Special Situations
Other forms of heart disease are equally likely to be followed by rehabilitation problems and reference is made in the report to rehabilitation of the patient with a pacemaker, the geriatric cardiac patient, children, and the surgical cardiac patient and to the selection during rehabilitation of certain candidates for cardiac surgery.

Education and Communication
Information about management of cardiac patients, especially after heart attacks, should be given to medical students, doctors, nurses, allied health professions, trade unions, and employers. The public and politicians should know that the techniques of cardiac rehabilitation, though relatively simple, are time-consuming and that their adoption on a wide scale will require additional staff and facilities.

Research and Future Trends
Areas of research in this relatively new discipline are outlined in the main report. Though much is known about the physiology of exercise further research is needed into its application to the clinical field. It is recommended that pilot studies should be set up in which model cardiac rehabilitation units might be established, with cardiologists and a back-up team of nurses, physical educationists, psychologists, and social workers. This would seem a worthwhile and fairly inexpensive way of testing views about the feasibility and benefits of various rehabilitation measures. Trials of physical conditioning early in the illness, with appropriate measurements of fitness, should be instituted. Special attention to the selection of patients for this type of intervention and to its effect on infarct recurrences and survival is recommended.

Copies of the full report may be obtained from the Royal College of Physicians, price £1.00, post free.

Reference

Letter from . . . South Australia

Cyclone Tracy

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During the early hours of Christmas Day 1974, cyclone Tracy virtually destroyed Darwin—a city of about 45,000 people and 12,000 homes. In that dreadful night 49 people were killed and another 16 were missing at sea. Only 500 houses withstood the winds more or less undamaged. It was a night of miraculous escapes from death and injury as people cowered in cupboards, baths, and closets, praying for torment to cease. Cars and fridges flew, trees and telegraph poles were uprooted and swirled about like twigs. The rain teemed down and flooded everything. In the words of eye-witnesses, tall buildings danced the tango while walls went in and out like concertinas. The light of Christmas Day showed the devastation, which was worse than anyone could have imagined. Pictures show the floods, the wrecked houses, the tangled telephone wires, the litter of corrugated iron roofs on the floor, the smashed light aircraft at the airfield, and the stranded capsized boats in the harbour. The photographs are of the kind to which the world, in these days of easy communication, has become accustomed—yet they still clutch at the heart in sympathy.

Hurricanes, typhoons, and cyclones are all the same thing. They arise over warm waters, especially where there are islands, and there has to be a zone of low pressure which draws air towards it. The vortex begins as the winds move towards the low. Excess air moves out at the top and warm moisture moves in at the bottom and the process is self-generating until the conditions of maintenance peter out, especially as the cyclone moves over land. Cyclones may move in any direction and they proceed at about 9 to 15 m.p.h. They may be up to 720 km wide. The most terrifying thing about them must be the relatively still centre—"the eye." This is from 8 to 48 km across, and during its passage the sun may shine and the winds be comparatively still. But there is the further holocaust to come as the trailing edge comes in, and it was this which caused the most damage in Darwin. The wind races round the cyclone at about 350 km.p.h., just over 200 m.p.h., and gusts may increase this speed by half as much again. Because of terrestrial rotation, cyclones in the southern hemisphere always blow in a clockwise direction, whereas in the northern hemisphere they are always anticlockwise.

National Disasters Organization
About four to five months before this awful event, the government had set up a National Disasters Organization, with Major-General Alan Stretton as its head. He heard of the disaster about 7 o'clock on Christmas morning and began to mobilize the teams needed to help. These included the armed Services with all their resources as well as medical and surgical teams. He was granted full powers over the whole area and command of everything required. This prior appointment of an el supremo
turned out to be a great success and undoubtedly mitigated some of the worst effects of the devastation. He arrived in Darwin with the first surgical team and other helpers about 11 p.m. on Christmas Day.

The local hospital had survived some of the worst impact. Before the arrival of the storm, which was being plotted by the local meteorologists so that some warning was given, the windows had been taped and moveable objects outdoors had been battened down or brought indoors. The staff were used to this because of previous smaller storms, but they were quite unprepared psychologically for the strength of Tracy. Nevertheless, by keeping patients away from dangerous windows, putting them on the floors and in corridors, none of them were hurt. But lights failed, the floors were swimming ankle deep in water, and there was total lack of communication with the outside world. As soon as he could the surgeon reached the hospital and set to work, often in appalling conditions. He operated on one little girl with a fractured skull in her bed under local anaesthesia by the light of a torch held by a nurse, with his feet in three or four inches of water.

Undoubtedly the local medical and health teams did sterling work until the reinforcements arrived. Partly this was because patients everywhere were on their way to the hospital. There were lists for dealing with mass casualties. They were even in the laboratories, so that, as one nurse put it, they just had to be read for there was no other literature available. Everyone had some idea of what was expected of him or her. There was then preparedness at local and national level.

Despite the lack of harm to patients and staff, only one of seven wards was intact. The roofs of the others were damaged. The operating theatres were unusable. The main x-ray equipment was useless but the portable machines functioned with the emergency power which was soon provided. There was no steam supply and no mains water (this had to come from storage tanks). Five hundred and more patients came to the hospital on the first day, and of these 145 were admitted. It was fortunate that because of Christmas there were 132 vacant beds. Patients came with penetrating wounds, closed abdominal injuries, head injuries, major lacerations and spinal injuries, fractures of the pelvis, and five had paraplegia. Triage was carried out by one surgeon while the other dealt with the patients. The supply of blood for transfusion was adequate and was conserved until the full extent of the disaster could be assessed. The surgical policy was to excise wounds and primarily suture the skin, priority to evacuation. No attempt was made to suture nerves or tendons. The two surgeons supervised a team of non-surgical specialists, who cleaned and sutured lacerations. A resident medical officer stayed in each ward, and the gynaecologist oversaw the flow of patients to the theatre. By the time two surgical teams arrived with General Stretton much of the first work had been done.

Evacuating the Population

Outside the hospital the bewildered population moved into the few remaining buildings such as schools. Latrines were dug and safe water was supplied by tankers. But the major effort was put into evacuation, especially by aeroplane. This was done by the R.A.A.F., which finally lifted 22 000 people out of the area. They were taken to all other major cities in Australia, where hospitals were alerted and reception centres set up. Other people made their way out of the disaster zone by car, and there was an issue of vouchers for petrol and mechanical repairs by the government. It needs to be realized that one of the major cities for which these evacuees headed was Adelaide, 2000 miles (3218 km) away, passing through Alice Springs on the way. Naturally there was often a good deal of help offered by those along the route to those who had been stricken, though there were a few unhappy instances of exploitation and profiteering.

General Stretton mobilized his forces to bring in food and medical supplies, and in came 1000 doses of tetanus vaccine, 3000 doses of penicillin, and 30 000 doses of typhoid vaccine. Communications were established through the wireless of a ship which had steamed into the harbour to be of help. Power supplies were restored. One side effect of the lack of electricity was that bodies which could not be refrigerated began to putrefy, and this was combined with immense problems of identification. It was also very difficult to keep a checklist on the evacuees and so to decide who was missing. But astonishingly the situation was quite quickly reduced to a semblance of order and the army of primary helpers could be sent home. Those who volunteered to help were legion.

There was still the problem of what might be termed secondary care. This involved and involves the local area in tidying up and rebuilding, but the people had fled to all parts of the Commonwealth and they needed social and psychological support wherever they were. Even six months later these are still necessary. Money was raised by the inhabitants of Alice Springs to the tune of $103 000 and they gave $50 to each adult and $20 to each child from Darwin who passed through the town. The government advertised widely in all the media explaining the relief that was available from their resources for the victims. The psychological aftermath is probably incalculable but is still being estimated by various studies. One investigation showed that some 39 of 67 survivors tested five to eight days after the cyclone by the General Health Questionnaire had some degree of psychiatric illness. The worst effects of the experience were shown in older people and in women. Grief reactions have not been assessed. One can only guess at the mental state of a man who, while carrying two small children to a car, had one plucked out of his grip who was never seen again. And who can understand the lasting nightmare of finding a woman under two mattresses in her bath speared through by an iron pipe?

Message for the Future

Despite the fact that cyclones are well known in the area, and a few minor ones have harmed Darwin in the past, there was no real preparedness in the soundness of the buildings. Many of these were flimsy structures of wood, corrugated iron roofs, and often on stilts. The buildings of brick withstood many of the ravages of the storm. The message for the future is clear, and is already being implemented in the rebuilding programme. Dealing with all aspects of the consequences of this catastrophe showed the value of the National Disasters Organization and of having one man in charge of all operations with supreme authority. Communications, as always, were found to be vital and need restoration as quickly as possible. The versatility of the armed Forces was shown once again. Their readiness for all eventualities comes near to being incredible. Their medical facilities were invaluable, since the mobilization of the civilians is inevitably a slightly slower process, but even these doctors were rapidly on the scene. It is necessary to have a wide spread of ability here.

The drama perhaps goes to the surgeons, but the back-up of organization is equally wanted. General practitioners in smaller centres away from the hospital showed their worth in dealing with diseases such as infections, rashes, fevers, and so on which are inevitable, and they kept much of the weight off the hospital. Public health services are paramount to prevent epidemics; and evacuation of the injured, the sick, women, and children—and later the physically unharmed survivors—is essential. They all need help in areas untouched by the disaster. Then come the mopping-up operations and the rebuilding. But the aftermath continues long after the major disaster is over, and this fact is now being increasingly realized. Continuing efforts, mobilizing a large variety of psychosocial services, are needed for rehabilitation.

The background material for some of this article has been derived from newspapers of the time, while the 24 May issue of the Medical Journal of Australia deals in some depth with the medical aspects.