June-July 1972

EMO

NATIONAL DIGEST

Deterrence and Defence-1972

Changing Challenges in Emergency Planning

Bomb Threats and Disaster

Toronto Emergency Services

British Columbia C.D. Rescue Service

CANADA EMERGENCY MEASURES ORGANIZATION

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Contents

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Editor: A. M. STIRTON

DETERRENCE AND DEFENCE – 1972

by

Dr. G. R. Lindsey,

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Ottawa

Continuing research into United States and Russian nuclear offensive and defensive capabilities and the prospects for stable mutual deterrence over a period of many years eminently qualifies Dr. George Lindsey as one of Canada's foremost authorities on the subject. This talk entitled "Strategic Deterrence and North American Defence" delivered to the Interdepartmental Committee on Civil Emergency Measures in March of this year updates previous articles published in the Digest: North American Air Defence—Vol. 9, No. 4, August-September 1969. and The Strategy and Economies of Intercontinental Missile Defence—Vol. 7, No. 1, February 1967.

Successful Avoidance of Nuclear War

In the early nineteen-fifties, with the Superpowers developing thermonuclear bombs and intercontinental bombers, a war in Korea, and extreme tension in Europe, the outlook for the world appeared extremely ominous. The larger Western countries were spending over 10% of their Gross National Product on defence (US 14.8%, UK 11.3%, Canada 9.0% in 1953) and exhorting one another to raise ninety-six divisions for NATO. If a "solution" had been offered that would guarantee existing frontiers and prevent the use of nuclear weapons, at an annual cost of 10% of the GNP in perpetuity, it would have been seized with gratitude and alacrity.

In fact, a solution has been found. It is called mutual stable deterrence. It has preserved the frontiers and prevented the use of nuclear weapons for fifteen years. The Cold War is not nearly as cold as it was, and defence budgets are a much smaller fraction of GNP than they were (US 7.8%, UK 4.9%, Canada 2.5% in 1970). The world owes a lot to mutual stable deterrence, and will abandon it only at a terrible risk.

Mutual Stable Deterrence

Deterrence began with the American atomic bombs. It did not become mutual until the Soviets also acquired the weapons and aircraft of intercontinental range. When a successful surprise attack might permit one bomber in the air to destroy an entire wing on the ground, there was the possibility that the attacker could effectively disarm his opponent and avoid unbearable retaliation. This situation was made worse with the advent of the first Intercontinental Ballistic Missiles, since they were very vulnerable on the ground and required a long preparation time before they could be fired. Consequently, in a time of tension, their owners had a strong incentive to fire them quickly, before they were destroyed.

Both superpowers were well aware of this dangerous instability, and took urgent steps to correct it. By building early warning radar lines, establishing short readiness times for bombers on the ground, and being able to maintain a proportion of bombers in the air at all times, the fear abated that almost all the bombers could be lost in a surprise attack. The ICBMs were buried in dispersed and hardened underground silos, and had their preparation time before launching reduced to a few minutes, and the number of ICBMs was increased to the point that there was no fear of losing almost all of them to a surprise first strike. And ballistic missiles were installed in nuclear-powered submarines which could remain submerged for weeks and launch their missiles without coming to the surface.

At this point, the US could feel sure that, no matter what the Soviets could do to the US nuclear weapons in a first strike, enough of them would survive that an unbearable retaliation could be delivered in a second strike against Soviet cities. When the same thing became true in the other direction, the deterrence was mutual. And, because the deterrence did not depend on a "hair trigger response" and would not be upset by a small change (whether real or imagined) in the numbers of weapons, it was stable. Either would be dooming his own cities to destruction if he struck the other, and each knew that the other realized the situation. Hence, neither would strike. And neither has struck. We can say that a "strategic balance" has been reached. Its basis rests in the power of the offensive weapons to destroy cities and their impotence to destroy opposing weapons. It rests on "Assured Destruction".

Assured Destruction and Damage Limiting

Assured destruction depends on strong offensive systems able to withstand a counter-force attack by the opponent and able to destroy cities in spite of any opposing defences.

Another objective for strategic systems is "Damage Limiting", which signifies the reduction of the damage that could be done to one's cities and other strategic assets (other than one's offensive weapons) by the enemy's offensive systems.

Effective and invulnerable offensive systems are the main requirements for assured destruction, but defence of the offensive systems can make a contribution.

The main contributions to damage limiting come from defensive systems able to protect cities. However, offensive weapons used in the counter-force role contribute to damage limiting if they are launched while the opposing weapons are still in place.

Deterrence, which is intended to prevent the outbreak of war, depends on assured destruction. Damage limiting is needed only if war does break out, in other words, if deterrence has failed.

A strategic choice of considerable importance needs to be made regarding the relative assets to be invested in assured destruction and in damage limiting. This is equivalent to fixing the relative priorities of (a) preventing war, and (b) surviving war if prevention fails.

These two activities are not independent. In fact, as seen by a third party with no preference between the two superpowers, but a desire that a nuclear exchange between them be avoided, damage limiting works to the detriment of assured destruction, and therefore against mutual stable deterrence. For there to be mutual stable deterrence, the cities of both superpowers should be vulnerable to a retaliatory second strike. A capability for damage limiting reduces this vulnerability.

The Interactions Between Offence and Defence

Three strategic offensive systems have been mentioned: bomber aircraft, ICBMs, and ballistic missile firing sumbarines. All three are capable of delivering hydrogen bombs on cities or on airfields. None can destroy submarines submerged at sea. 1000 ICBMs fired at 1000 enemy ICBM silos today would destroy at most a few hundred. The warning is likely to be longest for attack by bombers, shortest for attack by SLBMs.

Opposing the three offensive systems there are four strategic defensive systems: anti-bomber (or air) defence, anti-ballistic missile (ABM) defence (or BMD), anti-submarine defence, and civil (or passive) defence. Air defence opposes bombers only. BMD opposes ICBMs or submarine-launched ballistic missiles (SLBMs) in flight. Anti-submarine defence opposes the submarine, but not the SLBM in flight. Civil defence offers a measure of protection to people from the effects of all of the offensive weapons.

A further interaction is that air defence or BMD installations or submarines in port can be destroyed by any of the three offensive systems.

These interactions are illustrated on Figure 1.

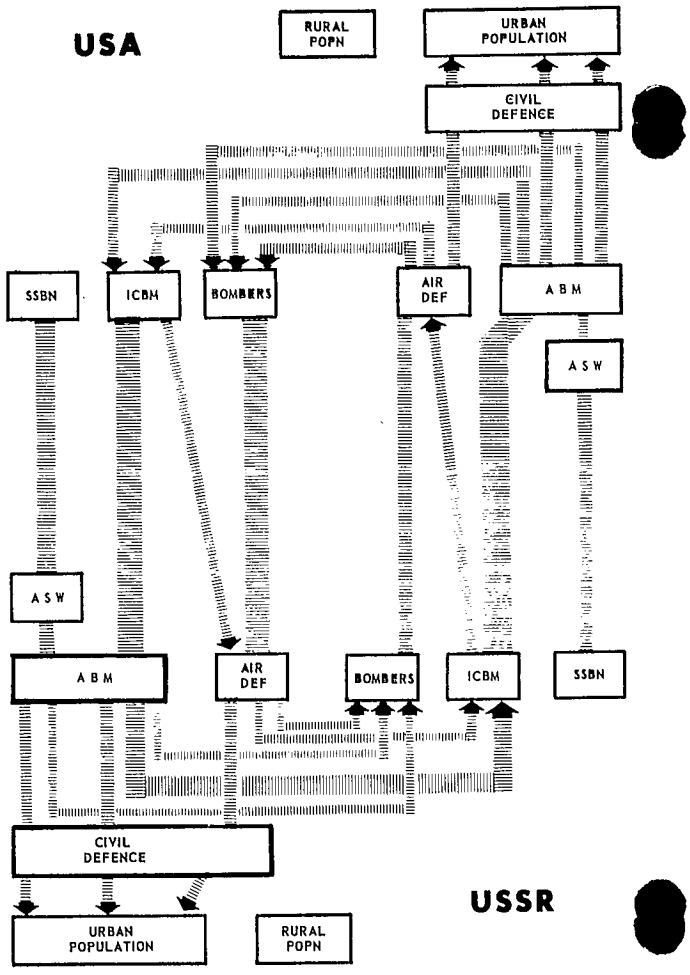

Figure 1

The Situation in 1972

In 1972 the Soviets possess about 140 long-range bombers, 1500 ICBMs, and 60 ballistic missile submarines (of which 30 are nuclear-powered), carrying in all about 450 SLBMs. If they were to use all of these in a surprise first strike against the US offensive weapons, it is probable that many of the 450 US long-range bombers, most of the 1054 US ICBMs, and all of the 41 US missile-firing submarines which were at sea would survive. If most of these surviving US weapons were launched against Soviet cities in a retaliatory second strike, there is no doubt at all that, in spite of the Soviet air defence, BMD, anti-submarine defence, and civil defence, nearly all of the main Soviet cities and most of their industry would be destroyed.

Similarly, a counterforce first strike by the US would not succeed in disarming the Soviet ability to retaliate against American cities to an altogether unbearable degree. The situation in 1972 is illustrated in Figure 2.

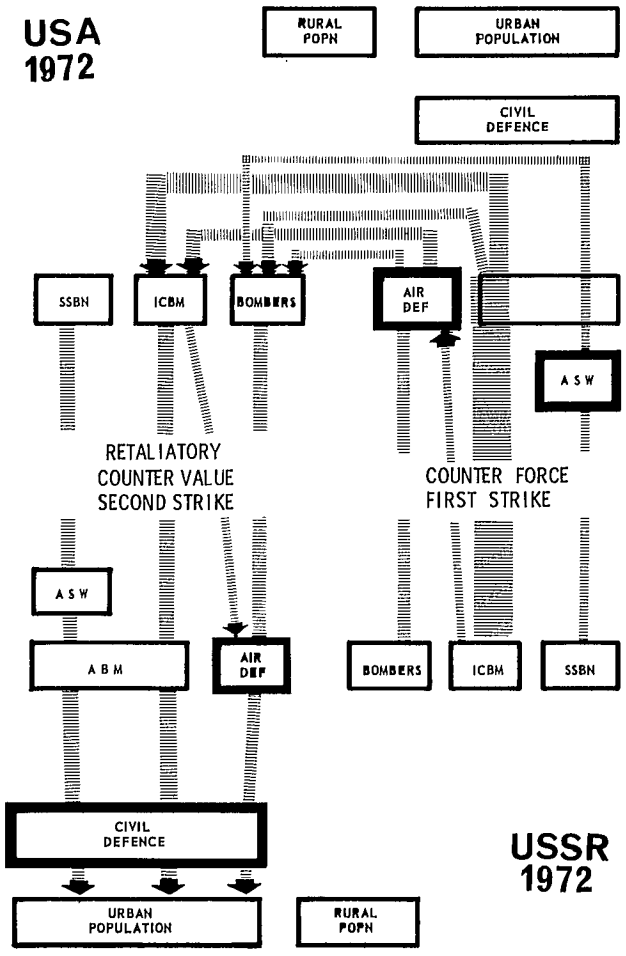

Figure 2

Anti-Bomber Defence

Before the appearance of ICBMs and SLBMs, deterrence depended on bombers and the threat to their safety came from the opposing bombers. The main objective of anti-bomber defence was to provide the early warning which would enable most of the friendly bombers to get off the ground before they were attacked. In addition, interceptor aircraft and surface-to-air missiles were intended to shoot down as many bombers as possible en route to their targets.

Three important weaknesses in present day air defence are the vulnerability of fixed radars and air bases to missile attack, the limited ability to detect and intercept bombers at very low altitude, and the fact that neither interceptors nor surface-to-air missiles can intercept the air-to-surface missiles which can be launched by bombers some hundreds of miles from their targets.

One new development which promises to strengthen the defence against all three weaknesses is the Airborne Control and Warning System (AWACS). This is a large aircraft which flies high, carries a large radar, and surveys a large area of space below it. A special electronic technique identifies echoes from low-flying aircraft in spite of the large background of echoes from the ground. The communications, computers, and controllers needed to direct interceptors are all carried in the AWACS aircraft, which avoids the vulnerability of a fixed ground radar station and can place itself to direct interception at a distance farther from the target than the range of the bomber's air-to-surface missile.

The limit to the range of a normal radar is set by the horizon, with the electromagnetic energy having to pass directly from radar transmitter to target aircraft and back to the radar receiver. If the direct line of sight is interrupted by trees, hills or any other solid object, then the aircraft cannot be detected. If the radar is raised several miles above the earth, as with AWACS, the horizon is moved far away. Another method of avoiding the horizon limitation is to reflect the electromagnetic energy off the layers of ionized gas in the upper atmosphere, thus employing an indirect path to pass over the horizon, as is done with long distance radio communication. A system to employ this method, known as Over-the-Horizon (OTH) radar, should allow detection of aircraft at any altitude out to very long ranges.

In the past, radar stations and airbases in Canada and the use of Canadian airspace for interception have been very important contributions to the air defence of North America. If the AWACS is supplied to the armed forces of the USA or Canada, its normal area of patrol will be off the Atlantic and Pacific coasts and over Canada. The use of bases in Canada would shorten the time taken to reach the patrol areas. If fighter aircraft are to intercept before the attacking bombers can release air-to-surface missiles at North American targets, they should be based on the coasts or to the north of the targets. And, in addition, the vulnerability of military aircraft on the ground can be reduced by dispersing them to as many bases as possible scattered throughout the USA and Canada.

Developments in Ballistic Missiles

In order to propel a warhead to a given range by the least expenditure of energy, there is a certain path known as the "minimum energy trajectory". If more than this minimum energy is available (as could be the case with large propulsion rockets), if it is acceptable to deliver a lighter warhead, or if a shorter range is sufficient, then the designer can use trajectories other than the "minimum energy trajectory". A "Depressed Trajectory ICBM" employs a low flight path, which could delay entry into the detection beam of radar, and thus shorten warning and make interception difficult. The payload can be made to change course (manoeuvre) instead of following a ballistic path. A "Fractional Orbital Bombardment System" (FOBS) puts the pay-load into a low earth orbit, and then uses a retro-rocket to deboost it out of orbit on its first approach to its target. This will

also delay radar detection, and make interception difficult, and it is possible to approach the target from an unexpected direction by coming around the earth the long way instead of directly. A "Multiple Orbital Bombardment System" (MOBS) leaves the payload in orbit around the earth for several rotations before being deboosted onto its target. The orbiting bodies would be detected, (although their purpose might not be identified) but the location of the target and time of attack would not be known.

If it were necessary to penetrate sophisticated ABM defences, these complicated trajectories could be useful. Or, by adding radar decoys to the payload or preceding the warheads by one or more precursor explosions at high altitude, the defensive radar could be confused or temporarily blinded. However, a much greater increase to the effectiveness of ballistic missiles is being made by the development of multiple warheads, propelled to intercontinental velocity by a single ICBM launching rocket, but separating into individual re-entry vehicles in flight. If it is only the general position of the group of warheads which is aimed, each weapon is called a "Multiple Re-Entry Vehicle" (MRV), but if each warhead is individually aimed at its own target, it is called a "Multiple Individually Targetted Re-Entry Vehicle" (MIRV). If MIRV had sufficient accuracy to enable one ICBM to destroy several enemy ICBMs in their silos, it would represent a very significant change in counter-force capability.

Ballistic Missile Defence

Like anti-bomber defence, ballistic missile defence has one component concerned with detection, tracking and warning and another with interception and destruction.

The oldest component is the "Ballistic Missile Early Warning System" (BMEWS), consisting of very large radars located in Alaska, Greenland and Britain. These can detect missiles or space vehicles as soon as they come above the horizon, and predict their subsequent paths. Newer systems, some of which are still under development, employ ionospheric reflections to make their detections beyond the horizon, or put the detectors in orbiting earth satellites. It is virtually certain that a large ICBM attack would be detected soon after the first few rockets had been launched. It is also very unlikely that anything other than a real attack will be mistakenly interpreted and result in a false alarm. The novelists' war by computer malfunction is not really a serious hazard today.

Active defence against ballistic missiles was believed to be impossible until a few years ago. The prospect of hitting a bullet with a bullet did not seem very good, especially if the bullet was travelling at 16,000 miles per hour. However, the solution lay in putting a nuclear warhead into the anti-missile missile. The size of the defensive warhead was sufficient to enable it to destroy the ICBM at a considerable distance, and by making the interception at high altitude, danger to persons or property on the ground could be minimized.

Several models of BMD have gone through the design process. The one currently planned for the USA is called "Safeguard". It uses large Perimeter Acquisition Radars (PAR) to detect and track the approaching ICBMs, and Missile Site Radars (MSR) to control the interceptions. There are two types of anti-missile missiles, called "Spartan" and "Sprint". Spartan has a range of hundreds of miles, and intercepts at very high altitude. Its large nuclear warheads would vaporize light decoys, and could destroy several warheads if they came close together. Sprint has a shorter range and a smaller warhead, and would be fired at ICBMs which had escaped Spartan.

Because Spartan has a long range, one battery can protect a large area and a dozen batteries properly sited could intercept any missile trajectory impacting in the United States. But Sprint can only defend targets in the immediate vicinity of the battery.

The present plan for the deployment of "Safeguard" has been the subject of acrimonious debate in the US Congress, and is also a subject for negotiation in the Strategic Arms Limitation Talks between the USA and the USSR, so that its future is by no means assured. However, as explained by the Secretary of Defence there are several phases, in the plan. Phase 1 consists of two sites to defend two of the main complexes of Minuteman ICBMs in Montana and North Dakota. All components—PAR, MSR, Spartan and Sprint, would be represented. Considerable progress has already been made in the installation of Phase 1. There are several alternate Phase 2s. If there is felt to be an increased threat to Minuteman, two more sites would be added at Minuteman complexes, and one for the National Command Authority in Washington. If the Soviet threat to bomber bases by submarine-launched missiles increases, radar cover and anti-missile batteries would be deployed looking to seaward as well as to the north. If it were desired to counter the Chinese threat to US cities, a full area cover of the USA would be needed. The extension currently favoured is to increase protection of Minuteman, and therefore to support Assured Destruction. Protection of cities would support damage limiting.

The scale of the full Phase 2 deployment of Safeguard is described as "light". It could not prevent virtually complete destruction of US cities in a heavy attack by the Soviet Union. But it could protect a significant number of Minutemen. And, in the event of an attack by China, or of an accidental launching of one or a few missiles by anyone, it could provide significant protection to US cities.

If ballistic missile defence should become sufficiently effective, the offense will add penetration aids of various types, such as decoys, manoeuvring trajectories, or precursor bursts to blind the radar. But the most effective penetration aids are likely to be multiple war-

heads, arriving simultaneously so as to saturate the defence.

The Implications of Ballistic Missile Defence for Canada

Missile trajectories originating in the Soviet Union or China and impacting in the United States all pass over Canada or very close to our coasts. They pass us over going north to south.

If the targets were the Minuteman silos in Montana or North Dakota, and they were defended by Phase 1 Safeguard installations located near the missile sites, the interceptions of incoming ICBMs by Spartan missiles, and the explosion of Spartan nuclear warheads, would occur at a high altitude (probably 50-100 miles) above Canadian territory, including the city of Winnipeg. If Phase 2 Safeguard were installed, and used to defend Seattle, defensive Spartan bursts would be over British Columbia, possibly above Vancouver or Victoria. Protection of Detroit, Buffalo or other US cities near the Ontario border would require defensive bursts above populated regions of Ontario. However, the damage caused on the ground would be very slight, and truly negligible in comparison with the effects of an ICBM burst at its intended target. Radioactive fallout from a high altitude burst is distributed through the upper atmosphere, whereas an ICBM burst on the ground well to the south of the US border could produce lethal fallout over a wide area extending well into Canada. And, because the Minuteman sites are hard and underground, it is probable that they would be attacked by ground-burst weapons.

If Phase 2 Safeguard were sited for the defence of US cities, it could probably provide a small degree of protection to certain of the most southerly Canadian cities. Moving the sites further north might improve defence of US cities and would offer considerably better protection for Canadian cities.

It should be re-emphasized that Safeguard is a "light defence" and could not prevent the wholesale destruction of North American cities in the event of an all-out attack by the USSR.

Defence Against Submarine-Launched Missiles

Submarine-launched ballistic missiles have shorter ranges than ICBMs: 1750 miles is estimated for the latest Soviet SLBM. Likely targets for SLBMs in a first strike would be airfields near the coast, with the attacker hoping to catch the bombers on the ground, and centres for communication and command. If the submarines closed in to a distance far less than the maximum range of his missiles, not only would he shorten the flight time, but he could use a depressed trajectory to delay radar detection and also make interception more difficult.

Defence against the SLBM has two distinct aspects. Anti-submarine defence includes the detection, identification, and tracking of the submarine in peace or war, and its destruction in war. A very serious difficulty in defending against a first strike by SLBMs is that the submarines can wait in their firing positions in international waters, quite legally, until the moment of the attack. Once the missiles have been launched, their detection, tracking and interception is a part of Ballistic Missile Defence, and may be attempted with the same system that defends against the ICBM. Alternatively, it is possible that an anti-SLBM interception system will be shipborne or airborne.

The waters near the Canadian coasts include likely transit routes from the Soviet Union to launching positions, and Canadian ports and airfields are well placed to serve as bases for surveillance.

Possible Changes by 1975

It was stated earlier that the strategic forces present in 1972 produce a stable balance of mutual deterrence. But potential improvements to offensive and defensive systems have been described, and one must ask whether they are still likely to give a stable balance a few years hence.

The American Secretary of Defence has expressed the fear that an increased number of Soviet ICBMs fitted with MIRV could pose a serious threat to the US Minutemen, whose numbers are not to be increased. A strong Soviet BMD could weaken the power of a retaliatory strike by US SLBMs and surviving Minutemen. Soviet SLBMs and ICBMs could decimate US bomber aircraft on the ground, and strong Soviet air defences would protect their cities against retaliation by those bombers which did survive. This possibility is illustrated on Figure 3 which shows North America without BMD or air defence in 1975. It is for this reason that the US Government is pressing on with Safeguard, to provide defence for Minuteman, in spite of determined opposition, and is installing MIRV in its own missiles.

In fact, in spite of the opposition to arms spending and the hopes for Strategic Arms Limitation Talks, it is virtually certain that the superpowers will not agree to any limitations which threaten the state of mutual stable deterrence.

The Place of Civil Defence in the Strategic Balance

Civil defence contributes to damage limiting. Indeed, in terms of lives saved per dollar spent, if war does occur, it is a very cost-effective form of damage limiting. From the point of view of the superpower installing civil defence, it contributes nothing to assured destruction. From the point of view of the opposing superpower, or of a third party, it reduces the margin

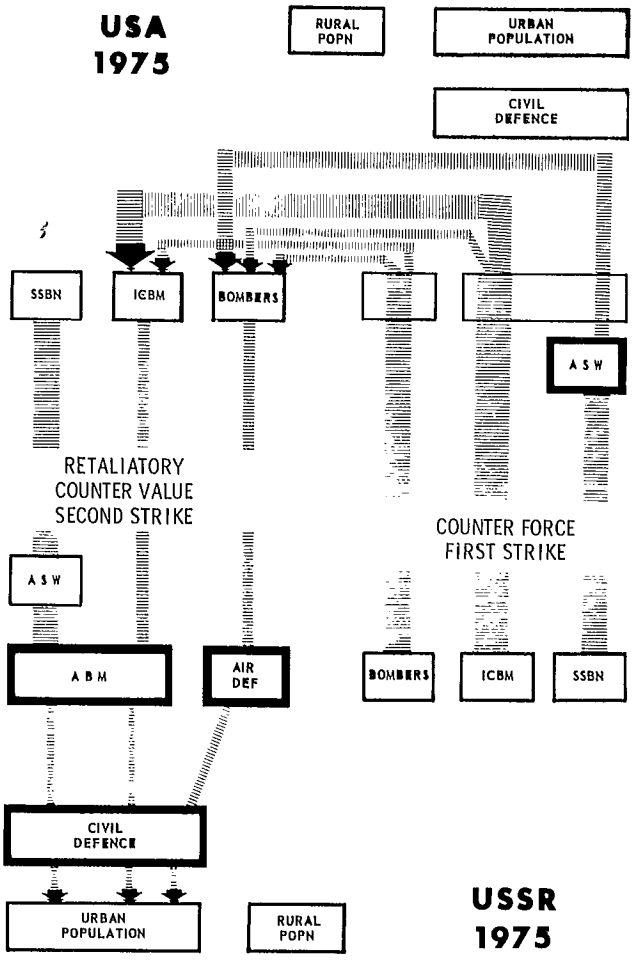

Figure 3

of assured destruction possessed by the opponent, and hence could be considered to jeopardize mutual stable deterrence.

The degree to which civil defence could be considered as "provocative" would depend on its design. If, for example, evacuation of cities were planned, there could be a presumption that this would be done in conjunction with the initiation of a first strike. Of, if an extended period of tension occurred, the order to evacuate cities would be an escalatory step analogous to mobilization.

The possible influence of Canadian civil defence on the strategic balance can be assessed from several different viewpoints. The Soviet Union may consider Canada as no more than a part of the North American enemy. In this case they would believe that their ability to deter North America would be slightly reduced by a strong civil defence in Canada, to the extent that it would take more weapons to inflict a given degree of punishment in a retaliatory second strike. However, public statements and writings by Soviet authorities indicate that they consider "purely defensive" systems as legitimate and non-provocative. And the Soviets may consider Canada as a separate unit from the USA, but recognize that our population would be seriously endangered by radioactive fallout in a counterforce attack against offensive weapon systems based in the USA.

From the point of view of Canada, the vulnerability of our population to radioactive fallout if the ICBM silos in the Northern USA are attacked by groundburst weapons is a very real and important danger. It is difficult to see how anybody could interpret protection against this threat as being provocative to anyone. And, despite certain individual opinions to the contrary, Canada cannot be a disinterested Third Party with no preference for either superpower. We are very anxious that a nuclear exchange between the Superpowers be prevented and therefore we wish to see mutual stable deterrence preserved. But quite apart from alliance and friendship, pure self-preservation makes deterrence of the Soviet Union more vital to us than deterrence of our neighbour. ▲

"CHANGING CHALLENGES IN CIVIL EMERGENCY PLANNING"

by

C. R. Patterson

National Coordinator Civil Emergency Measures

an address to
The Alberta Emergency Measures Organization
Conference with Municipal Officials
at Edmonton, Alberta, February 3, 1972.

CHANGING CHALLENGES IN CIVIL EMERGENCY MEASURES

I first addressed the Alberta Municipal Coordinators at Red Deer in 1966. In the six years that have lapsed since that time, I have been most encouraged by the general change in attitude towards the function of Emergency Measures. From the days when its purpose was, in general misunderstood, emergency planning and preparations has become a watchword in politics, governmental management, industrial practice and personal behaviour. In fact, compared to the days when often the response to the unexpected or the extraordinary was a hectic rush to take emergency action, we have arrived at a stage where a participating public assumes that emergency preparations will be made. The lack of them in disaster would be embarrassment indeed.

I have been most impressed by the progress that the Alberta Emergency Measures Organization has made during the few years in which I have been associated with it. In my work with Alberta EMO over this period I have admired the close rapport that the organization has had with the Minister to whom they have been responsible and with the support that the Government of Alberta has given them. You can imagine the pleasure with which I received the news that with a new government, Alberta EMO has become a self-accounting agency reporting directly to the Deputy Premier, the Honourable Dr. H. M. Horner. This, I am sure, is the direct result of the leadership and responsibility which has been shown by all of you who have been associated with civil emergency planning in Alberta.

I am well aware that your director and his associates, in the past year, have continued to plan for a war emergency. As a good example of this, they have completed their shelter survey for Lethbridge and are now able to commence the production of a community shelter plan. This progressive activity is characteristic of their whole response to war emergency preparedness and, indeed, I would like to congratulate the Alberta EMO on its imaginative approach to exercise activity, such as the recent Exercise "BARNEX" in the N. Zone from which many important lessons were learned.

On the peacetime disaster side of things, they have revised their Standing Operating Procedures, updating them to cope with the increasing risks of incidents involving noxious gases and chemicals as well as those of fire and flood and of the many other forms of disaster that can strike communities today. The Alberta EMO is indeed abreast of change.

To capsulize today's concept of emergency measures, I would like to review the objective of civil emergency measures on the national scale, the objective of the Canada Emergency Measures Organization itself and the objective of the Alberta Emergency Measures Organization. First of all, we have the national objective of civil emergency measures, which is the basis on which the federal government funds civil emergency planning and preparations in Canada:

> **"TO PROVIDE MEASURES TO ENABLE THE NATION TO SURVIVE AND RECOVER FROM WAR EMERGENCIES AND PEACETIME DISASTERS".**

Then let us move forward to outline the objective of the Canada Emergency Measures Organization in relation to this national objective:

> **"TO COORDINATE AND SUPPORT THE DEVELOPMENT OF MEASURES DESIGNED TO ENABLE THE NATION TO SURVIVE AND RECOVER FROM WAR EMERGENCIES AND PEACETIME DISASTERS".**

Finally, and most important to the audience today, let us consider the objective of the Alberta Emergency Measures Program:

a. **"TO DEVELOP IN PEACETIME WITH THE GOVERNMENT OF CANADA, CIVIL PLANS AND PREPARATIONS DESIGNED TO ENSURE THE ABILITY OF THE PROVINCE AND THE NATION TO SURVIVE AND RECOVER FROM ANY WAR EMERGENCY;**

b. **TO DEVELOP PLANS AND PREPARATIONS TO DEAL WITH PEACETIME DISASTERS."**

Having considered these, let us now see to what they are responding. Basically, the problem is two-fold—a

military threat and a peacetime threat. The military threat, and it was in response to the need of coordinated national civil arrangements to react to this threat that our Emergency Measures Organizations of today developed, can be considered thus:

> The time honoured purpose of aggression is to impose one's will on one's opponent by destroying his will and/or his capability to resist. Considering this from the enemy point of view, what options are open to him? There are in fact four, if you like, four groups of targets, from which he may select any combination. These are:
>
> Group A: the defence forces and their vital installations; destruction of which would be expected to remove the population's defences,
>
> Group B: population centres; attacks upon which might be expected to destroy the people's will and capability to resist,
>
> Group C: government centres and government control mechanisms; destruction of which would seriously disrupt government's ability to provide cohesive leadership to the nation,
>
> Group D: those national resources which would be required in the early stages of a war; loss of which would seriously interfere with the nation's capability to continue resistance.

In passing, may I just point out that three of these target groups are entirely civilian in character, while the first group by virtue of the proximity of military bases to civilian communities places those communities too, at considerable risk. This bears out the argument that warfare today makes little or no distinction between soldier and civilian and emphasizes the point that, when we think of defence, we should be thinking of total defence and not just in terms of defensive military operations. Now, if we wish to arrive at some judgement as to which areas in Canada might be attacked, we can assign various areas a number of points according to their importance as members of each of the four target groups, add up the points for each area and then arrange these in order of precedence. We must, however, then relate the point value of our targets in Canada to those for the rest of N. America, thereby obtaining some idea of the over-all importance of areas in Canada as they might appear to any enemy of N. America as a whole. From there, we can go to the determination of how many megatons in nuclear weapons are necessary, and the sequence in which various areas might be attacked, in order to achieve some pre-arranged and hoped-for degree of destruction.

A list of targets thus obtained would be indicative of enemy capability but we have to exercise some judgement as to whether or not it would be plausible for all those targets to be attacked. We think not. Due to attrition, malfunctions, uses against other targets around the world and targets of opportunity, we think that many potential targets would be passed over.

Having looked at the wartime threat, let us turn to the everyday threat to which civil emergency measures organizations respond. When I say "respond" I mean that they coordinate the development of plans and preparations to ensure that those, whose normal responsibilities include a role in emergency, can most effectively employ their organization, their people and their resources to deal with the emergency.

Those of you who recall the biblical training of your youth, will remember the dramatic Four Horsemen of the Apocalypse representing conquest, slaughter, famine and death on the white, red, black and pale horses of the Book of Revelations. If one stops but momentarily to contemplate our peacetime threats, fire, flood, earthquake, landslide, snowstorm, manmade disaster and, of recent time, violence, it is not difficult to develop the same imaginative chill as that which the four horsemen and their steeds instilled into us.

How real are these threats? As far as the military threat is concerned, you have had a thumbnail sketch of its tremendous magnitude. The nuclear threat is the military threat that is generally considered to have the major effect on planning for the Defence of North America. In Canada, apart from our contributions to the deterrent, the most significant action that we can take against this threat is to prepare the civil population to avoid, mitigate or effectively respond to the consequences thereof. Our peacetime efforts in war planning in the civil field are specifically for this purpose.

In considering peacetime disaster, it is sometimes difficult to contemplate the full significance of planning for response to the unexpected, extraordinary peacetime event. Last spring I saw the implications of two landslides. The first of these took place along the banks of the Nation River in Ontario. Although tens of thousands of tons of wet clay swept across the river plain, inundated pasture land, dropped other pasture land fifty feet below its previous level in a turmoil of broken trees and great fractured lumps of clay, and effectively dammed the Nation River, there was no catastrophe. However, virtually simultaneously, the same thing happened on the bank of the Saguenay in Northern Quebec and a significant part of St. Jean Vianney disappeared into a river of flowing mud, carried away under its own pressure to join with the flood-swollen waters of the Saguenay River. In this circumstance, 31 people lost their lives, 40 homes disappeared and there was indeed a disaster. A disaster required that someone, or some piece of humanly-significant property be involved in the event.

In Ontario and Quebec we have had many earthquakes which fortunately did not affect population centres or important structures such as power dams and communications links. These may have scared the daylight out of a dew deer or groundhogs, but until such time as events involve people, or the things that people hold important, there can be no disaster. Today, however, our population is double that which it was at the end of the Second World War. These population increases have not only been concentrated at urban centres but this move, in turn, has been accentuated by the migration of rural population to the cities. The net result is that we have very large numbers of people concentrated in highly complex communities where they are almost 100% dependent on external resources for such matters as communications, light, heat, power and water supply, waste disposal, shelter, food and clothing. Any situation which upsets this sophisticated balance of urban human existence, whether it be a power failure in the midst of a Canadian winter, an earthquake or a plane crash, can change a smoothly-flowing community into a chaos of death, misery and destruction, unless action is taken to ensure that effective measures are available to prevent, to mitigate, to counter-attack or to respond to the results of such an event.

What events have required an extraordinary response in the past year and what have our Emergency Measures Organizations had to do with this response? I am going to avoid talking about your own provincial disasters because you will have discussed, or will be discussing, these at length yourselves. I find it difficult to pick out individual cases because there have been many, many circumstances in which extraordinary measures had to be taken. I will, however, mention four.

On Easter Sunday last year, I answered the telephone early in the morning to hear the confident voice of the Saskatchewan Provincial Director of Emergency Measures telling me about floods on Wascana Creek. As a result of speedy coordinated action under the direction of the Mayor of Regina, various agencies of municipal government, transportation, engineering, police, welfare, to mention only a few, responded to the flood threat to low-lying areas of Regina. An Emergency Operating Centre was established by the Regina Emergency Measures Organization and from this Centre, the Mayor of the City through his EMO chief coordinated the allocation of volunteers, their emergency feeding, their transportation, first aid arrangements, supplies of flood-fighting equipment, etc. Volunteer groups incorporated into the Regina Disaster Plan, provided mobile emergency communications. While lessons were learned to make a disaster response even more effective on future occasions, one fact that was confirmed was the usefulness of continued, up-dated planning for coordinated response to the unusual.

North of you last August, the towns of Pine Point and Hay River were threatened by forest fires. I have a thick file of information coming out of both of these potential disaster areas illustrating the effective way in which action by emergency committees and their coordinators developed plans for such activities as evacuation, reception, accommodation and feeding for a potential 1,500 evacuees, Emergency Operating Centres, attendant communications and the extension of municipal firefighting arrangements. As they did in other similar incidents, the press spoke highly of the effectiveness of the plans and activities of these emergency groups.

At St. Jean Vianney in Quebec where, as I said, a landslide claimed the lives of 31 people and carried away 40 homes, the Zone Coordinator of the Civil Protection Organization established a Command Centre where the Emergency Committee, involving the Mayor of St. Jean Vianney and the mayors of surrounding communities, directed the activities of some 200 volunteers, established welfare centres, produced emergency communications and emergency lighting, provided emergency transportation, established an official information Centre and generally effectively developed a focus of activity in connection with rescue and post-disaster activities.

Sometimes it is not necessarily the disaster itself but the concern over a possible impending disaster that requires coordination of preparations to ensure not only that a capacity exists to deal with any possible emergency, but also to assure the public that its political leaders are aware of their concern and that there are arrangements made for their safety and welfare should these be threatened. Some sectors of the population of British Columbia became concerned, not only with what they considered to be a potential threat from the recent Amchitka test but, some time previously, with the anticipated movement of war gases from Okinawa to Seattle through the Straits of Juan de Fuca. In both cases, the Provincial Coordinator of Civil Defence, in conjunction with federal and municipal Emergency Measures Organizations, and in conjunction with those other agencies that could become involved should an emergency occur in connection with these events, ensured that the necessary equipment was available, the necessary people alerted and the necessary plans made to respond to any attendant disaster. There was no effect upon the Province of British Columbia as a result of the Amchitka Test and the movement of war gasses never took place. Nevertheless, the activities of the Civil Defence Organization (E.M.O.) in the Province of British Columbia imparted a feeling of confidence to the population with respect to the preparedness of its government for disaster response.

One could go on and on. One could mention the roles that municipal coordinators played in the blizzards, ice jams and floods in the Province of Nova Scotia. One could talk about the effective coordination of flood preparations in the city of Ottawa by the Emergency Measures Committee there. The examples however, add up to one thing, emergency planning is

(Continued on page 15) **CHANGING**

BOMB THREATS AND DISASTER – A GUIDE TO CORPORATE PLANNING

by

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Emergency and distaster planning can no longer be regarded as a nonproductive nuisance in business management. Today, a comprehensive plan which will minimize damage, save life and protect property in the event of disaster is one of the wisest investments a company can make.

The routine of the business day is suddenly interrupted by a phone call which announces "There is a bomb in your building." So, now it has happened to you! What should you do? Do you have a plane for dealing with this kind of emergency? Is the warning for real?

The bomb threat has become one of the most devastating threats to the welfare of society. It is becoming increasingly and alarmingly a weapon of intimidation, destruction, and death. The bomb threat is the diabolical tool of the radical extremist, the fanatic, and the warped criminal mind. It has become an object of terror for innocent citizens and a problem of the first magnitude for police, local civil defense officials, and industrial security forces.

Research reveals there are several explanations for someone calling and reporting that a bomb is set to go off in a particular plant or facility. The caller wants to create an atmosphere of panic and anxiety which will result in disruption of the normal routines and activities in the office or the plant where the bomb is supposedly located; or the caller *believes* a bomb has been placed or has *definite knowledge* that an explosive or incendiary will be placed, and wants to prevent innocent victims from being injured. On the other hand, it may be the purpose of the anonymous caller to deliberately create conditions so that the search team will be present, along with large numbers of curious employees, and the bomb is boobytrapped to kill or injure them when it explodes. Some bomb threats have the purpose of tying up police, firefighters, and equipment so that crimes can be committed elsewhere by the caller. Or it may be part of a plan to scare, disrupt, and injure local firefighters and police. It may be a deliberate act of false reporting to disrupt large gatherings of persons or to bring about evacuation of buildings, resulting in dismissal of employees for the day. A call could come from an employee who wants to take the day off from work and has learned from previous threats that when the building is evacuated all employees are dismissed. (Some companies have reported a dramatic drop in the number of threats received when evacuation is not ordered.) Also, high school and university students trying to avoid final tests have disrupted educational schedules—but when firm rules have been established requiring they make up lost time, the number of threats have dramatically decreased! Of course, there are numerous other reasons for bomb threats.

The *target* of the terrorist is not always easy to determine. He picks the time, the place, the type of bomb, and usually destroys all evidence.

Threats Increase in Number

The increasing number of bomb threats is frightening. From January 1969 to April 1970 there were 4,340 actual bombings; 1,475 bombs were found which did not explode; 35,129 threats were reported in which no bombs were found; 43 were killed and 384 were injured, and there was over $21 million damage to property. In 1970, reported bombings doubled; their numbers continue to increase. In 1969 there were *541* bombings; in 1970, 1,096 bombings and 176 attempted bombings. In January *1970*, 51 explosions were reported; in January 1971, one year later, 79 explosions were recorded.

Bombs are exploding at the rate of three a day across the nation. Thirty-six bombings or bomb attempts have been in Federal buildings, with damage approximately $650,000. In Federal buildings alone there have been *592* bomb threats that resulted in 226 evacuations of Federal buildings, costing the government an estimated $3.8 million in time lost by employees. The targets of the bomb terrorists have included homes, colleges, schools, industrial plants, business establishments, military installations, Federal buildings and state and local government offices as well.

Explosives and incendiary bombs are easy to obtain. They can be purchased, stolen, or home-made. It is comparatively easy to steal both the bombs and the materials for making such bombs. They are easy to make; information is readily available on where to get the materials and how to make the bombs. Numerous military manuals have been stolen and reprinted for sale by extremist groups. It is estimated that there are some 25 major manufacturers and over 10,000 dealers now in the explosive industry. However, there is hope for better control of the availability of explosives under regulations dealing with licenses and permits in the

Explosives Control Section of the Organized Crime Control Act of 1970, which became effective on February 12 and is administered by the U.S. Treasury Department's Alcohol, Tobacco, and Fire Arms Division.

In addition, because of the escalation and magnitude of arson, bombings, and bomb threats by criminals, terrorists and extremist elements, local and state public safety officials are attending courses developed by the Army for the Law Enforcement Assistance Administration. Only uniformed personnel (not civilians) are being trained as Explosive Ordnance Disposal Specialists.

What you Should Know and do

Bomb threats are a comparatively new experience in this country, and there are few who qualify as experts in managing such emergencies. But experience indicates certain general things that should be known by all who plan for minimizing the effects of bomb threats, and certain procedures which have been developed through experience and found most effective.

It is not my objective to make demolition experts by means of this article, but to acquaint you with some of the problems and suggest appropriate planning procedures and protective measures.

Generally, companies and institutions which are good partners in preparedness—that are prepared for nuclear attack—are prepared also for managing emergencies created by bomb scares. However, there are several elements of emergency planning which should be enlarged and emphasized to deal with each particular type of emergency.

There are many things that can be done to minimize the effects of explosive or incendiary bombings. As in all good emergency planning, the first thing to do is to determine the critical areas in your plant or buildings. Assess the vulnerability of plants and facilities to bomb threats. Inspect all buildings, and determine for yourself which areas are most accessible to unauthorized people. Determine points at which maximum damage could occur and which are therefore most likely to be attacked by use of a time-delay incendiary or explosive device. Make a thorough study. Look especially to such areas as elevator shafts, false ceilings, rest rooms, access doors, crawl spaces, openings for plumbing and electrical fixtures, closet areas, under stairwells, furnace rooms, flammable storage areas, main switches and valves, fuel and gas storage areas, indoor trash receptacles, records storage areas, mail rooms, and other areas where a time-delay explosive or fire bomb might be hidden or camouflaged.

In some instances it may be possible to have police and fire representatives assist you in inspection of buildings and areas to determine where explosives or incendiaries could be concealed. In some instances a review of the architectural plan of the building would be helpful.

Establish and enforce positive means of identifying and controlling personnel who have authorized access to critical areas; and deny access to unauthorized personnel. Inspect and control movement of packages and material going into critical areas.

Instruct all security and maintenance personnel to be alert for suspicious-looking-and-acting people; to be alert for foreign or suspicious objects, items or parcels which do not appear to belong in the area where they are observed; to increase surveillance of rest rooms; stairwells, areas under stairwells, and elsewhere to insure that unauthorized personnel are not hiding there.

Be sure that doors to areas such as boiler rooms, mail rooms, computer areas, switchboards, elevator machine rooms, utility closets, and other critical areas are securely locked when not in use. Make certain that all keys to all locks are accounted for. Change the lock when a key is lost or gets into the possession of unauthorized employees. Check fire hose racks, fire extinguishers, fire hose, to be sure they have not been cut or tampered with; check fire exists to be sure they are not obstructed.

Increase patrol of garages, parking, receiving and shipping areas, and places containing classified documents, proprietary information, and other records essential to the operation of your business. Regularly inspect perimeter fences, walls and barriers to assure a good state of maintenance, and post "no trespass" signs. Consider decreasing the number of entrances and exits, and increasing security coverage of the reduced number of entrances and exits. Install metal-detecting devices, and consider use of closed circuit television.

Check all exterior and protective lighting for proper operation and adequate illumination. Have flashlights or battery-operated lanterns on hand in event electric power is cut off.

Protect ground floor windows with heavy mesh, grill work, or protective glass. Conduct daily check for good housekeeping and proper disposal or protection of combustible material. Have on hand sandbags, mattresses, or other materials to be used as shielding in event an explosive or incendiary device is located in the building.

Keep Informed

Arrange to gather intelligence—information on potential bombing activities of individuals and organized groups. Keep in touch with local law enforcement officials. Exchange information with neighbouring plants and facilities. It is almost impossible to identify a lone terrorist before he strikes; however, it is sometimes possible to identify organized groups.

Consider that you may have a discontented employee who is determined to retaliate for some imaginary wrong, or who is a first-class arsonist. He might be a member of the plant self-help organization—even of the fire brigade!

Your local fire department and police department can give excellent guidance and can provide trained

investigators and assistance in conducting investiongations. They, in turn, can obtain assistance through the U.S. Treasury Department's Alcohol, Tobacco, and Fire Arms Division, which can especially advise on what to do to preserve evidence at the site, and how to locate and convict the bomber after a bombing.

Prepare for self-help. Reference has been made, in earlier articles in this series, to the importance of preparing for self-help in event of emergency by organizing and training small groups of employees to serve as wardens, firefighters, first aid and rescue teams and in other services. In multi-tenant buildings, a committee should be formed with respresentatives from each major tenant to develop a complete, well-coordinated, self-help emergency plan for the entire building.

Self-help is basic to all emergency preparedness. Other community services may be overtaxed and unable to respond to a request for assistance. Bomb threats sometime occur concurrently with other emergencies. that prevent immediate response by local government. If you are prepared for nuclear attack, you have a self-help organization—another peacetime payoff for wartime preparedness. Your local civil defense people can provide full guidance and assistance in developing a self-help organization.

Find outside help. Often during natural disasters or civil disturbances, and unquestionably in nuclear attack, little assistance can be expected from outside the plant. Some assistance may be available from outside in dealing with bomb threats, but be sure to make a comprehensive appraisal of the nature and extent of such assistance. List the help that could be provided by local government—police department, fire department, rescue, first aid, and medical services. List the services that would be available from your industrial mutual aid association. If you are not a member of your neighborhood industrial mutual aid group, get with it—join up! If there *is* no industrial mutual aid group in the neighborhood, organize one. See your local civil defense officials for help.

Check with the police department or other local government agencies to determine whether there is a nearby Bomb Disposal Unit (BDU). If available, under what conditions can it be utilized? Will it assist in search of the building or only in disarming or removing, explosives and incendiaries? Jot down the telephone number in several places where it will be ready and available. If a local BDU is not available, recommend to local government that contact be made with the nearest military Explosive Ordnance Disposal Control unit (EODC).

Primary responsibility for the investigation and control of these offenses against the public peace and welfare rests with local law enforcement. Bombings are acts of violence, clear-cut violations of state laws and subject to exclusive state jurisdiction. The FBI has cooperated with state and local law enforcement officials by making available the full resources of its laboratory and fingerprint facilities and on occasion has promptly detailed agents to the scene to assist.

When a Call is Received

Bomb threats received by telephone with no description of or reason for the bomb are usually false reports. On the other hand, *if a reason is given, together with a description of the bomb, its location and time of explosion, it is more likely that the information is true and that the bomb could be found.*

Instruct all personnel to follow established procedures in event a bomb threat call is received. Try to keep the caller on the line as long as possible. Delay the caller by saying, "I am sorry, I did not understand you. What did you say?" Send someone to another phone to trace the call.

Many companies and institutions have made effective use of a "Threatening Phone Call Form" with appropriate spaces to record: Time the call received—time caller hung up—exact words of person placing call. Questions to ask the caller: When is the bomb going to explode? Where is the bomb right now? What kind of a bomb is it? What does it look like? Why did you place the bomb?

Description of caller's voice: Male—female—young—young—middle-aged—old—tone of voice—accent—is voice familiar? If so, who did it sound like? Background noise. Name of person receiving or monitoring the call—department—work location—office telephone number—home address—home telephone number—date.

Use of a form such as this, with appropriate blank spaces, is more likely to result in keeping the caller on the line until information is complete. Ask the caller to repeat the message and record every word spoken by the person making the call, either in writing or by use of recording equipment. (Check with the local telephone company for availability and legal usage of equipment for recording bomb threat calls and for information about tracing calls.)

Immediately after the caller hangs up, the person receiving the call should report this information to the person designated by management to receive such information. The information should then be reported immediately to the local police department, fire department, FBI or other appropriate agency, as previously arranged.

Evacuate or Stay Put?

When a threat is received, a big decision must be made: to evacuate the building—to partially evacuate the building—or to stay put.

The decision as to conditions under which evacuation will be ordered must be made in advance. Some managements have decided that evacuation will be ordered immediately in all bomb threats. This decision reduces risk and gives prime consideration to the safety of personnel. However, such a policy can be costly. Many bomb threats are hoaxes; they do not actually result in bombing or in a bomb being found. (It is estimated that

over 95 per cent of all written or phoned bomb threats are hoaxes.)

Because of the great number of bomb hoaxes, or false alarms, many companies have initiated studies regarding their responsibility to employees when a bomb threat is received. Some corporate councils have indicated that this legal problem cannot be decided on strictly legal principles. If a company follows a policy of evacuating large numbers of employees each time a bomb threat is received, they would not be able to stay in business very long! One company has reported as many as 1,000 bomb threats per month. When three companies were hit almost simultaneously in New York City last year, it almost panicked the entire United States! Over 4,000 threats were reported within 24 hours.

But bomb threats cannot be completely ignored. Some corporate legal departments have expressed the opinion that employers have a moral and perhaps a legal responsibility to develop policies and plans to deal with bomb threats. In the face of statistics comparing the number of threats to the number of explosions, it may be difficult to justify evacuation of an entire building. There is no magic formula which can be applied to produce the proper decision. Some companies located in multi-storied buildings have found it feasible to evacuate the floor on which the bomb is reported, plus the floor above and the floor below.

The decision as to who will evaluate the threat and make the decision to evacuate must be made in advance.

Generally, the same procedures in planning evacuation for fires apply in evacuation due to bomb threats. Such procedures are usually well known to employees and are unlikely to create panic. Briefly, these include: Establish a signal for the evacuation—usually the same as used for fire. Establish priority and rules of evacuation based on type of building and location of personnel both if a bomb is found and if no bomb is found: Usually the floors above the danger area should be evacuated first, or at least simultaneously with lower floors. Wardens should be told to open all doors and windows to prevent confining the blast.

Some companies with blast-proof shelters, usually underground and near the main plant, move their employees to such shelters—another peacetime payoff of civil defense preparedness.

If the building is be evacuated, decisions must be made whether to turn off gas and fuel lines, and whether to shut off main valves or switches and follow the procedures that have been established for emergency shutdown and for restarting. Policy decisions should be made in advance as to whether employees are to (1) return to work upon completion of the search, (2) be dismissed for the remainder of the day (with pay or without), or (3) be held on standby in a pre-determined area at a distance far enough from the building to offer protection from falling debris caused by an explosion. Determine also whether employees are to draw full pay until a bomb-damaged building is again ready for occupancy.

Search Procedures

The routine of searching for explosives and incendiary bombs requires careful study and persistent training. Numerous companies have reported best results by using their civil defense self-help organization—another example of civil defense preparedness payoff in peacetimes emergencies.

Employees who serve as wardens on each floor of the building, or area wardens in a single story building, should be responsible for directing the search of their areas, receiving information from search personnel and relaying it to the control center which has been established as a command post for directing activities (as in all other types of emergencies).

Generally, wardens search the halls and other areas with which they are familiar. Outsiders cannot do the best job. Every employee is familiar with his own sursoundings and knows what is in boxes and other containers, knows places where devices can be hidden, and can quickly recognize any new unusual packages or other devices in his work area. Security, maintenance and janitorial personnel search such areas as hallways, rest-rooms, stairwells, elevator shafts, utility closets, roofs, shrubbery, refuse cans, exposed gas and electric facilities, and other areas outside the building. As the search of each area is completed, a report is given to the appropriate warden.

In some companies, floor wardens are required to make a search of their areas every day regardless of whether a bomb threat has been received. In this way they become more familiar with their areas and acquire greater skill in conducting the search when a threat is received.

One company reported evacuation of a large multistory office building because they found a small WWII mortar shell in one of the offices. Actually, it was a WWII keepsake that had been completely neutralized and was part of the supervisor's collection of mementos that had been brought into the office during the morning and had not been seen by other employees. The object was found while the occupants were at lunch and no one else could identify it!

The self-help emergency organization should be alerted to stand by during the search—especially first aid and medical units, fire brigade personnel, appropriate security officers and rescue units.

What to look for? Both explosive and incendiary bombs are produced in a great variety of sizes, shapes and colors. It could be a small soap box, several sticks of dynamite taped together, a piece of steel pipe or a simple brown envelope containing a sheet of plastic explosive. An ordinary cigar box will hold several sticks of dynamite plus a watch for timing and a battery.

Where to look? In conducting the search, look first at entrances not usually used. Try to determine areas where greatest damage would occur. Quickly search rest-rooms, telephone booths, and public areas. Look in towel holders, shelves, closets and every niche in rest rooms.

Upon entering a room, first stop and listen. Ticking sounds should be quickly identified. A hissing sound could be the burning of a fuse. Some experienced searchers begin by examining the lower part of a room first—say, from waist height down. There are more places to hide a bomb in lower areas. Then move up to tops of desks, bookcases, upper walls, false ceilings. It is best to search when people are there who know the area and its contents. Have keys to desks, cabinets, bookcases or other locked furniture. Look into every area; if you haven't, then you haven't completed the bomb search.

On Finding the Bomb

If a suspicious object is found, don't touch it. It should be assumed to be a bomb. Notify the security chief or other person in charge at the control center. Immediately clear the area and set up barriers to prevent others from entering the room. It may be a matter of life and death. Often devices are boobytrapped and explode at the slightest touch. If it must be moved, don't tilt it. Don't put water on it or put it in water. Water will close narrow electronic circuit gaps. The experts use oil instead of water; but don't try to become an instant expert or hero! Leave this job to others.

Do not attempt to cover the object. Be sure that all doors and windows are opened to minimize prime damage from blast and secondary damage from fragmentation. This is the reverse of a fire situation in which doors and windows should be closed.

Be sure all endangered personnel are moved to an area at least 300 feet away, or evacuate the entire building. Do not permit reentry until the device has been removed or disarmed and the building declared safe. Station wardens or security guards to escort the Bomb Disposal Unit to the site and to provide for their protection while they go about their business.

Move fast. Make decisions quickly. Suggest positive actions—what to do, rather than what not to do. Reassure occupants by giving information and instructions calmly. Dispel rumors. Identify troublemakers and prevent them from spreading fear. A rapid communications sytem is of utmost importance. In some instances two-way walkie-talkie units have been used. Caution: The radio beam from a two-way radio could cause premature detonation of an electronically controlled blasting cap.

BOMB THREATS

Knowing what to look for in a bomb search is vital.

Explosive Bombs: The popular conception of a bomb as being a black sphere about the size of a bowling ball equiped with a sputtering fuse is not likely to be encountered in searching for explosive devices following a bomb threat. Because an explosion bomb itself is the unit of destruction and is not dependent upon outside aid as is an incendiary bomb, it is normally larger than an incendiary bomb. However, the same ingenuity of disguise is applicable as in the case of an incedniary bomb. Five sticks of dynamite taped together and equiped with a blasting cap would make a capable explosive bomb, but upon sight, would excite suspicion and concern. The same five sticks of dynamite stuffed in a suitcase with a dry cell battery and a clockwork delay-device would be just as destructive, but would not attract attention. A lump of plastic explosive coated with a mixture of shellac and coal dust would be unnoticed in a load of coal or a coal bin. The possible combinations of explosive, activator, delay device, and outside container are many.

Incendiary Bombs: The malicious use of fire is one of the oldest methods of property destruction. It is one of the most effective methods because it can result in complete destruction of the evidence as well as destruction of the objective. There are many materials and combinations of materials which can be used to make fire bombs. The means of igniting a fire are so commonplace and accessible that improvisation of a fire bomb is exceedingly simple. A book of matches, a cigarette, a candle, or a can of gasoline are all available to anyone and either of them or in combination can be used surrepitiously to start a fire. A book of matches triggered by a lit cigarette, or a phosphorous-impregnated piece of paper are simple devices often used.

If the Bomb Explodes

Protect the area, prevent the curious from gathering after an explosion. Overcrowding can cause collapse of flooring. Remember, too, a second bomb may be nearby to kill the crowd which assembles out of curiosity! This could be an objective of the terrorists.

The self-help organization should be prepared to render first aid, remove the injured and the dead from public view, clear away debris which appears to cut off escape, quickly control fire, and direct mass movement of personnel to safe areas.

Although guidance in developing plans to minimize the effects of bomb threats is rather scarce, hundreds of new publications on this subject are being developed by a wide variety of agencies. One of the best available sources of guidance is the excellent publication, *Industrial Defense Against Civil Disturbances, Bombings, Sabotage*, prepared by Maj. Gen. Lloyd B. Ramsey, Provost Marshal General, and his Chief, Industrial Defense Branch, Jervie P. Fox, Jr.

As indicated in previous articles in this series, an important first step in emergency preparedness is to keep in touch with local civil defense officials and law

enforcement departments on a day-to-day, year-round basis. Don't wait until an emergency occurs.

The Office of Civil Defense (now Defense Preparedness Agency), as a Federal government agency, has no explicit authority or responsibility to deal with bomb threats or other peacetime disasters. OCD's basic job is to organize, lead, coordinate, and help finance a national program to minimize the effects of nuclear attack. However, local and state civil defense organizations play an important role in dealing with all types of major emergencies and disasters. In many cities the local Civil Defense Director is recognized as the "chief of staff" or key advisor and coordinator for the senior political official; he can provide information and assistance to business, industry, and institutions in developing plans for all types of emergencies. ▲

CHANGING *(Continued from page 9)*

not only accetable today, it is demanded. Emergency planning pays off.

Turning to events ahead of us, what are our goals in emergency measures in 1972?

My goals are to ensure, as far as peacetime planning for war emergency is concerned, that, at each level of government, there is a completed, up-dated operational plan, including the arrangements for manning key emergency positions. Futhermore, in the same area, it is my purpose to develop a crisis management plan for graduated response to periods of increased tension and for the possible transition to war.

In the area of peacetime disaster planning, by the end of the year I propose to have completed a list of agreed federal departmental roles in response to peacetime emergencies. Furthermore, in consultation with the provinces, I expect to develop a plan for an Alerting, Information and Reporting System (AIRS) for nationwide use in connection with the peacetime disasters.

It is my intention to conduct a special in-depth study on the subject of air crashes. I shall develop and implement a Disaster Readiness Education Program at our Canadian Emergency Measures College. In 1972 I will be determining the extent of an establishing the groundwork for a National Exercise in 1974 in which, I am confident, I will have your usual excellent support.

These, in addition to maintaining forward movement in all my existing activities, are my goals in 1972. I now ask, what are yours?

What are the problems of the future for the emergency planner? They are problems related to people in emergency in our modern social system. People in the emergency planning field will have to consider the problems of universal emergency telephone numbers and of effective emergency operating centres for elected officials responsible for large numbers of people and their property. People in leadership roles will have to think of planning, not only to meet the emergency when it arrives, but to reduce the vulnerability of our systems to the effect of disaster. Community leaders must alert themselves to the needs of the individual to appreciate what his best response is in a disaster situation. These, among many, are the planning problems of today and of the future.

Emergency Measure in Canada has come a long way since I was first invited to attend your stimulating conferences. I want to thank you most sincerely for your willing and effective support of our mutual purpose. May I wish you all, continuing progress in your plans and preparations in the forthcoming year to deal with the total spectrum of disaster. ▲

TORONTO EMERGENCY SERVICES

by

J. H. Pollard, Commissioner

Emergency Services Department

The following report has been extracted from the Annual Report 1971 to the Chairman and Members of Council of The Municipality of Metropolitan Toronto.

ROLE AND RESPONSIBILITIES

During 1971, the operation of this department continued to be guided by council reflecting directives issued by the Provincial Government in both the EMO and ambulance programme.

The EMO programme continues under the earlier public directive of the Minister of Justice, Province of Ontario. This statement outlined a program emphasis related to studies made by the Federal Government on the Civil Emergency Planning program and its particular application to the province.

The work of this department and other co-operating municipal departments and agencies follows the stated purpose of the National Civil Emergency Measures program, which specifically serves to encourage and assist agencies at all levels to develop plans and preparations for emergencies in the most effective way.

The EMO program at the national level is a branch of the National Defense operation and is guided by controls and degrees of support provided for this service by federal government policy. The whole matter of National Defense planning continues to have the attention of the government, and modifications in role are currently being considered. Direction has been given regarding the development and up-dating of plans and procedures for operation of municipal government in emergency and control of essential services.

A part of the program is maintenance of all physical installations under this jurisdiction, including the total emergency communication facilities in and around Toronto.

As an arm of the emergency measures function, financial support and direction continues to beprovided to the Metropolitan Toronto Auxiliary Police, who are recruited, trained and operate under the direction of the Chief of Police, Metropolitan Toronto.

The volume of ambulance calls during 1970 was 117,022. In 1971, the records indicate 129,261 calls, an increase of approximately 11%. Additional necessary stations and facilities have been put in operation during the current year, and the training programme has been accelerated.

The provincial program for ambulance service has, until recently, been directed by the Ontario Hospital Services Commission. During 1972, these responsibilities will be more directly accountable to the Provincial Department of Health. No specific information is yet available as to how this may affect the program at the municipal level but not change is anticipated.

Meanwhile, the ambulance service has pressed ahead with improvements of techniques, training and quality of equipment. All these programs are receiving attention. Medical advice continues to be provided by the medical consultants to this department.

During 1971, there continued to be daily liaison between this Department, the Metroplitan Toronto Police Department, Toronto Fire Department, and all other operational departments in the Metropolitan Corporation individual boroughs, and the City of of Toronto. Excellent co-operation and communication continues between these various facilities.

Combined with these particular roles, it should be pointed out that this Department has a continuing responsibility to provide a preventative service to the municipality to forestall accidents and emergencies wherever possible. This is considered to be a most vital part of the Departmental responsibility. Training of municipal employees and citizens not only improves the general capability to react, but continues to build a considerable force-in-being able to deal with emergencies of any kind, whether local or national.

In making disaster preparations, inherently a government responsibility, there are two ways of organizing a nation, or indeed, a community; either by means of a centralized organization, which has strong powers to direct all components of the nation or community, or through a decentralized system where the organization, planning and operations follow the normal organization of government.

In Canada we have adopted the indirect or decentralized method which, in part, recognizes that emergency operations are an extension of existing agencies and departments of government. The hard core of needed emergency organizations already exists. This plan also makes it possible to use the strength of existing voluntary agencies, such as the Canadian Red Cross, St. John Ambulance, Salvation Army, etc.

Equipment and resources should have a dual purpose so as to serve not only during a time of emergency, but also for local crises. This is the goal pursued in this Department.

EMO DIVISION

The division's role is emergency planning and the coordination of the numerous services and agencies involved during disasters.

Planning

The Malton air crash was the subject of a planning meeting held at the Aurora Relocation site on February 11. Seventy-six officials representing all levels of government and other agencies involved in the disaster were present. Attention was focussed on methods of identification, sanitary facilities, equipment requirements, and the strain imposed on workers while carrying out their tasks.

The compounded problems arising from the crash of a large jetliner on a densely populated area of Metro were also considered.

The meeting provided a foundation for the review and updating of all emergency plans.

The Metropolitan Toronto Emergency Operational Plan continues to be revised. Departments and agencies are proceeding with revision of their plans within the framework of planning guidelines laid down for Metropolitan Toronto.

Meetings were held with hospital disaster committes, Toronto International Airport Safety Committee, Police, Fire, Salvation Army, Red Cross, St. John's Ambulance, and private industry.

Emergency Transportation Plan

Bylaw 168-71 passed by the Metropolitan Toronto Council on October 5, 1971, confirmed the planning arrangements between this Department and the Industrial Cartage Association of Metropolitan Toronto. The plan provides for immediate availability of operational vehicles of all types plus necessary staff to operate them.

The vehicles range from curbside vans to tractor-trailer units which can be used for the movement of personnel and effects from a disaster area. Provision has also been made for warehouse and terminal space at specified locations throughout the Metropolitan area.

An initial exercise, "Truck Alert 1", was held during the evening of December 9 to test the response time of Industrial Cartage Association vehicles required in an emergency, and it is proposed to hold more of these exercises, involving more vehicles and men, during 1972.

Assistance to Hospitals

During the power failure which affected critical areas, at Toronto General Hospital in April, the Division supplied portable generators to assist the hospital in remaining in operation.

In August and September the Division came to the assistance of Northwestern and Wellesley Hospitals who encountered power failure and flooding problems.

Installations

Main Control, situated in North York, serves as a backup operational and communication centre for the Department. Radio facilities and a telephone switchboard enable it to serve as a coordinating centre in an emergency.

The Aurora Relocation Site, including accommodations at St. Andrews College, in the event of a national emergency becomes the command and control installation for the Metropolitan Toronto Emergency Government and its services.

Radio repeater stations are located on the periphery of Metropolitan Toronto at Dagmar, Aurora, Schomberg, Brampton and Uxbridge. These stations are an integral part of the government communication network which services an area within Metropolitan Toronto and 30 miles beyond.

This network is linked directly with government and military communication facilities for overall coverage in a national emergency.

Mobile Control Centre

When a disaster occurs, a mobile control centre may be established at the disaster scene if requirements dictate.

Phase I of such an operation would be the dispatch to the scene of a supervisor who remains in radio communication with Central Control.

Phase II, if the scale of the emergency requires, brings a radio communications truck and trailer with staff to set up an operations centre at the scene.

Phase III, for disasters of longer duration, provides for a second trailer as a larger operations centre to serve as a permanent command and co-ordinating centre.

Training

Training staff attended orientation and radiological courses at the Canadian Emergency Measures College at Arnprior. Courses conducted in Metropolitan Toronto qualified personnel as St. John Ambulance and Red Cross first aid instructors.

Home Nursing and introductory courses in First Aid were held for Italian, German and Portuguese citizens.

Exercises and Meetings

Exercises were held throughout the year in conjunction with the Police, the Canadian Forces Base, Downsview, and the Industrial Cartage Association of Metropolitan Toronto.

On December 4 the Department participated in the re-enactment of the burning of Montgomery's Tavern and the battle of Moatfield Farm.

Within the Division continuing exercises were held to test all generators and pumps at Ashbridge's Bay. Communication exercise "Talk Through" tested all mobile equipment, repeater stations and equipment at relocation sites.

Meetings were held with visitors, both military and civilian, from Great Britain, U.S.A., Sweden, Ottawa and adjacent regions. Emergency planning discussions were held with Mr. Victor A. Prizgar, Secretary General of the Inter-Regional Caribbean Emergency Relief Organization (I.C.E.R.O.) Trinidad and Tobago. This organization is particularly interested in developing pre-disaster preparations and relief work methods for natural disaster in the West Indies.

Auxiliary Police

The Auxiliary Police, supported financially under the federal EMO programme, continue to assist the regular

police force in carrying out their duties. To prepare themselves for their task, the Auxiliary Police, with a strength of 355 active and reserve members, worked over 29,000 man hours on duty and in training.

Radiological Equipment

All fire departments maintain a continuing educational program on radioactive contamination control. Radioactive sources are extensively used in research and industry. EMO provides radiac detection equipment to all fire departments.

COMMUNICATIONS DIVISION

The Division handled 3,600,000 pieces of information in 1971. Responsible for the operation of the Department's extensive radio and telephone communications network, the Division at the same time undertakes control of improvements to existing facilities. On a 24-hour basis it dispatches and controls all ambulances operating within Metropolitan Toronto, and all ambulances entering or leaving the Metropolitan area. In the event of a disaster the radio network maintained by the EMO Division is immediately activated and placed under the Department's Central Control.

Central Control

The Central Control is a sophisticated communications complex with six 120-direct-line consoles, manned on a 24-hour basis. Each console serves as a link to other control centres or emergency agencies throughout the Metropolitan area.

To function effectively each dispatcher has at his desk one 120-direct-line console, a time clock and a tape recorder. A continuous belt system connected to each desk speeds the necessary movement of dispatch cards from one dispatcher to another.

Direct lines are maintained to all ambulance stations in the Metropolitan area. If an ambulance is in station, the calls will be given via telephone, however, as all ambulances are radio equipped, calls are often given over the air.

The selection of an ambulance for emergency calls is one of the continuous decisions a dispatcher must make. Although an ambulance in station may seem closer to

an emergency site the dispatcher must base his decision on traffic flow patterns, street or road construction, time of day, or weather conditions.

Direct lines are maintained to the Ontario Provincial Police, the Metropolitan Police, the Toronto and Borough Fire Departments, the Toronto Transit Commission, the Ontario Motor League, the International Airport, Toronto Island Airport, the Canadian Forces base and other agencies.

At the request of City and Borough Boards of Education direct lines have been installed on a multiple-line basis to 67 schools and recreational swimming pool facilities through the Metro area. Records confirm that this facility has been used for other school emergencies such as accidents in industrial classes and on sports fields.

The direct line to the Ontario Motor League gives access to all telephones on parkways and expressways. The line to the Canadian Forces Base atDownsview serves as the Department's link with the military.

The International Airport line is invaluable when aircraft are involved in emergencies. It also carries information regarding flights arriving in Toronto with patients aboard requiring medical attention.

Direct lines from the emergency wards of hospitals are utilized to advise the hospital of an ambulance coming in with a patient or by the hospital to request an ambulance for the emergency transfer of a patient. Occasions arise when ambulances are directed to intensive care units, poison centres, hyperbaric units or other specialized services which must prepare for the patient's reception.

Inter-facing units on each dispatcher's console provide the means by which an ambulance driver en route to hospital may speak directly to the doctor in the emergency ward. This makes possible an exchange of information in order to provide medical attention en route or immediately the patient arrives at the hospital.

A frequency scanner monitors all police and fire calls, providing a continuous flow of information and an invaluable means of integrating with these services.

Every call received in the Central Control is time-stamped and recorded at the dispatcher's desk, enabling him to play back immediately any message he has received. This facility is invaluable in situations when a distressed caller has given an address and hung up before the dispatcher can confirm the address. In addition, a 15-channel master recorder enables the supervisor to reconstruct any incident from radio and telephone conversations received in the Central Control.

When power failures occurred in 1971, an emergency battery-powered system took over. This system unique in design, has a continuous charging capability, with no delay between the cut-off of normal power and the inception of the auxiliary system.

A Status Light System is being developed which will more precisely indicate the status of ambulances operating within the Metropolitan area. This information is a basic requirement for the efficient dispatch and control of all ambulances during emergency and non-emergency calls, and especially when an incident occurs requiring the dispatch of numerous ambulances.

Studies are presently underway encompassing radio, telephone, data dispatching, and retrieval systems. Facilities must keep pace with the increased flow of radio and telephone traffic in this complex and growing city, to provide a communications system which will bring constant and efficient service to its citizens.

The system generally operates on 11 VHF frequencies and 2 UHF frequencies licensed by the Department of Communications. ▲

BRITISH COLUMBIA CIVIL DEFENCE RESCUE SERVICE

by

John H. Erb

Provincial Civil Defence Coordinator

This address was delivered to the National Coordinator's Conference at the Canadian Emergency Measures College, Arnprior, Ont. in March, 1972.

We have had a Rescue Service in British Columbia for many years. At first it was designed to assist the civilian population in the event of a wartime emergency. Our instructors were taught here, at Arnprior, and our training was based on the systematic search of damaged buildings, shoring of unstable structures, and the various forms of rescue.

In recent years it became obvious that our rescue workers must have a wider knowledge of rescue skills. We have little, if any, requirement to rescue people from damaged buildings, but we have an increasing demand for trained searchers to look for hunters, and children, and other people who become lost in the woods.

The police, of course, are responsible for conducting these searches but as a rule, the police have not sufficient manpower to conduct a search, and in addition, the police are not always trained in the techniques of conducting searches.

We found that to conduct a comprehensive course to include all elements of rescue required a minimum of two weeks. This presented problems in selecting suitable candidates, as though many could attend for one week, few could attend for a two week course. We have been forced, therefore, to conduct two types of courses, a Heavy Rescue course which contains the elements of the original rescue course, and a Light Rescue course, which concentrates on search techniques.

We have made some changes to the original heavy rescue course to make it more adaptable to peacetime disasters.

For example, we include rappelling, a method of descending a cliff face in order to reach an accident scene.

In our mountainous province there are many rescue situations that require the rescuers to descend canyon walls or cliff faces in order to perform the rescue. We teach only basic body rappelling but this we find sufficient to give the rescuer the necessary confidence to descent a vertical canyon wall using a lifeline. We include rappelling on our light rescue courses as well.

We recently conducted a course for the Provincial Department of Mines for their Mine Rescue Co-ordinators. They were very pleased to have instruction on rappelling which they themselves have adopted to their training programme for rescue in open pit mining.

Another addition to the Heavy Rescue Course is rescue from wrecked vehicles. During the summer months we have a multitude of tourists in our Province and, inevitably, many accidents. Some of our municipalities, and I think of Revelstoke in the heart of the Rockies, have special volunteer Civil Defence rescue teams who proceed to traffic accidents together with the police and the ambulance.

They are prepared to extract motorists who have been trapped in their vehicles following an accident. These rescue teams are equipped with special tools to expand door openings and to bend aside entrapping steering columns. They have special disc saws to cut through twisted steel frames, and portable oxyacetylene for cutting through heavier equipment.

But not all our equipment is sophisticated. We have designed a very simple tool similar to the old-fashioned can opener for cutting through the roofs of crashed cars.

Rescue teams are also equipped with full and half body fracture boards which have been designed in the Province. They do not cost much and could be invaluable where spinal injuries are involved.

Another skill we include on our Heavy Rescue Course is the construction and use of an aerial runway, or, as it is sometimes called, the Telpher Line. This is a method of rescusing casualties from elevated locations such as a rescue from upper stories of high buildings, or to transport casualties across water, or across a mountain chasm.

This method of rescue would be used when direct lowering of a casualty is not practical. Also it could be used to evacuate from one high building to another building. The construction is relatively simple and can be erected in a short period of time.

We also teach the candidates the construction of a swinging derrick which is useful for lifting and moving heavy objects.

Lectures are included on the respiratory hazards. This is a very recent addition. A few months ago two workmen lost their lives in Port Alberni after entering a manhole where there was insufficient oxygen.

Our rescue personnel may be required to effect rescue under similar circumstances and we feel that they should have some knowledge of the hazards they may encounter in confined spaces. They are, of course, also trained in emergency respiration methods. Both direct respiration or mouth-to-mouth and the indirect respiration both Holger-Nielsen and Sylvester.

To date we have not included avalanche rescue in the programme but we are giving serious consideration to this form of rescue as well. We have many snow avalanches in British Columbia and there are frequent incidents of avalanches involving human life.

We expect to have our Chief of Rescue trained in the techniques of avalanche rescue and no doubt we will either conduct special courses in this form of rescue or include it on one of our other rescue courses.

Now I would like to talk about our Light Rescue course. This is a very popular course and there is a great demand for our graduates. We are called upon frequently to assist the local police, usually the R.C.M.P. in conducting a search.

It often amazes me how so many hunters who profess to be outdoorsmen get lost in the bush. But this is so, although I must admit that many of the hunters are strangers to the area. Many hunters, children and hikers are lost in the bush every year.

In 1971, we had 133 search emergencies throughout the province, approximately 800 volunteers were involved in searching for people, requiring over 6000 man hours. But we derive a great deal of satisfaction when our search parties have been successful in finding the lost person. We have on record many letters from grateful parents whose children we have found.

We realize, of course, that there must be a minimum waste of time organizing the search, particularly in the winter months. The request for our assistance usually originates with the police through the municipal civil defence co-ordinator to our zone co-ordinator who either requests approval from the provincial office, or, in extreme emergency, has the authority to authorize the search himself. Each operation is given a task number and subsequently a detailed report on the operation is prepared.

Some of our rescue teams have been trained in techniques of mountain rescue. The R.C.M.P. operate a mountain rescue school at Squamish and we expect our Chief of Rescue, who has had some experience in mountain climbing, will attend one of their rock climbing courses.

As I mentioned earlier, we include rappelling, which is the technique of descending a cliff face, on this course. One of our rescue teams used this technique at Gold River to recover the bodies of two lost Russian seamen and very recently the North Vancouver rescue team had to descend the Capilano Canyon to recover the body of a lost boy.

The principal subjects on our Light Rescue course are the use of the map and the compass. These are covered in theoretical classroom work and followed by practical bush exercises. Students are taught to follow given compass courses and to verify their position by recognizing topographical features and to locate their position by the use of reciprocal bearings.

The course candidates are taught how to organize a search, the various methods of searching, and the special techniques that are required for our varied and rugged terrain. They are trained to be able to plot the location of the find in the event that they are searching for lost persons; other candidates using this information are expected to be able to relocate that spot. This knowledge is valuable in the event of an actual search.

Our light rescue teams often work in conjunction with the Canadian Forces Air/Sea Rescue and a member of that organization attends our course and gives lectures on air to ground and ground to air signals and other techniques to enable ground searchers and air searchers to work in close co-operation.

On our Light Rescue course we also conduct a series of lectures on outdoor living and included in the series is a lecture on hypothermia which is the loss of body heat due to exposure to temperatures below the normal body temperature. Many hikers and other sportsmen have died from exposure. We feel that our rescue personnel should know the hazards of hypothermia.

Although we do include instruction on outdoor living in our Light Rescue courses, we decided that this subject is so broad that we should design and conduct a special course on survival. We will conduct our first survival course in May of this year as a pilot course with a small, very carefully selected group of candidates, each having had wide experience in the bush. Our second survival course is scheduled for September of this year with a larger number of candidates. We have distributed course

instructions on this survival course and a great deal of interest has been demonstrated.

The course is designed for graduates of our Light Rescue course and will include some refresher training in search techniques. The candidates will be taught how to survive in the wilderness with relatively little specialized equipment. They will be taught how to prepare a basic survival kit, how to select and carry nutritious foodstuffs and vitally useful items in a compact, lightweight kit. They will be issued with blankets to be used as bedrolls and a plastic sheet to serve as a shelter.

They will also be taught that in the event they do not have an emergency kit, or if their supplies are exhausted, how to live off the land.

They will be taught how to prepare shelters, how to light fires under emergency survival conditions such as without matches using flint and tinder, how to prepare a fire both for heating and for cooking, where and how to obtain water, how to identify good water and how to purify doubtful or suspected water.

They will be taught how to recognize edible plants and insects, and how to prepare and cook foods under adverse conditions.

They will be taught the various methods of procuring meat or fish and the course will include a 24-hour field exercise practicing as much as possible of the instruction they have received in the classroom.

We are sometimes called on to assist in marine rescue —a great many people enjoy fishing and boating in British Columbia but are not prepared for the risks involved.

We have no special equipment for marine rescue but many of our rescue personnel have the necessary knowledge and experience valuable in such emergencies. We are giving serious consideration to expanding our capabilities in marine rescue.

There will be an ever-increasing demand for our rescue organization and we must be prepared for this demand. We will continue our rescue training and if possible accelerate this training both in our Provincial school and in the municipalities with provincially trained instructors. We plan eventually, when funds are available, to exchange our heavy rescue stake trucks and their rescue equipment for more modern vehicles equipped to handle a wider range of rescue operations.

You may be interested in hearing about some of our Rescue operations conducted during the last year.

A lost hunter was reported at Salmo—he was found at noon the following day.

An elderly man was lost at Kamloops—he was found.

The R.C.M.P. requested assistance to rescue an injured surveyor who had fallen over a thirty foot rock bluff. He was lashed to a stretcher and lowered 500 feet to the highway.

The R.C.M.P. called for assistance in a car accident on Jackass Mountain in the Fraser Canyon where one man was lost. The body was found 250 feet down the mountainside and was brought up in a stretcher.

The R.C.M.P. reported a car left the road at China Bar Tunnel in the Fraser Canyon. The Boston Bar rescue team brought the driver up from the 100 feet level. Boston Bar rescue team was called out again to rescue an injured railway worker who had fallen over a forty foot cliff—he was removed from a ledge and raised in a basket stretcher.

Two men missing on Sproat Lake were located on the beach where they had taken refuge after their boat was swamped.

Following a report that a small boat had overturned near Thetis Island a member of Cowichan Rescue team rescued four men who had been in the water for forty-five minutes and were showing signs of exposure.

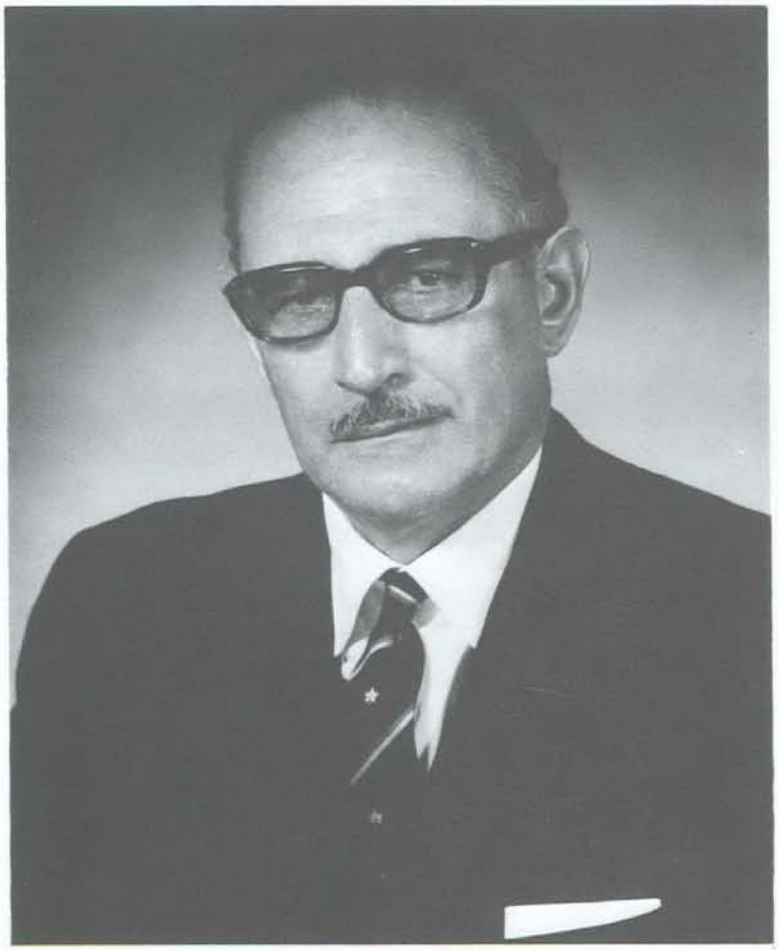
These are only a few incidents that will indicate the various rescue operations our people are called upon to perform.

Our most extensive operation was a six-day search for a missing hiker on Seymour Mountain in North Vancouver. A total of 350 searchers searched for 4500 manhours. The R.C.M.P. used dogs for the first time on a search of this kind and a helicopter was also called into service and was used during the actual search for the missing person.

One other search was conducted in the Kokanee Glacier area of the Kootenays in which a helicopter was used and the missing persons were located and taken off the glacier by helicopter to hospital. There was no injury but they were suffering from exhaustion. The cost of the helicopter in this case, was paid for by the family who were rescued.

Not all our rescue operations have a happy ending. In some cases only the body is found and sometimes a search is unsuccessful. Usually when we are successful the persons involved are grateful, but we also have cases on record where the persons, perhaps embarrassed at being lost, denied that they were in any difficulty and showed resentment rather than gratitude.

This serves to illustrate that Civil Defence Rescue Volunteers must be motivated by the desire to serve and not the expectation of reward or glory. ▲



MR. WALTER E. GARBER
C.E.M.C. Principal Retires

An officer well known in military circles who for the past seven years has been responsible for the training and education of over ten thousand Canadian emergency measures/civil defence officials, Mr. Walter E. Garber, Principal of the Canadian Emergency Measures College, Arnprior, Ont. retired from federal public service, June 19, 1972.

After a military career stretching back to cadet service in 1926 and culminating in his retirement from the Canadian Army as a lieutenant-colonel in 1963, Mr. Garber was immediately appointed Chief of Studies at the EMO college and in 1965 took over direction of that establishment.

"Wally" Garber was born in Bridgewater, Nova Scotia, in 1913, where he attended High School and later studied accountancy with LaSalle University.

He joined the Bridgewater High School Cadet Corps in 1926 and the Canadian Army Militia in 1930 and served during the Second World War with the West Nova Scotia Regiment in the United Kingdom, Italy and North West Europe. After the war, he was appointed to the Royal Canadian Regiment.

He graduated from the Canadian Army Staff College in 1948. He served at Army Headquarters from 1948 to 1951; as an exchange officer with the U.S. Department of the Army from 1951 to 1954; commanded The First Battalion, Canadian Guards from 1954 to 1958; was a member of the Directing Staff of the Canadian Army Staff College from 1958 to 1962, and Chairman of the Canadian Army Examination Board from 1962 to 1963. He retired with the rank of lieutenant-colonel in 1963 and was appointed to the Canadian Civil Defence College.

Mr. Garber was awarded the Pfizer Award of Merit by the United States Civil Defence Council in 1968.

Following retirement Mr. Garber and his wife Marion will reside near Lunenburg, Nova Scotia.

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