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Contents

Combatting Disasters—A New Concept
MAG. GEN. ALAN STRETTON 2

Weather Services in Canada R. A. MILLER 6

Emergency! W. M. SWANN 12

Emergency Planning Seminar—Command and Pl
E. TYLER 14

The Emergency Measures Process G. H. EMERSON . . . 17

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COMBATTING DISASTERS — A NEW CONCEPT

by

Major-General Alan Stretton, CBE, Director-General
Natural Disasters Organisation, Australia

Introduction

Natural disasters, with their inevitable toll of life and destruction to property, are one threat to Australia and her Territories that can be clearly foreseen. Australia's history is interwoven with a variety of disasters which occur with monotonous regularity, in the form of cyclones, floods, bushfires, droughts, and even earthquakes. One of the worst cyclones occurred in the last decade of the 19th century, and 300 people lost their lives when it struck an area north of Cairns. Cyclones are a regular feature of the tropical North Queensland scene and many will remember cyclone "Althea" which, on Cristmas Eve 1971, hit Townsville causing havoc and approximately $50m damage.

Bushfires seem to be the staple diet for disaster in southern Australia; among the most tragic of these were the bushfires in Victoria in 1939 when 72 lives were lost, and the Tasmanian bushfires in 1967 when 62 people were burnt to death. In the Hobart area on Black Tuesday, in a little over 5 hours, 7,500 people were rendered homeless, 1,500 cars and trucks were burnt out, and 100 bridges were destroyed together with thousands of power and telephone poles. Agricultural losses included more than 50,000 sheep; 3,000 miles of farm fences were destroyed and over 1,800 farms suffered damage. A black cloud of smoke rose 2,000 feet above Hobart, the airport was closed, three of the four radio stations were off the air and Hobart was virtually isolated from the rest of the world. Contact with the mainland was restored only when a Royal Australian Navy ship came into the harbour and established communications. The total cost of the damage exceeded $45m.

In the west of our continent, natural disasters take the form of cyclones in the north west and earthquakes further south. In 1968, in one-tenth of a second, the town of Meckering was flattened. In 1967/68, drought in eastern Australia caused damage worth over $1,000m. The damage caused by the recent floods in the eastern States also runs into a figure approaching $200m and the distress caused to people who had to evacuate their homes is only too apparent.

As tragic as these various disasters have been in our short course of history, we have not yet experienced within the memory of white men on this continent, a natural disaster of the dimensions of those that occur elsewhere in the world. For instance, in August 1970, a cyclone hit East Pakistan and caused great devastation which resulted in the death of nearly ⅓ million people. In the United States in June 1972, cyclone "Agnes" took a toll of 122 lives and caused damage estimated at $2,800m.* A geological study of Australia indicates that in the past our country has experienced major earthquakes and tidal waves on the eastern seaboard.

Meeting of Australian and State Ministers

It was against this background that in February 1974 the Australian Government decided to create a Natural Disasters Organisation (NDO) which would absorb the existing Civil Defence Organisation and put new emphasis on the combatting of floods, bushfires and other disasters. The Government recognized that the strengthening of emergency services at all levels to cope with natural disasters would also greatly increase Australian civil defence capacity.

Following this decision a meeting of Australian Government and State Ministers, under the chairmanship of Defence Minister, Lance Barnard, was held in Canberra on 27 June to discuss the new organisation. It was agreed that both levels of Government would work towards an improvement of the methods for co-ordinating measures to plan for and cope with natural disasters.

The NDO was set up on 2 July 1974 and high priority has been given to the task of becoming fully functional by the end of October. Already the Public Service Board has approved of the establishment, staff have been recruited, accommodation has been provided at Northbourne House in Canberra, communications are currently being installed, procedures are being developed, and there is every indication that the organisation will be able to meet its deadline.

The headquarters of the NDO, through its National Emergency Operations Centre, will provide a focal point for the co-ordination of national effort and will ensure that States receive the full support of the Australian Government in helping them to cope with disasters.

Responsibilities

The responsibilities of the Natural Disasters Organisation are as follows:—

- Co-ordination of Australian Government assistance in natural disasters.
- Civil defence programmes affecting the civilian population.
- Plans to cope with natural disasters and civil defence in Australian Territories.
- Co-ordination of research and direction of public information programmes.
- Direction of the Australian Government support programmes for the provision of emergency equipment and financial subsidies.

*This article was written prior to the cyclone disaster which struck Darwin on Christmas Day 1974.

- Operation of the National Emergency Operations Centre.
- Direction of the National Emergency Training College.

National Emergency Operations Centre (NEOC)

This centre, which is the operational element of NDO, will have communications to emergency centres in each State and to the Defence Forces, as well as to other government departments. Its communications will be based on PMG type facilities including Telex, but there will be plans to supplement this system with an emergency system manned by the Defence Forces and civilian volunteers should there be a disruption to normal communications.

The nucleus of the staff for the NEOC will come from the permanent staff of the Natural Disasters Organisation. However, where the NEOC has to be manned on a 24-hour basis during emergencies, the NDO staff will be supplemented by staff officers from the three Services and from a panel of civilian volunteers. This supplementary staff will be trained at the National Emergency Services College at Mount Macedon and will form an integrated team capable of handling requests for assistance during emergencies. It is stressed that the day-to-day running of operations in States will still remain the responsibility of State authorities. The task of the NEOC will be to handle major requests involving the Defence Forces or other Australian government departments in areas which are beyond the resources of the State. The NEOC will therefore be dealing more with an allocation of national resources to States rather than becoming involved in detailed operations. To put it in military terms, tactical operations are the responsibility of the States while strategic operations will be vested in the NEOC.

During emergencies the NEOC will become an Australian Government information centre and will be the vehicle through which national assistance to States in emergencies will be co-ordinated. This co-ordination will not only involve the Defence Forces but many other departments including, for example, the Department of Health, the Department of Transport and the Department of Social Security, as well as a number of philanthropic organisations.

The Role of Volunteer Organisations

It is the citizens themselves who will form the basic framework of the Natural Disasters Organisation. It is the local citizens who are first on the spot during an emergency and who have the local knowledge to cope with the immediate situation. The Australian Government has decided to play a larger part in improving the capabilities of the Civil Defence and Emergency Services volunteers in all States. This is being done by an increase in the amount of money available for the purchase of equipment for volunteers, by assisting States to establish full time organizers at intermediate levels to assist

with the organisation and training of local voluntary organisations, and by offering States or local governments a subsidy on a dollar for dollar basis for accommodation.

For a number of years there has been a modest equipment programme for Civil Defence volunteers, but there has been no increase in funds for over ten years during which time the purchasing power of the money has been seriously eroded. This trend is being arrested in the financial year 1974/75 and there has been a considerable increase in the funds available. A wider range of equipment is being made available from protective clothing to wireless sets and vehicles. It will take some time for this equipment programme to get under way and its effect will not become apparent until 1975.

Although the volunteer organisations vary considerably from State to State, most States have adopted an organisational structure with a controller at local government level and a State headquarters. In some States, particularly Ned South Wales, there are also regional or district headquarters which co-ordinate a number of local controllers. The Australian Government has indicated to States that it is prepared to consider reimbursing States for the cost of salaries of full time staffs at intermediate level. These staffs will assist in the running of courses, provide the necessary text books and training aids, and will improve the efficiency of volunteers. State authorities have the responsibility of dovetailing the volunteer organisations into their overall State disaster plans. The accommodation costs and working expenses for these staffs are to be met by the States.

The injection of increased Australian Government funds into Emergency Services volunteers through the Natural Disasters Organisation will increase their effectiveness and capability in combatting natural disasters, and will provide a firm base for the development of a civil defence organisation should there be a deterioration in the strategic situation with a subsequent risk of air or nuclear attack against the civil population.

National Planning

In New South Wales, the State Emergency Services have far-reaching powers during emergencies in that State, and they are responsible for the running of operations during emergencies. In other States, the police have overall co-ordination responsibilities and the voluntary organisations work under general police direction. In Tasmania, there is a compromise where the Commissioner of Police is the Co-ordinator of the State Disaster Plan but the Director of Civil Defence and Emergency Services is designated as his Deputy and actually runs the operation from the Civil Defence and Emergency Services headquarters. Most States have developed State Disaster Plans although these vary greatly in scope and quality.

It is the task of the Natural Disasters Organisation to develop national plans to supplement State Disaster Plans so that there will be a complete national response should States find they have insufficient resources to deal with a disaster. These national plans will involve the Defence Forces and most Australian Government departments, philanthropic organisations at national levels, and the provision of assistance from other States. Preliminary discussions have already taken place with some States and with such bodies as the National Disaster Committee of the Red Cross and the National War Medical Council. Plans will need to be developed to deal with a wide variety of situations ranging from cyclones in North Queensland, to the isolation of Darwin by floods or the consequences of a major earthquake in a capital city, such as Perth. National planning will involve the whole community and will be aimed at ensuring that if an area of Australia is devastated by a natural disaster, plans can be activated which will result in the maximum aid arriving from the rest of the Continent in the minimum of time.

Role of the Defence Forces

The Government has already decided that the Defence Forces will play a more positive role in combatting natural disasters and already we have seen a scale of support during the recent floods in eastern Australia which is unprecedented in Australia's history. The RAAF alone flew more than 4,000 sorties in support of flood operations in Queensland and northern New South Wales; the operating cost of their aircraft exceeding one million dollars. The Army in operating watercraft and providing manpower and emergency stores has played a major part in flood relief operations as have the Navy, particularly during the recent floods in the Nowra area.

It is emphasized that the Defence Forces are to be used *in support* of the State professional and volunteer services and are not to become responsible for the overall operations. This responsibility rests with the individual States and State Ministers have been assured by the Minister for Defence that the Australian Government has no intention of assuming any greater responsibilities in this field.

Within the Defence Forces there already exists a considerable power of delegation to subordinate commanders to commit resources where life is at stake or to prevent extensive loss or damage to property. No doubt these delegations will remain but there will be greater co-ordination between the three Services through the agency of Local Planning Committees, which are representative of the three Services located in each State. The setting up of a Joint Operations Centre in a State to deal with a natural disaster of major dimensions is not precluded from current Defence thinking. The working procedures between the Natural Disasters Organisation and the Defence Joint Staff are currently under discussion and it is expected that a recommendation will shortly be submitted to the Chiefs of Staff Committee.

It is proposed that where Defence Force assistance

is provided during natural disasters the Services should be represented at all operational levels. This representation starts in the National Emergency Operations Centre and continues down to the appropriate operational level in each State whether it be at State, District or Local Government level. These Defence Force representatives would accept appropriate overall tasks but the command of units and sub-units and the detailed tasking will be carried out through the normal chain of Service command.

Preventative Measures

The Australian Government already allocates funds aimed at alleviating the effects of natural disasters. The Department of Urban and Regional Development administers a Flood Mitigation Scheme involving major engineering works and State Aid grants are used for other preventative measures. The Natural Disasters Organisation is responsible for administering smaller supplementary schemes involving the construction of levee banks, flood drains and firebreaks. These subsidies are to be on a dollar for dollar basis with either State or Local Governments.

It is expected that the Department of Science, through the Meteorological Bureau, will remain responsible for the operation of early warning systems but it will be the task of the NDO to supplement these warnings with a public information programme so that the public will know what to do when the various warnings are issued. Close liaison is being maintained with the Meteorological Bureau on developments overseas which will improve the existing system.

The public information programme will not only be designed to develop disaster awareness within the community, but also will include the preparation of text books and pamphlets for use in the training of local volunteers.

The National Emergency Services College

The Director-General of the NDO is responsible for the direction of the Australian Civil Defence School at Mount Macedon which was established in 1956. Since that time, nearly 20,000 students have received instruction on the various aspects of civil defence. It is proposed that this School will be expanded and elevated to College status and that the emphasis in its instruction will be placed on high level counter disaster planning and disaster services administration. The first pilot courses of either one or two weeks duration have already been conducted and the newly issued 1975 programme of studies is designed to reflect the new changes. A greater number of servicemen will be attending courses at Mt. Macedon in the future.

An operational research section will probably be located at the College. It will assemble disaster statistics, conduct post disaster evaluations, study disaster planning and related operational control techniques in the field, and develop a disaster research library. Their reports and advice will have an important influence on the content of courses at the College.

Conclusion

The formation of the Natural Disasters Organisation provides a focal point for national co-ordination that is long overdue. It administers programmes designed to improve the capability of community volunteers, and has already started the preparation of national plans to deal with natural disasters of a major nature. Its preventative and public information programmes will take some time to develop but will play a major part in mitigating the effects of natural disasters. The positive role of the Defence Forces in natural disasters provides the Natural Disasters Organisation with a capability to support the States on a scale hitherto unknown in this country. The Natural Disasters Organisation has a unique role within the Department of Defence in that its sole aim is the preservation of life. It is probably because of this that it has found such ready acceptance within the Australian community. ▲

WEATHER SERVICES IN CANADA

by
R. A. Miller
Atmospheric Environment Service
Environment Canada

The story of weather services to Canadians is one of a century of carefully nurtured growth and development interrupted from time to time by set backs which have, fortunately, been only temporary. Today, weather services in Canada, organized under the Environment Canada banner, are the responsibility of the Atmospheric Environment Service (AES), an organization which, prior to 1971, was variously called the Meteorological Service of Canada or simply, "The Met. Office."

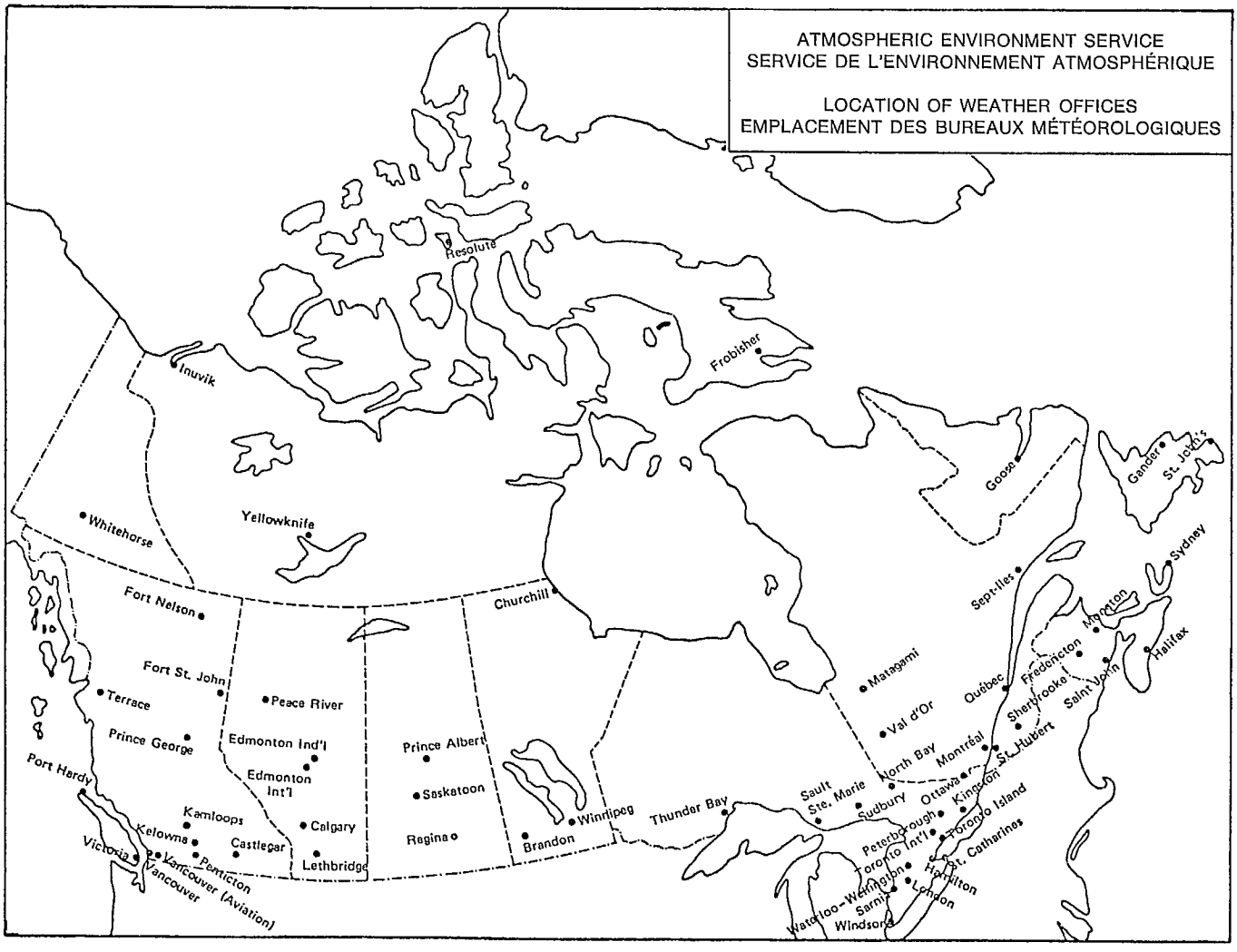
A natural curiosity about Canadian climate stimulated the more scientifically-minded of the early explorers and settlers in Canada resulting in the publication of fragmentary weather reports during the 16th and 17th centuries. The designation of a "service" can hardly be said to apply to these observations or even to the more regular and consistent reports published by the Toronto Magnetic Observatory after 1840, and in Montreal, by Dr. Smallwood, somewhat later. Early in 1871, Professor Kingston, Director of the Toronto Observatory, following correspondence with the Honourable Peter Mitchell, Minister of Marine and Fisheries in the new Canadian Government, succeeded in impressing upon him the advantages and value to the country of a national network of stations to observe the weather and of a system to issue storm warnings. A sum of $5,000 was placed in the estimates for meteorological observations "with a view to ultimately establishing storm signals." By an Order-in-Council, dated May 1, 1871 the proposal was approved by the Government and a national service was organized in Canada. The sum, even considering the economy of that time, was very small for the task, but the fledgling service received welcome support from railroad and steamship companies as well as from voluntary observers. The first Canadian storm warnings were issued in 1876. An indication of the success of the venture was the following resolution passed in Toronto — "The Marine Exchange cannot close its meetings for 1876 without putting on record its appreciation of the services rendered by the Meteorological Department during the past season in accurately forecasting the weather."

It is evident from the first reports of the Service that the severe weather warnings were designed to prevent the type of marine disasters which were then all too common. Although what we would call public forecasts were instituted by the Service in 1876 and telegraphed from Toronto to the "principal places" of Canada, there existed no means whereby the individual Canadian could readily obtain this information. Forecasts were posted on post office and telegraph office bulletin boards and in the evening newspapers. The storm warnings were telegraphed to marine agents who hoisted storm signal baskets on exposed headlands and on towers.

Although the warnings issued in these early days were of immense value, it is worth noting that the loss of life and property continued to be great due in retrospect, to the yet undeveloped science and to the technological inability to provide a more effective system. In November of 1913 a storm of the greatest severity swept the Great Lakes. At least 8 large ships were lost and more than 200 seamen were drowned. Such a loss of life is difficult to imagine today, and yet, nature's forces still rage and it is an imprudent boat operator who ventures forth without checking the marine forecast.

The advent of radio and later, television has greatly increased the ability of the Service to make available to Canadians information on the daily changes in the weather which are so much a feature of the Canadian climate. This improvement in the dissemination of weather information has been accompanied by advances in the science of meteorology itself, and it would be profitable to examine these in some detail.

Meteorology is the science of the atmosphere. As in most sciences it is necessary to make careful observations, record the information, study it in some detail and then make hypotheses which can then be tested and either rejected or accepted as useful theories on atmospheric behaviour. We know now that the atmosphere is incredibly complex. Although all heat is derived from the sun, the manner in which it is released into the atmosphere through a series of energy exchanges makes it impossible to give a simple explanation of weather phenomena. The heat stored in oceans is as important as that expended in the melting of glaciers and ice packs. The vast cloud systems which build up in the tropical oceans generate vast pools of energy which give rise to hurricanes and typhoons. The forecaster who must predict the vagaries of the weather, can hardly concern himself with these changes since the time scales involved are beyond the capability of a weather service to utilize in daily forecasting. Studies are being carried out to allow man to understand the global atmosphere. In 1974, eleven countries and close to forty ships cooperated in a data gathering project called GATE (Global Atmospheric Tropical Experiment) in the equatorial Atlantic Ocean. The ultimate goal of GATE, and similar projects, is to help man understand



global atmospheric processes well enough to allow predictions of weather up to several weeks in advance.

Modern weather forecasting is an intricate process involving thousands of people engaged in observing, communicating, forecasting, and researching, using facilities such as ships, balloon ascents, aircraft, automatic reporting stations and computers. Weather data are gathered daily both from surface and upper-air observing stations. The Canadian network includes 300 surface stations and 35 upper-air stations reporting daily and, in cases, hourly. Through the capabilities of modern automated communications circuits, Canadian and world data are fed into a modern high-capacity computer in Montreal which, in turn, produces the analyzed charts and prognostics information on which regional forecasts are based. Before World War II, all forecasting in Canada for the public was conducted from a Central Office in Toronto. Today 10 major regional weather offices carry out this task as a daily around-the-clock operation. Local factors are built into the forecast to make it as accurate as possible. The guidance received from the Montreal computer centre is supplemented by local reports, radar data and photographs received from weather satellites. Forecasts are updated as new data become available. Even so, the Atmospheric Environment Service cannot predict detailed weather changes beyond three to five days in advance with very great accuracy. Nevertheless, medium-range forecasting accuracy is much better and permits the issuance of timely warnings for most weather happenings which might result in the loss of life and/or property.

The Atmospheric Environment Service does not have a special centre to issue warnings of expected severe weather. The basis for this decision is that severe weather phenomena are integral parts of the overall weather pattern. Since it is the responsibility of each regional weather office to assess and make predictions based on the best and latest data available, severe weather can, and should, be handled as part of the normal forecast routine. In practice, special arrangements exist to alert the public and special agencies, such as Emergency Planning Canada, about the expected occurrence of certain weather phenomena. The number of such agencies is great and reflects the variety

of weather-sensitive activities and enterprises which require this information. We might begin by mentioning public utilities such as hydro-electric companies and transit authorities. We could add traffic and urban snow removal departments, transportation companies, airport maintenance and control — the list is almost endless. There are, in total, over sixty official weather office outlets for weather information and this number is increasing. The cooperation of the media and the public authorities is essential to the task.

Before going into detail about the cooperation between levels of governments and the AES, a description of how severe weather warnings and advisory messages are issued might be useful. In general, weather warnings are issued when expected weather conditions may endanger "lives, property or public welfare." The types of phenomena which might give rise to this situation are blizzards, severe dust storms, storms of freezing rain or drizzle, heavy or very wet snowfall, extremely strong winds, cold waves or unseasonable frosts or any other weather condition dangerous to human life, property, livestock or crops.

At times, in developing weather situations, a warning may be premature but it is considered useful to advise the public. In such a case an advisory is issued which may be replaced later by a weather warning. Sometimes when the weather is not expected to reach severe proportions, an advisory message, by itself, is considered sufficient.

It should be noted that, in general, the AES stays clear of words like tornado, hurricane, or cyclone in issuing warnings and advisories; these are terms which are loaded with an emotional content which is likely to give rise to panic in some cases. In general, they are comparatively rare phenomena in Canada and while every regional weather office is prepared to issue appropriate warnings, if necessary, it is the weather conditions themselves (strong winds, heavy rains, etc.) which are emphasized. Also, a great deal of latitude is given AES regional officers in determining what emphasis is given certain phenomenon. For example, a sudden drop to below freezing is serious on the west coast whereas it could be considered normal on the prairies. Similarly, a sudden downpour of heavy rain which is commonplace in Southern Ontario might produce flash floods in the interior valleys of British Columbia.

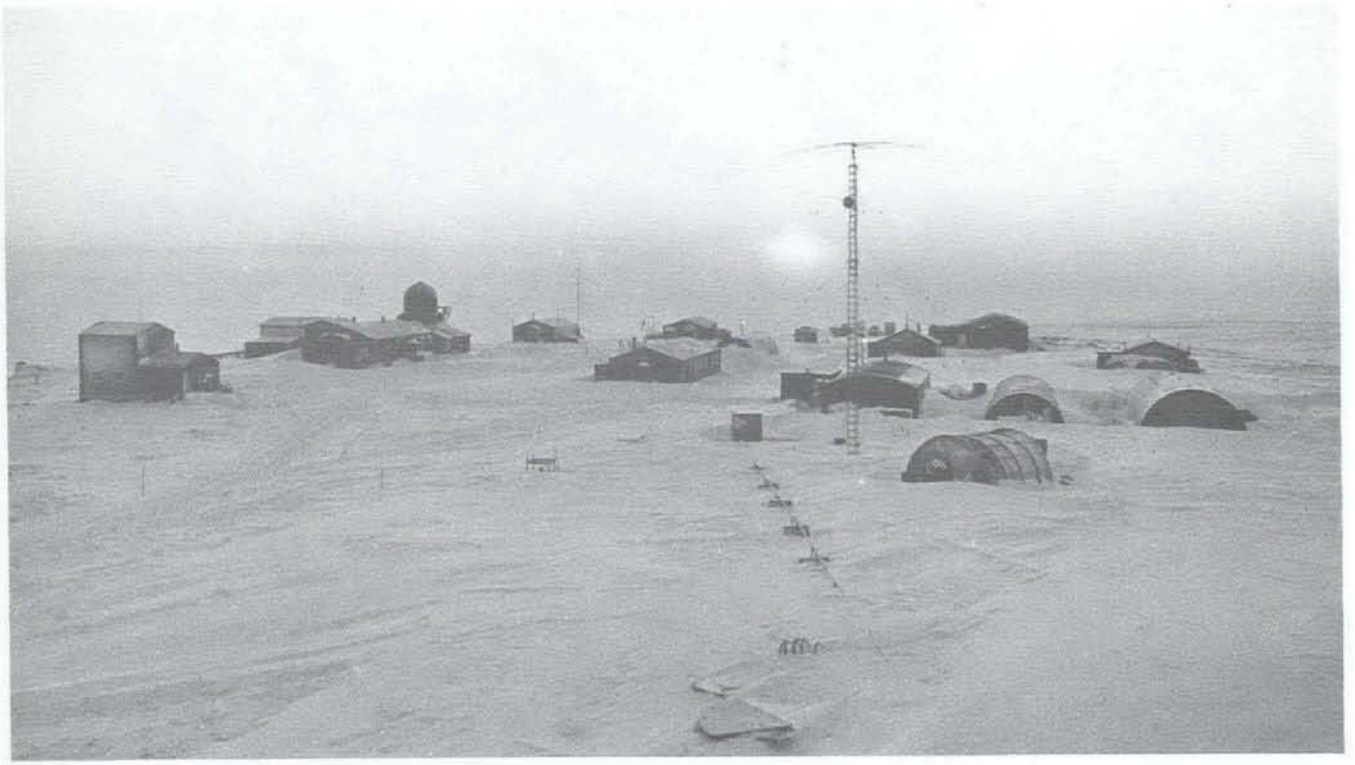
Canada's weathermen endure, along with their colleagues in other countries, a certain amount of public teasing about their work. In fact, forecasts are more accurate than ever but the meteorologist is a victim of

Workers grapple with dangling tree limbs following an ice storm.

Flood waters — Cambridge, Ontario, 1973.

rising expectations. The beach-bound vacationer is upset if a layer of cloud interrupts his direct contact with the sun. Meteorologically speaking, the cloud layer is insignificant but it is there and may not have been forecast. Today it is a rarity for major storms to catch the weather service unaware. The Chief of the Atlantic Weather Central was quoted recently that, whereas in years past major storms were building-up and menacing the coast undetected, now such a possibility (due to satellite monitoring) was virtually impossible. "We do not miss major winter storms now" he said. That does not mean that the timing of the predictions or amounts of snow forecast can be precise but that is a matter for further research investigation.

At the headquarters of the Atmospheric Environment Service in Toronto, research is constantly being conducted on atmospheric processes seeking to understand many of the secrets which the atmosphere still contains.



The first sunrise of the year — Isachsen weather station, Northwest Territories, 1970.

Tornado near Calgary, Alberta, September, 1974.

Photo Jan Jurek.

Numerical models of the atmosphere allow computer simulation of weather patterns. It has been the practice for many years to carry out "post-mortems" of major damage-producing storms by means of a special study. A classic case was "Hurricane Hazel" which struck the Toronto area in October, 1954. Today, more than twenty years after this catastrophe, a monograph of the weather conditions associated with "Hazel" is still a widely requested publication of the AES. Although the heavy rains associated with Hazel were well forecast, the loss of life which resulted was the outcome of a failure to understand what could happen in the low-lying areas of the city and to take precautionary measures.

Today, we are still, in many cases, unprepared to handle a sudden deluge of water, strong winds, or heavy snow. As the Winnipeg Tribune editorialized on May 25 of this year after a record-breaking rain drenched the city and flooded basements. "A weather warning was issued and broadcast on the radio. However, this didn't convey the message to citizens that this might affect their homes." This is indeed a challenge to emergency authorities and others — how to take weather warnings and other facts into consideration in planning a system of emergency communication of use to the ordinary citizen.

There are six AES Regional Directors in Canada, each responsible for weather services in his area. The AES is seeking to increase the staff of these regional offices in order to provide a specialized service to local authorities. These services involve the closest cooperation and liaison with provincial and municipal authorities.

An example of how a special emergency situation can be handled is contained in a report of the meteorologist assigned to work with the Director of the Saint John River Flood Forecast group in New Brunswick in May of this year. (EMO National Digests — August-September 1973 and October-November 1973) "During the following three days (May 2, 3, 4) I worked very closely with both the Fredericton Weather Office and the Flood Forecast Group, assessing and updating the meteorological parameters being used for the flood forecast group. These three days were very critical since the river had risen to 24.5 feet on Thursday and any further rise would have produced a very significant flooding." The report later states: "I feel the AES should be involved in such programs where weather and forecast information requires interpretation." We fully support this view.

Flood forecasting is a service which can usually be organized over a period of weeks since the potential for the flooding can be determined by the depth of the snowpack and other measurements. Not all destructive weather elements give us such warning. In some cases what is needed is instant communications. The weather information is there, but it is not being communicated. Several years ago in British Columbia, the AES in cooperation with the B.C. Safety Council and the local radio stations instituted a system whereby weather reports from a number of strategically located shoreline stations were broadcast hourly on the standard broadcast frequencies. It should be noted that these were not forecasts — only reports. Nevertheless, the availability of these reports resulted in a significant reduction in the number of boating accidents.

Meteorologists have coined the term "nowcasting" to mean a complete and accurate measurement and reporting of weather conditions along with the quickest and most effective methods available for distribution. The AES is willing and able to cooperate with **Emergency Planning Canada** and other agencies to ensure that the tricks that nature plays weatherwise do not result in tragedy. ▲

EMERGENCY!

Is Your Municipality Prepared?

by

W. M. Swann, Borough Engineer
Borough of Etobicoke, Ontario

What is an emergency? The dictionary says — a sudden happening which requires immediate action. To a speaker preparing to address an audience, I am sure it would be closer to a catastrophe than an emergency if he were to misplace his false teeth. To his audience this might be a godsend rather than a catastrophe.

I make this point simply to emphasize that what is an emergency in the eyes of one person may not be an emergency in the eyes of someone else.

It is my experience that in the small municipality of a few years ago the residents would get out themselves and clear debris off the catch-basins on the public road allowance or do any other task which they could handle themselves and think nothing of it. As the municipalities grew in size and our outlook in an urban society changed, it seems to me that the attitude of many — and, indeed, most of the ratepayers — is to call up the municipality on any problem, whether it be major or minor, and ask the municipality to handle it.

Unfortunately from a telephone call, it is often not easy to distinguish whether the problem is a minor nuisance or a major emergency.

To further complicate matters, our modern technology, as it has developed in the last 100 years, makes emergencies much more complex to deal with. To add to the trials and tribulations of those charged with dealing with emergencies in a municipality, modern civilization has, in my opinion, moved from the technological age to the chemical age.

In so doing we have not discarded technology nor lessened the technological problems but only added a new dimension to the already existing responsibilities of a modern Works and/or Engineering Department, namely, that of also dealing with complex chemical problems.

What are the responsibilities of the appointed officials in an emergency? The responsibilities of a fire department are fairly clear cut and evident to the public. Generally speaking, the responsibilities of the medical officer of health are reasonably well defined. In case of electrical supply emergency, again the responsibilities of the electrical commission are self-evident.

Most other emergencies, regardless of their nature, would seem to fall within the scope of the works or engineering department. Even though the responsibilities in such emergencies may not be specifically assigned to the engineer in day to day operations, it seems in the majority of municipalities to fall on him to solve or deal with any technical or chemical emergency which may arise.

I suppose this is natural, since in any municipality it seems the four departments which have some degree of organization on a "round the clock" basis are the police department, fire department, electrical commission and the works or engineering department.

In a community with any amount of industry, a further factor arises. An emergency which closes down industry puts people out of work. In some cases the emergency may be even much more serious than a temporary "shut down" of operation since it may also "foul up" the manufacturing processes. For instance, if water is unexpectedly cut off without notice, it can literally cause a catastrophe in a glass manufacturing plant.

Thus, it is evident that the need for preparedness is much more important today in our modern community because of these factors — the complexity of our municipal services, the demanding nature of our citizens, both individual and corporate, and the need to deal with emergencies promptly and efficiently.

Without constant review of your municipality's preparedness, you will find that when an emergency arises you are not prepared — that materials or equipment are not available — that personnel are not trained. Without minor emergencies we all tend to become complacent and fail to properly prepare for major emergencies.

May I remind you Hurricane Hazel, which struck the Toronto area in 1954, struck hardest at the Municipality of Etobicoke. For some two and one-half days the centre of administration for repairs to municipal services as well as many other emergency activities was in the engineering department, and because of this I am perhaps more concerned with the problem and the need for preparedness than someone who has not encountered such emergencies.

To give an idea of the extent of Hurricane Hazel emergency, 28 of 31 bridges leading in and out of the municipality were inoperative the next day. One third of the municipality was without water for two days. One quarter of the municipality had no telephone service for four days. For some four days volunteer "HAM" radio operators provided communications in a municipality sorely deprived of means of communication.

In recent years the municipality has experienced one fatal airplane crash and one serious train wreck within its boundaries.

Fortunately, spills of inflammables or toxic chemicals, although numerous, have been of a minor nature. I am thankful that urbanized Etobicoke never experienced a train wreck and acid spill such as were recently experienced in rural Welland area. Can you imagine the situation if it had occurred in an urban area? I can, and

that is perhaps partially why the thought that it could happen in Etobicoke disturbs me.

Is your municipality prepared for and capable of coping with any emergency? Take a look at your organization and make sure it is. If you are lucky, maybe you won't need to use your planned preparedness. If you are unlucky, you'll "thank your lucky stars" you were prepared.

No two emergencies are alike and so I stress that it is not possible to set up a pre-charted, pre-determined course of action. Rather, I stress the need to have personnel, material and equipment, either on hand or readily available, and, most important of all, to have the supervisory staff and organization which can firstly, recognize an emergency, secondly, identify the emergency and thirdly, communicate with those who are responsible for coping with the emergency.

Capable, qualified personnel is the most valuable asset you have. Bodies or numbers are not the important factor — You must have qualified personnel readily available who are capable of analyzing the situation, and making decisions — decisions as to whether the municipality can handle the emergency with its own forces or must call in larger and better equipped emergency forces such as Regional, Provincial or Federal assistance. You must have qualified personnel who are capable of organizing the men, materials and equipment to take effective remedial action immediately.

If an emergency occurs during normal working hours, it is serious, but usually you or your deputy or other capable senior personnel are available. But what of an evening, or a weekend or a holiday? Is your municipality organized for emergencies which occur during non-working hours? How well organized? In the event of a major emergency (which results in numerous telephone calls) will your telephone service be swamped? Is it set up to take calls and make calls in order to take remedial action even though all incoming lines are occupied by calls? Can and will all emergency stations be manned?

The Procedures Manual of the Etobicoke Engineering Department has a number of "Procedures" which pertain to handling of emergencies. The headings on some of these procedures are as follows:

- Emergency Telephone Numbers — i.e. Metropolitan Toronto, Police, Fire, Lifesaving, Ambulance, etc.
- Telephone Emergency Numbers — of key personnel in the Borough.
- Metropolitan Toronto Emergency Measures Organization — line organization and telephones.
- Emergency Radio Control.
- Engineering Department "On Call" Personnel.
- Borough Procedure with respect to spillage of liquid pollutants on road or ground surface.

A few years ago, the staff of the Borough of Etobicoke recognized a need for co-ordination of efforts of the various borough departments in order to adequately plan to cope with major emergencies. A staff committee was established with representatives from police, fire, public health, works, traffic and other departments. The committee met approximately four times a year to review plans and procedures.

At these meetings, the committee reviewed all emergencies of even minor nature which involved more than one department to ensure that previous planning had functioned well and to make changes in the planning if changes appeared necessary. The value of this committee was proven most emphatically when a review of the borough's handling of the emergencies of a plane crash, a train derailment, a major fire, a major gas explosion and several spills of toxic materials showed that the planning of the committee had enabled a far better handling of the various situations.

Earlier I referred to the need for liaison with higher levels of government — regional, provincial and federal — and the formulation of a coordinated plan for dealing with the more serious emergencies. This is most important to avoid duplication of effort and, even more important, to ensure that everything will be done as quickly as possible in the event of a major emergency.

Preparedness is the key word in handling emergencies capably, and to be prepared you must plan in advance.

I put the question to you — **is your municipaliy prepared to handle any emergency that may arise in a capable and expeditious manner?** If not, you had better get busy and do some planning. ▲

EMERGENCY PLANNING SEMINAR

A dirty scenario based on a fictitious major aircrash in the centre of a large city was the background for a two-day seminar on "Interagency Responsibilities and Relationships in Major Disasters" for about ninety senior emergency planning officials from all parts of Canada. Convened at the Canadian Emergency Mesures College, Arnprior, Ont., by Emergency Planning Canada in October, 1974, the seminar was multi-disaster oriented to enable officials from the municipal and federal levels of government, and the private sector, to discuss the implications, prerogatives, responsibilities and relationships of each in any disaster situation. Following the two days of presentations and discussions by such disaster response agencies as transport, police, municipal coordination, ***command and public information (follows),*** *firefighting, rescue, medical, coroner, armed forces, customs, immigration, law and management coordination, a representative working group spent an additional two days developing a paper designed to highlight some of the more significant planning problems which arise during major emergencies.*

Command Post & Public Information

by

E. Tyler, Executive Director
Alberta Disaster Services

Introduction

This presentation will attempt to deal with principles only, and not have regard for the differences in organizations which exist in different parts of the country.

It is assumed that, in one way or another, in each of our provinces there is the authority for a municipal government and the provincial government to declare that a state of emergency exists, thus vesting itself with extraordinary powers, not normally in use.

For the purpose of this presentation, I would like to define a Command post as **"a facility of civil government — fixed or transportable — equipped and staffed, to be the focus of command, control and co-ordination of all agencies involved in the management of emergency operations".**

Before looking at the matter of a Command Post, or Emergency Operating Centre (E.O.C.), as some may call it, it should be stated that, in the absence of a pre-conceived plan, approved by the several agencies involved, endorsed and authorized by the local government authority, it will not be possible to conduct an effective operation, should the event portrayed in the narrative (a major aircrash) ever occur.

Command Post (Emergency Operating Centre)

The functions to be performed from this particular Command Post, are the control and co-ordination of all activities within the crash site security perimeter.

Let us look at a general geographic model. Adjacent to the security perimeter would be a "support" or "staging" area, at which required resources would be mobilized and gain controlled access to the crash site area. Behind the support area, would be the rest of the municipality, in which the municipal Emergency Government Headquarters would be operating. To the rear of the municipality, would be the provincial government, with its Emergency Operating/Response Centre in operation; and again, in the rear of this, would be the Government of Canada.

It is emphasized that, in an event of this magnitude, it will be necessary to activate the provincial government's co-ordinated emergency response capability.

Functions

The following functions of the Command Post may not be all-inclusive, and there may well be additions as a result of the discussion at this seminar. As we see them now, the functions are:

- Casualty Rescue and Collection (including ambulances);
- Firefighting;
- Coroner's investigation;
- Ministry of Transport investigation;
- Grid survey;
- Body recovery;
- Property collection;
- Damage assessment;
- Insurance investigation;
- Air carrier investigation;
- Public Information Services;
- Utilities restoration.

These functions are not listed in any "time" sequence, nor is any identification made of their relative importance or magnitude.

Time Frame of Operations

The Command Post will be required from its initial establishment until the crash site area can be returned to its owners and/or its former occupants.

Concept of Development

The Command Post development commences with the arrival of the first police officer on the scene, and

escalates through a designated police car (having communications), to the transportable Command Post, and even, subsequently, to a Command Post building.

Staffing

The staffing discussed here is exclusive to this particular operation, and of course, would vary should the type of operation be different. It consists of:

- Commander — a senior police officer, designated in a plan;
- Operations Co-ordinator — probably also a police officer;
- Resources Co-ordinator — whose functions include movement control from the support/staging area;
- Coroner (?)
- Ministry of Transport officer(s) — designated in a plan; (not more than two)
- Medical Officer;
- Fire Services/Rescue Officer;
- Body Recovery Officer;
- Property Recovery Officer;
- The Commander's Public Information Officer;
- Engineer;
- Communications Officer;
- Switchboard Operator.

Total — 14

Facilities

- Desk space for each;
- Radiotelephone outlet for each;
- 10-trunk telephone switchboard;
- Map board facilities;
- Segregated "planning/conference" area;
- Auxiliary power;
- Internal P.A. system;
- Minimum kitchen facilities;
- Climate control equipment;
- Floodlighting;
- External identification markings.

(Something in the order of a 35′ x 10′ trailer, with separate prime mover, appears to be an adequate type of unit.)

Operational Location

The operational location of the Command Post should be adjacent to the controlled entrance of the crash site security perimeter. The Post should be *inside* the perimeter, to prevent unauthorized access, and preferably, be sited near a temporary helicopter landing facility.

Communications

Hand-portable radio facilities, for the use of the teams within the security perimeter, e.g., police, rescue, health, M.O.T., should be available at the Command Post together with their required base station equipment. The required radio links, operating into the municipal radio systems and to the local government emergency government headquarters, must be provided.

Unity of Command

There may be controversy about the notion of "unity of command" within the site perimeter. My unrepentant position is that there must be unity of command, notwithstanding the several statutes in existence which might muddy the issue. For an event of this nature, command should be vested in a designated senior police officer.

The problem areas are readily apparent:

- Police departments may show some reluctance to accept a command role involving non-police resources;
- Other agencies, having authority, may also exhibit some concern.

I identify both of these problems as being related to the historic problem of inter-organizational relationships during emergencies. I believe the time has arrived — if, indeed, it has not long passed — when it must be said loudly and clearly that these problems must not be allowed to impede the effectiveness of emergency operations.

If it is clearly understood and accepted that the Commander is there, not to inhibit the effective conduct of operations, but rather to exercise his authority on behalf of the several agents in the Command Post, then we are more likely to have realistic plans for this kind of operation.

It cannot be forgotten that, in an operation of this nature — and indeed, in all emergency operations — there may be a time and place when decisions must be made related to priorities. Only with unity of command can vital decisions be made with maximum effectiveness. It is an objective of the emergency preparedness program in my province, to ensure that the appropriate inter-organizational relationships are identified and facilitated. Consultation, certainly! But also fast decisions may be imperative.

Public Information

For the purpose of this discussion, public information does not include the operation of a "Registration and Inquiry" service, which is known to be an essential requirement. This service would be managed from within the Support/Staging Area, and back through the local Emergency Government Headquarters.

Public Information related to a major aircrash is critical. The public have the right to know what has happened and what is going on. The objective is to provide "maximum" assistance to the public information system, rather than "minimum" assistance.

It will be noted that in the staffing of the Command Post, I have shown that the Commander has a Public Information Officer. He must be a trained P.I.O., and not an ad hoc appointment. The responsibility for providing the public information officer must be included in the approved basic plan. The Commander's P.I.O. would be the only public information person to have access to the Command Post.

A Press Centre, for the congregation and servicing of the public information media must be provided in the Support Area, and also at the Municipal Emergency Government Headquarters.

The aim of the Commander and the other officers at the Command Post will be to authorize access of the media personnel to the crash site area at the earliest possible moment, consistent with the investigative requirements of the operation.

Municipal and provincial authorities, in many cases, have a trained public information capacity, and these government employees should be integrated, as necessary, into the system for disseminating information and dealing with media representatives.

It is clear that only small parties of media representatives can tour the crash site area; that each party must be accompanied by a guide, and that each individual must be identifiable. Media "pooling" may be necessary.

The Commander must, at the earliest possible time, make himself and his specialist staff available to the media at the Press Centre. Justifiable criticism will result if the public information requirement is not met in a professionally competent manner.

Although not directly related to the Public Information function, I believe that the approved plan must include arrangements for extensive filming by authorized persons who have been previously designated and briefed. The results of such filming will be of inestimable value for record and training purposes.

Conclusion

This subject has been treated in only a relatively superficial manner, but I believe a number of issues that have emerged, from both disaster operations' experience and disaster research, must be applied in the establishment and management of a Command Post.

To reiterate, it would seem that several principles may be ennunciated. These are:

- There must be a pre-conceived approved plan, which provides for:
  - — Unity of command;
  - — A transportable Command Post (EOC);
  - — A Command Post organization which provides for the management of the identified functions;
  - — Maximum — rather than minimum — public information.
- Prior discussion and understanding of the organizational inter-relationships.

Finally, the approved plan, and everything associated with it, will not be worth the paper it's written on, unless there is a regular schedule of exercising and testing the plan and the people responsible for its execution. If this is one of those things for which time cannot be found, then we must seriously question our views on our responsibilities to the public. ▲

THE EMERGENCY MEASURES PROCESS

by

G. H. Emerson, Director
Nova Scotia Emergency Measures Organization

The foremost aim in Emergency Measures is to "enhance the capability of municipalities to plan for, and to react to emergencies within the community".

This implies that the individual community should in the first instance be able to help itself. Analyses of disasters have shown that the success of the community's ability to recover from a disaster has been in direct proportion to its ability to bring its own planning and resources plus the resources of their neighbouring communities to bear on the emergency.

This article is addressed to the individual municipality and describes the process which you in the community and we at the provincial government level work as a team to make emergency preparedness of your community complete.

There are four basic elements to the emergency measures process: hazard analysis, identification of resources, planning, and exercising.

Hazard analysis is the identification of those sets of hazards that are peculiar to each individual community. The purpose of doing a hazard analysis is to provide a basis for planning and to set priorities. It also helps to identify the resources that are required to meet the emergency. This task is co-ordinated and put into final form by the zone controller for Emergency Measures (Nova Scotia) in which your municipality lies.

The zone controller requires the assistance of local governments and individuals who have a thorough and long-standing knowledge of the community. It is a continuing process, and the analysis must be modified as new hazards appear and others are downgraded.

In any emergency situation it is essential that the municipal authority have available a record of resources available to counteract its effect and to safeguard lives and property. In recognition of this need, EMO (N.S.) undertook to compile an emergency resources register for all municipalities on a county basis in the summer of 1973.

You will appreciate that a resources register cannot be all-embracing or inclusive of every item available within the areas concerned. Items which will be readily available such as shovels, small boats, or clothing are not listed. Rather, equipment and resources which might prove to be difficult to locate in time of emergency are listed. Examples of this would be public address systems, communications systems, large earth-moving equipment, portable pumps, heavy duty transportation equipment of various types such as refrigerator vans, low-bed trailers, and helicopters, etcetera.

I am sure many mayors were quite surprised to find on scanning their emergency resources register how much equipment was readily available within their own municipality. Much of the equipment is not necessarily located in a static position. Therefore, it is important to know who to contact so that he can advise you as to the availability of the equipment he may have under his control.

The register is by no means complete. It is intended to present a nucleus from which municipalities can add, delete, or bring up-to-date the information on resources available to them from municipal, commercial and industrial sources within the county. The usefulness of this register will be directly proportional to the degree to which it is kept up-to-date.

I should remind emergency planning officers that their fellow municipal emergency planning officers expect to receive information on changes within your municipality. You should provide your municipal governments within the county, and Emergency Measures (Nova Scotia), with a list of amendments affecting your municipality each year in December

Planning of one type or another affects all of us in our daily lives. Have you ever wondered, for example, about the way in which a person reacts in an emergency in which he displayed extraordinary presence of mind, in apparent disregard for his own safety? It wasn't all by chance that he behaved in this fashion. We now know that in most instances acts of such outstanding nature are the result of an individual's planning about what he might do in such a situation.

Planning therefore, is a necessary prelude to action. It provides a framework for any program and indicates the direction in which the program should proceed.

There are two essential principles pertaining to a written plan. First, it must be concise and as simple as possible. A concise plan is a short one. A simple plan is one that can be easily followed. How often have we looked at a thick planning document and tossed it aside unopened because it looked too imposing? The second principle is that the plan must be prepared by the people who are to activate the plan and to have any part in the plan. This is the only way these people will have a good knowledge of the plan and know what to do when the crunch comes. It is too late to read up on how to fight fires after the alarm has rung.

In this regard, EMO (N.S.) will hold seminars for municipal emergency planning officers on the subject of how to lay out and how to get others to participate in the development of emergency plans.

Finally, the plan must be tested in a live exercise so that you can find out whether it works and where improvements are required. In December each year, we ask approximately 15 municipalities whether they would like to participate in an exercise. Very often the munici-

pality has not conducted an exercise before and may not even have an emergency plan. Nevertheless, we consider that a simple exercise is beneficial in showing the requirements of a plan. From this exercise it is easier to begin the planning task.

In order to make it easier for municipal authorities to launch their first exercise, we encourage them to attend a one-evening seminar on emergency exercises which we would conduct in their municipality.

The nature of the exercise is always of a kind that could happen in your municipality, but some artificiality has to be accepted in order to allow as many emergency services and other agencies who might be part of a town's emergency plan to participate.

Sufficient casualties are selected to strain the medical resources of the municipality, so that hospitals are obliged to put into force their emergency plans. 'Casualties' are realistically simulated. Students are usually asked to act as the casualties primarily because they are more available than adults.

After the exercise it is most important to conduct a critique so that all participants can learn how the exercise went, and most important where improvements can be made in the emergency plan. There is always room for improvement in any plan. No one should expect that mistakes will not be made. Indeed, if the exercise is completely successful there is something wrong with the planning of the exercise. ▲.