynes, 1977; Taylor, 1977). As discrepancies between expectations and observations can impede efficient functioning, volunteers for a mental health team such as the one described here clearly must receive training based on available research concerning phases of reaction in disaster victims. The actual devastation was made "alive" by the graphic descriptions and vivid emotions of the affected people. Later came frustrations and feelings of inadequacy to deal with a mammoth task. Outreach work, in spite of the great willingness, sensitivity and increasing adeptness of technique among team members, was also stressful for those not accustomed to it. In the absence of clear and shared role definitions on the one hand, and of a therapeutic contract (e.g. appointments, time limits, fees, etc.) on the other, intense and intimate engagements with distressed victims often taxed all the empathy, emotional resources and therapeutic skill of helpers. Again, specific training in a conceptual framework and model of intervention suited to disaster work would seem necessary.

The experience, not surprisingly, reactivated previous traumatic experiences and produced much thinking and daydreaming and some nightmares about fires and escape. This is a common experience; even in the sheltered environment of a professional office, patients dramatically recalling and abreacting traumatic events produce in the therapist's mind memories or dreams, particularly if the events described "touch on" experiences with similar emotions.

Finally, the difficulties in working with the other mental health team were for some the most stressful part of the whole experience. While this type of conflict has been described in the literature (Zurcher, 1968; Heffron, 1977) and was present following the bushfires in other post-disaster relief organisations, a priority must be given to the development of methods for circumventing it. In addition to the deleterious effect on the team, community members were well aware of the conflicts and even a year later express irritation if not anger about them.

We feel that if team members had not often worked in pairs, ventilated to each other and had regular debrief sessions, the effects of stress might have had greater impact. In addition, it must be remembered that, as found by Raphael et al (1983-84), the experience proved both valuable and rewarding, with learning taking place on both professional and personal levels, and this no doubt also served to counteract the stresses and frustrations.

Finally, there were hidden rewards to the work which were not evident until months later. The need and seeking out of team support as a healthy exercise lead to improved staff relationships in some instances and friendship bonds were made or strengthened. Like the police, ambulance and fire officers, the development and promotion of "mateship" as it is known in this country is an essential part of the experience and necessary to those working in disaster situations.

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