. . . . . AN AMERICAN JOURNAL OF CIVIL DEFENSE

SURVIVE

VOL. 3 NO. 5 NOVEMBER–DECEMBER 1970

See: SPOTLIGHT, "New Canadian Amphib: Super Firequencher" – Page 16

Also in this issue:

Leon Goure –

"Soviet Civil Defense: Current Doctrine"

CIVIL DEFENSE FORUM

OAK RIDGE CIVIL DEFENSE SOCIETY

ASSOCIATION FOR COMMUNITY-WIDE PROTECTION FROM NUCLEAR ATTACK

"The need for an effective Civil Defense is surely beyond dispute. . . No city, no family, nor any honorable man or woman can repudiate this duty. . ."

– Sir Winston Churchill

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COVER PICTURE

A Canadair CL-215 demonstrates the release of six tons of water on a staged fire. See lead story under SPOTLIGHT, page 16.

SURVIVE

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The Civil Defense Forum
The Oak Ridge Civil Defense Society
The Association for Community-Wide Protection from Nuclear Attack

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Survive presents authentic information relating to civil defense–to the survival of free government, the United States, and its people in the nuclear age. Its aim is public education in this field and service as a forum.

Authors are encouraged to submit manuscripts for consideration by the editorial board for publication. Articles (preferably illustrated) should be 1,000 to 1,500 words in length, slanted to the non-technical reader, and oriented toward the civil defense field. Views expressed in contributions to *Survive* are those of the authors and do not necessarily reflect *Survive* policy.

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Among Survive Writers

LEON GOURE

Russian-born Dr. Leon Goure is a foremost American authority on Soviet civil defense. His *Civil Defense in the Soviet Union* (University of California Press, 1962) is generally accepted as the most thorough and accurate book-length analysis of passive defense measures behind the Iron Curtain. This study was recently supplemented by publication of Goure's *Soviet Civil Defense Revisited* (The RAND Corporation, 1969).

Goure attended grade school in Berlin and high school in Paris. During World War II he served in Europe with the U.S. Army Counterintelligence Corps. In 1947 he graduated from New York University, and after graduate studies at several other American schools obtained his doctorate in Political Science at Georgetown University.

Goure now directs Soviet studies at the University of Miami's Center for Advanced International Studies and is a consultant for the Office of Civil Defense, General Research Corporation, and the RAND Corporation. His article, *Soviet Civil Defense: Current Doctrine*, appears on page 4.

CARL N. SMITH

Journalist-poet Carl N. Smith, author of "Are State Shelter Laws the Answer?" on page 2, has been Arizona's hard-driving Director of Civil Defense and Emergency Planning since 1965. In 1969 his persistence paid off with the passage of the Arizona shelter bill, accepted widely in the United States as a legislative model.

A 1929 graduate of the University of Arizona, where he was editor of *The Arizona Wildcat* and Director of the University News Bureau, Smith's subsequent 11-year career with Phoenix and Tucson newspapers was cut short by his call to duty as a U.S. Army Cavalry officer in 1940. Career number two spanned two wars and saw him rise to the rank of colonel before retirement and return to his native state.

Five years into career number three—civil defense—sees Smith distinguishing himself in another public service field. In recognition of his leadership and accomplishments he was recently elected President of the National Association of State Civil Defense Directors. He takes office next July 1st.

READER COMMENT

Selected observations made in reply to Survive *questionnaire:*

"Coverage of comments by men in the fields of geopolitics would be in order to give more background to the need for strong civil defense."

* * *

"We appreciate the objectivity and scope, especially after reading Jerome Weisner's 'Memorandum to a Vienna Negotiator!' "

* * *

"Continue with your short but pointed articles."

* * *

"*Survive* to me is top quality. If only we could get more people who are responsible for our government to read and regard as facts the meat of the magazine."

* * *

"*Survive* should be sent to all heads of local government."

A French opinion poll by *Paris-Match* measured nationwide thought on the likelihood of war. One question was: Which of the following countries are pursuing peace and which have policies which create risk of war?

	War	Peace	No Opinion
China	64%	12%	24%
Israel	62%	17%	21%
Egypt	61%	12%	27%
U.S.A.	54%	26%	20%
U.S.S.R.	43%	31%	26%
Germany	14%	60%	26%
France	7%	81%	12%

ARE STATE SHELTER LAWS THE ANSWER?

by Colonel Carl N. Smith, USA Ret.
Arizona State Director of
Civil Defense and Emergency Planning

Are state shelter laws the answer to the problem of providing adequate and properly distributed shelter space throughout the country? An abbreviated answer was given in a special report at the annual conference of the National Association of State Civil Defense Directors in Washington, D.C. on April 8, 1970.

According to the report, all early indications point in the same direction, i.e., that good shelter laws by state legislatures will be a boon to the business of survival, especially in rural areas where deficits almost invariably exist.

Only nine of the 50 states have specific statutes which refer to protection from gamma radiation in construction of public buildings. There is not much similarity in any of these nine. The Washington report divides the states with shelter laws into three general classes. The first is called "permissive" legislation. In recent years three states, Florida, Nevada and Oklahoma, have passed laws which might properly be placed in this category. In general, these statutes recognize the provision of fallout shelter as a desirable characteristic of construction and authorize public officials to include these features in public construction.

The second, labeled "subsidy provisions," applies to New York only. Here the legislature has offered state support funds to political subdivisions of the state where construction of fallout shelters has been included in new construction.

The third, called "mandatory laws," applies to statutes which *require* that certain public buildings be constructed with fallout shelters. There are five states with such provisions in their laws: Rhode Island, Arizona, South Carolina, Alabama and South Dakota. The laws of these five states vary considerably in their "mandatory" provisions. In South Carolina, for instance, the law pertains to only two of the 48 counties. In South Dakota the law pertains to buildings of the state government but makes no mandatory provision for lower echelons of government.

In addition to the nine states with shelter statutes, Minnesota has a mandatory legal provision requiring fallout shelter construction in state structures. This was established by new requirements added to the state building code. Provisions for fallout shelters, therefore, are a positive requirement with a most effective manner of enforcement – that is: no provision for fallout shelter, no building permit. However, this code clearly pertains only to state buildings.

The laws of Rhode Island enacted in 1967 and those of Arizona and Alabama enacted in 1969 have a few common characteristics. Rhode Island and Arizona laws require fallout construction for buildings of the state, counties, cities, towns, and school districts.

Alabama law requires fallout construction in structures of the state "including public school buildings or structures

CHARACTERISTICS OF VARIOUS STATE SHELTER LAWS

STATE	TYPE OF LEGISLATION	SCOPE	YEAR ENACTED	* % OF INCREASE	REMARKS
Alabama	Mandatory	State buildings including schools under State jurisdiction	1969	2%-4%	Shelter may be eliminated if additional costs are above 4% for structures $50,000 to $500,000 3% for structures $500,001 to $1,500,000 2% for structures above $1,500,000
Arizona	Mandatory	Public buildings of all political authorities incl. schools	1969	3%	Every public structure above $100,000 cost must have shelter or a waiver by the Governor
Florida	Permissive	Public buildings of all political authorities incl. schools	1967	Not Specified	Two acts. One pertains to all public buildings except schools. The other pertains to schools
Minnesota	Building Code	State agencies only	1969	1%	Not legislated—requirements for shelter incorporated into State Building Code.
Nevada	Permissive	Incorporated cities and towns	1969	Not Specified	
New York	Permissive w/subsidy provisions	Public schools and state owned buildings	1961	Not Specified	Financial assistance to local authorities for EOCs
Oklahoma	Permissive	State agencies and school authorities	1967	Not Specified	State agencies required to "cooperate" with state Civil Defense Director
Rhode Island	Mandatory	Public buildings of all political authorities incl. schools	1968	3½%	
South Carolina	Mandatory	All governmental entities—two counties only	1969	Not Specified	Two acts—one pertaining to Richland County, the other to Greenville County
South Dakota	Mandatory	State agencies only	1966	Not Specified	

* Percent of increase allowed for shelter construction over conventional construction costs.

and public buildings or structures of universities and colleges, including any additions to existing buildings or structures." Alabama law further provides that "each municipal and county governing body in this State, may, by ordinance or resolution" establish similar requirements as those of the state.

A few difficulties in the administration of the state law have been reported. For instance, the Rhode Island law specified that "On or after January 1, 1968, every building constructed. . . shall contain appropriate nuclear fallout shelter area. . ." This provision caused some jurisdictions to try to "beat the deadline." However, this problem was short-lived.

Not all architects in Arizona have accepted the state's shelter law with enthusiasm. Complaints have received generous airing in the *Arizona Architect*, a professional magazine published in Phoenix. The complaint mentioned most frequently concerns the architect's fees. Actually other provisions of Arizona law of long standing apply directly to this problem, and the shelter law is not even a third cousin to these provisions. The other complaint is that the law encroaches on the architectural freedom of the profession. A report of this nature would not be complete without mentioning some lack of unanimity. However, most architects, and by all means the leaders in the profession, even before enactment of the "shelter law" in Arizona, were significant contributors to the state's shelter facilities. Before enactment of the law, and certainly thereafter, these architects have accepted the principle of fallout shelter at the conceptional phase of their designs.

Are state shelter laws the answer? Those states with laws are certainly worth watching—and future reports should prove interesting. ■

Soviet Civil Defense:

Current Doctrine

by Leon Goure

To discuss Civil Defense is to think about the "unthinkable." Many prominent Americans have said in effect that nuclear war is "unthinkable" because no rational leader would ever resort to it. Thus McGeorge Bundy, former national security adviser to Presidents Kennedy and Johnson, wrote in 1969:

> In the real world of real political leaders—whether here or in the Soviet Union—a decision that would bring even one hydrogen bomb on one city of one's own country would be recognized in advance as a catastrophic blunder; ten bombs on ten cities would be a disaster beyond history; and a hundred bombs on a hundred cities are unthinkable.

Unfortunately, such a judgment is not only historically wrong—the Soviet Union suffered the equivalent loss of far more than ten cities in 1941 when the Germans occupied most of European Russia, yet it survived—but may also err in assuming that the Soviet leaders hold similar views. It is indeed one aspect of our psychology that we have tended to endow the Soviet leaders with ever greater measures of rationality (in our meaning of the word) in proportion to the growth of Soviet military power. Unfortunately, the men in the Kremlin, while they are likely to view a war initiated by the United States as a "catastrophe," do not believe war to be "unthinkable." Indeed, they regard the possibility of a war as sufficiently real to require the Soviet Union to continue to invest its relatively scarce resources not only in a deterrent capability, but more significantly, in what they appear to believe may be a capability to survive and win it. "The defensive might of the Soviet Union," said Kosygin on June 10, 1970, "must be invincible in the full sense of the word."

> *"Following the loss of U. S. nuclear monopoly, the United States has increasingly concentrated on deterring nuclear war with relatively little attention being paid to what happens if the deterrent fails. The Soviet Union, however, still thinks not only about deterring a surprise attack, but also in terms of war-fighting and war-winning capabilities."*

The Soviet Union has always taken the danger of war seriously, and preparations for it have always been at the forefront of the leadership's concern. History has confirmed that military power was not only essential to Soviet survival, but is also the key factor in the emergence of the Soviet Union as a super-state.

Soviet concern over the possibility of war and with the problem of survival has led to its interest in Civil Defense. This interest dates from the inception of the Soviet State. Only the scale and level of investment in it have varied, and its character and organization have periodically changed in accordance with Soviet perceptions of the changing nature of war and technology. A national Civil Defense system called "Local Anti-Air Defense" (MPVO) was first established in 1932. However, modern Soviet Civil Defense dates from 1961 when it was renamed "Civil Defense of the USSR" and control over it was transferred from the Ministry of Interior to the Ministry of Defense.

The change underscored the importance of an integrated national, as opposed to a local, civil defense system, which is said to be required by the nuclear threat and the character of modern means of weapons delivery. At the same time, the greater importance of Civil Defense was reflected in the appointment of a Marshal of the Soviet Union, V. Chuikov, as Chief of the Civil Defense of the USSR.

More recently the importance of Soviet Civil Defense was further enhanced when Brezhnev called for its further improvement at the 23rd Party Congress in 1966 and again in a speech in 1967. This high-level endorsement by the Chief of the CPSU, the first of its kind since World War II, has resulted in giving Soviet Sivil Defense far greater scope and momentum than hitherto, as well as more leverage in asking for increased investments.

There are still many things about the Soviet Civil Defense program which remain unknown to us because of Soviet secrecy. Thus, we do not know the exact size of its organization, its costs, or its degree of readiness. However, there is evidence from Soviet and non-Soviet sources which indicates that it is not a mere paper program, but one that has and continues to receive large investments of resources and manpower on a scale which makes it probably the largest effort of its kind in the world today.

When one examines the Soviet Civil Defense program and its underlying doctrine one may decide at first glance that some aspects of it are obsolete or unrealistic. However, before passing judgment one should be careful to take into account the character of the Soviet system and the state of its economy, as well as the peculiarities of the Soviet views on the nature of modern war and the likely circumstances for its occurrence.

The Soviet View of the Threat

The current Soviet public view of the threat facing the Soviet Union seems to justify its Civil Defense program. One striking aspect of the Soviet treatment of this question is that it in no way reflects the more optimistic views sometimes held in the West. Despite the SALT negotiations and efforts to reduce East-West tensions, Soviet views on peaceful coexistence are far removed from ours. Soviet spokesmen reject the notion that peaceful coexistence signifies any real moderation in East-West relations. For example, an article in the government newspaper, *Izvestiia*, states that: "the policy of peaceful coexistence is imbued with deep class content and, therefore, has nothing in common with bourgeois and petty bourgeois pacifism." Not only will the struggle continue, but the threat of an armed conflict is said to be *intensifying*. For example, Brezhnev insists that the danger of war will not only persist as long as imperialism survives, but that the present stage is marked by a specially acute struggle between communism and capitalism in the fields of ideology, politics and economics. Thus, he said on May 27, 1970:

> We live in an age of acute struggle between the two systems in the world arena. Imperialism has not laid down its arms. The international situation requires that we should strengthen the defense potential and combat readiness of the Soviet troops. This is our sacred duty.

The old Stalinist doctrine of capitalist encirclement of the Soviet Union and of the inevitability of war with the capitalist powers, which Khrushchev dropped in 1956, is now being replaced with the still older Leninist doctrine that as socialism is increasingly victorious in the world the desperate capitalists become more irrational and violent in their attempts to save themselves. For example, Marshal of the Soviet Union Grechko, the Minister of Defense, wrote on April 18, 1970:

> The course of modern social development confirms the ideas expressed by Lenin that the more substantial socialism's victories are, the more stubborn the resistance of the imperialist bourgeoisie becomes. Not wishing to reckon with the lessons of history, imperialist reaction seeks a way out in various kinds of adventures and provocations, and in direct use of military force.

These arguments serve to justify increased Soviet defense expenditures and demands on the population to prepare for defense. For example, a member of the ruling Politburo, Shelest, said recently:

> Political vigilance, hatred for the class enemy, and readiness to stand in defense of our socialist Motherland must be increased among our people.

Marshal of the Soviet Union Konev put it in a nutshell when he wrote in *Izvestiia*: "An enemy is an enemy. It is essential that every Soviet citizen be hardened and ready for the clash with the class enemy."

The Chinese threat to the Soviet Union is also mentioned. Thus, Chuikov writes in the 1969 edition of his pamphlet *Civil Defense in the Missile Nuclear Age*:

> At this time it is difficult to determine how much nuclear capability China can plan for and how soon the militaristic clique of Mao Tse Tung can accumulate it, but having in hand nuclear weapons and even more so strategic missiles, the Maoists can threaten any country with nuclear attack.

However, references to a Chinese threat are not used to the same extent in Soviet literature to justify the civil defense program as the alleged danger posed by the United States. Of course, the Soviet leaders may find it politically inexpedient to explain their defense preparations in terms of China, especially as they often criticize Peking's militarism. But the scope and character of the Soviet Civil Defense Program are far too comprehensive and intensive

to be primarily designed to cope with the threat of a Chinese attack.

Soviet concern with defense, including civil defense, seems also to derive from a view of war which appears to be quite different from that of the United States. Following the loss of U. S. nuclear monopoly, the United States has increasingly concentrated on deterring nuclear war with relatively little attention being paid to what happens if the deterrent fails. The Soviet Union, however, still thinks not only about deterring a surprise attack, but also in terms of war-fighting and war-winning capabilities. While recognizing that in a nuclear war the Soviet Union would suffer grievous damage, the *official* view rejects the Western notion of a state of mutual terror because this leads to "pacifism" and may hamper Soviet foreign policy. Instead it is argued that "victory" is possible provided that the Armed Forces are in a high state of readiness, the enemy's attack is blunted by a pre-emptive strike, i.e. a Soviet first-strike, and measures are taken to achieve a superior survival capability.

Thus, according to Major-General Sokolov, First Deputy Minister of Defense, Soviet military doctrine states that "sudden massive nuclear strikes can in a very large measure determine the entire subsequent course of the war, result in enormous losses, and place a people and a nation in an extremely difficult situation." The targets of such an attack are said to be:

> the means of nuclear attack of the aggressor, his industrial and administrative-political centers, important communication centers, army and naval bases, and large groupings of troops. The destruction of these targets may exert a decisive influence on the entire course of war.

Even though, according to the Soviet view, the "other side" is by definition the "aggressor," this does not mean that the Soviet Union, like the United States, is going to depend for its defense primarily on a retaliatory strike, especially not in view of the "decisive" character of the first strike. Consequently, Soviet doctrine calls for a "pre-emptive" attack. Thus, Marshal of the Soviet Union Krylov, the Commander in Chief of the Strategic Missile Forces, wrote on February 20, 1970 that "a counter-blow (sic) can exert a determining influence on the whole course of the war." Lieutenant-General Shuvyrin, First Deputy Chief of the Civil Defense Staff of the USSR, has described the most optimistic version of what may happen to the Soviet Union:

> One must keep in mind that the aggressors (i.e. the U.S.) will not be able to make full use for their purposes of their strategic means of attack. A portion of their means of weapons delivery will be destroyed or damaged *before* their launching—while they are still on their launch sites, bases and airfields; another portion will be destroyed or damaged in flight by weapons of the Air Defense . . . ; still another portion of the missiles and aircraft will fail to reach their targets for technical reasons (i.e. malfunction) . . . (However) some portion of the nuclear, chemical and bacteriological weapons may reach their targets.

We do not know, of course, whether or to what extent such views are actually shared by the Soviet leaders. However, the Soviet deployment of their SS-9's, which appear to have a real counter-force capability, the initial deployment of the Soviet ABM's around Leningrad and Moscow rather than to protect strategic missile sites, and the character of the Soviet Civil Defense system are suggestive in this respect.

The Mission of Civil Defense

The Soviet view of war is reflected in the Soviet Civil Defense program and its doctrine. This doctrine is based on the assertion that survival and victory in a nuclear war are impossible without assuring the protection of the population, the economy, the administration and sources of food. For example, Civil Defense Chief Marshal Chuikov, wrote in January 1970:

> We stand on the premise that in nuclear warfare the one who will hold out will be he who is able to preserve peoples lives, to insure continuity of management and the survivability of production of the national economy, and to safeguard crops and livestock from destruction . . .

In brief, it is asserted over and over again that national survival and "victory" in a nuclear war are impossible without an effective Civil Defense, which therefore is an essential element of the overall Soviet defense capability. For this reason, Civil Defense is said to be an important concern of the Communist Party and of the Soviet Government, and it is each citizen's "patriotic duty" to participate in it.

Soviet Civil Defense is required to deal with a range of threats, including nuclear, chemical, bacteriological and conventional weapons as well as natural disasters. Soviet concern with defense against CW and BW, which they allege the United States is planning to use in a war, is undiminished to this day and adds considerably to the cost of the program. It is said that these weapons are especially suited for population attacks and may be part of a campaign to paralyze the economy and prevent post-attack recovery.

In conclusion, the main mission of Soviet Civil Defense is:

(1) Protection of the population,
(2) Assuring the continuing operation of critical industries and services in wartime,
(3) Protection of food, crops, livestock and water,
(4) Training the entire population in Civil Defense, and
(5) Conducting large-scale rescue, fire-fighting and repair work following an attack. ■

DIRECTOR DAVIS TALKS TURKEY - AGAIN

Davis rhetoric is crisp and to the point. He is imbued with the art of knowing what to say and how to say it effectively–without frills, with conviction, and in a down-to-earth vein. Speaking in Boston to the American Society for Industrial Security, Davis said:

> More and more Americans are calling–some loud and clear, others quietly but firmly–for more protection against the hazards which threaten their lives, their property, their environment, their institutions, their way of life–and even the destiny of their Nation.
>
> To whom is this call for protection being directed? Mainly to government–of the local, State, and Federal levels. Because government is charged with acting in the interests of all citizens, and taking care of problems they can't handle individually. As Thomas Jefferson said 200 years ago, "The care of human life and happiness, and not their destruction, is the first and only legitimate object of good government is a contrivance of human wisdom to provide for human wants. Men have a right that these wants should be provided by this wisdom. . ."
>
> Of course your primary responsibility is to your companies, their employees, and their stockholders. But I am asking you to enlarge your vision, to recognize *also* your obligation to the communities where you live and work, and to the people of those communities. I am asking you to use your talents more fully, by helping to create more effective community-wide systems for protecting people against both peacetime and wartime hazards. . . *You can add to the overall emergency preparedness of your community* by doing the best emergency preparedness job you can do for your own organization. If all companies and organizations in a community provide the best protection for their employees and their property, that's a very large step toward a good community system–and you will be a strong partner in disaster preparedness.

We like this. And we think that industry subscribes to it. And we should like to recommend to Governor Davis that he use this same brand of persuasiveness with his neighbors in Washington who direct federal building programs for federal agencies and who have long studiously failed to implement federal shelter policies. Federal agencies building in communities–or providing funds for community construction–like industry, have an "obligation to the communities," have a very *special* responsibility. This point is exceedingly well delineated by Davis logic. With the General Services Administration, the Housing and Urban Development Commission, the Post Office, and other federal agencies displaying the brand of teamwork asked of industry, an example could be set that would lead to real "people protection."

Can federal agencies also "enlarge their vision"? (WM)

HOSTAGES STILL

A U. S. Senate-House conference in September approved the administration's proposal to construct two more western sites of the Safeguard ABM system. Two are now under construction. Unfortunately, it knocked out the provision to purchase land for the remaining eight sites to complete the network. This action is consistent with the past policy of holding the American people as hostages to foreign nuclear powers (See "They Bet Your Life" in the July-August 1970 issue of *Survive*). The Safeguard ABM system was planned to provide primary protection for our deterrent Minuteman missile system, but the long-range Safeguard missile would also have given area coverage to the entire United States in a completed system. By refusing to purchase the remaining sites, the Senate-House conferees have denied this protection to the population centers of the country. We still remain exposed and vulnerable to a blackmail threat from *any* foreign power that provides itself with a strong ABM-Civil defense system. As Leon Goure states in his article "Soviet Civil Defense: Current Doctrine" on page 4 of this issue, the Soviets are making impressive progress toward this objective. (AAB)

The New York State Civil Defense Commission has allocated $35,250 to Elmira College for the construction of fallout shelter in the basement of its new Garnett-Tripp Learning Center. The shelter will accomodate 1410 occupants. New York is the only state which gives direct financial support to school shelter construction.

* * *

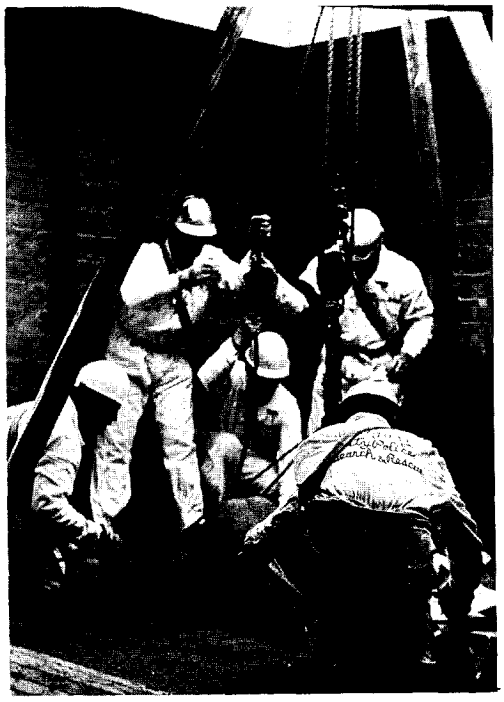
In El Dorado, Arkansas authorities recently provided disaster specialists with a *simulated* tornado. Reactions were tested through the use of trained "victims" as ambulances plied between the disaster scene, the junior high school cafetorium (where a packaged disaster hospital was set up), and local hospitals. A tornado-caused simulated explosion further flexed rescue techniques. In all, 65 simulated casualties were handled.

* * *

According to the International Civil Defense Bulletin (Geneva), Finland incorporates multi-purpose shelter in new Finnish construction at an average increased cost of 1.9%.

Part of the Canadian Forces National Survival Training Site in Calgary.

Casualty receives a reassuring word from rescue worker.



Rescuers use portable hoist to lift victim from below-ground location.

OCD translated into Canadian p
Organization. The Province of Alber
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enthusiasm for survival technology.

Alberta's Secre

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Frank in western Alberta. Sixty-six li
survivor.

Since that time Alberta has suffere
allowing their good fortune to infe
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an example for all of North America.
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Survival Training Site" was used as pro
was established as the winner's prize.
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Trophy for the third time in four yea
champions—was awarded the new Coh

All teams must first compete in zo
zones in Alberta. From these tests six t
is so keen that the chief judge must be
from the Canadian Emergency Measures
are staff officers of the Alberta Emerge

In the event of nuclear attack each
leader with the responsibility of di
operations.

Competition director Hank Hennie
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differences separate top teams from
team has excelled in at least one elem
Hennie says, "That every citizen of the
and enthusiasm for some phase of emer
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RIVALRY

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a disaster-reaction capability that sets
Since 1953 its rescue training center in
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ompetition was inaugurated in Calgary
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eam member would become a rescue
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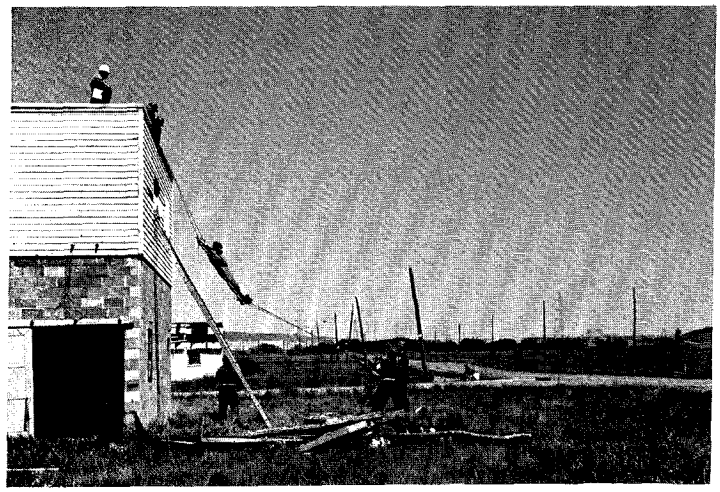
ovince would show as much interest
ncy preparedness as do the members

Rubble can also be hazardous.



1970 Champions execute two-point drop from a roof.

Back in Edmonton they train for 1971 (and "the real thing").

The New CD PROFESSIONALISM

by Richard C. Rasmussen

The Career Development Program is new and has brought applause from critical, hard-bitten local CD officials all across the nation. Here the OCD Staff College's veteran director parts the curtains briefly on the final phase (Phase IV) of the course—given for the first time this year.

Shortly after assuming his position as Director of Civil Defense May 20, 1969, John E. Davis announced that one of his primary goals would be to advance the cause of professionalism in civil defense in all elements of government.

The thrust toward such professionalism was brought sharply into focus in 1970 at the National OCD Staff College in Battle Creek, Michigan. The first group of officials to graduate from the complete Career Development Program were addressed by what was probably the most distinguished group of experts ever assembled for civil defense instructional purposes.

Brigadier General George A. Lincoln, Director of the Office of Emergency Preparedness, as a member of the President's Security Council emphasized that ". . . In the event of a nuclear attack on the United States, all we can do at local, State and Federal levels may not be enough. The question is, 'How large will the losses be?'

"The losses we are most concerned with are losses of people, the primary resource of the United States. Food and industry are important, but only people count in the final analysis."

Wendell E. Hulcher, Deputy Director, Office of Intergovernmental Regulations, Office of the Vice President, quoting comments by President Richard M. Nixon said, "Our new Stategy for the Seventies begins with the reform of government . . . This must be a cooperative venture among governments at all levels, because it centers on what I call the 'New Federalism'—in which power, funds and authority are channelled increasingly to those governments that are closest to the people."

He illustrated how the active Civil Defense Coordinator directly contributes to the success of these efforts.

Three speakers undertook to place the civil defense posture of the United States into perspective with those of other nations, including elements of the communist bloc.

Dr. Leon Goure, University of Miami, author, lecturer and internationally acclaimed expert on civil defense behind the Iron Curtain, said "Civil Defense in the USSR is considered a patriotic action or duty and is also concerned with natural disasters as well as possible enemy attack effects.

"Since 1967, emphasis has been on civil defense training of youth—from approximately 45 to 100 hours for Junior High and through Senior High age groups. . .

"The Soviet authorities appear to persist in regarding civil defense as an integral and important part of the Soviet defense capability, and they are willing to invest in it relatively scarce resources and manpower."

Brian P. O'Connell, Director, National Training and Exercise Branch, Canada Emergency Measures Organization, spoke on the current status of civil defense in Australia and Canada and interpreted the "care and maintenance" concepts now in use in the United Kingdom. . . He pointed out that "compatible cross-border plans and arrangements are a requirement for effective North American Continental Defense."

Career Development Program Classes Upcoming

Nov. 9–20, 1970	Phase III
Nov. 30–Dec. 11, 1970	Phase II
Jan. 18–29, 1971	Phase I
Feb. 1–12, 1971	Phase II
Apr. 5–16, 1971	Phase III
May 3–14, 1971	Phase I
May 17–28, 1971	Phase II
June 7–18, 1971	Phase III

CONDENSATION OF "POSITION PAPER" SUBMITTED TO OCD STAFF COLLEGE BY GEORGE J. DUCK* AT FIRST GRADUATING CLASS OF THE CAREER DEVELOPMENT PROGRAM

A quarter of a century after Hiroshima, we in Civil Defense still find ourselves trying to explain to the masses what the problem is.

We have been unable to divest ourselves of the air-raid block warden image of World War II.

We are saddled with national programs which offer no hope of survival for millions of citizens. The national government fosters programs for local entities—programs in which the national governmental agencies are the worst example.

While there is practically no public opposition, there is very little public support to Civil Defense programs. Public officials, from presidents to county commissioners, have adopted an ostrich-like approach to the problem of protecting the American people.

Any way you slice this business of minimizing effects of disaster, it always comes up a "local problem." We all subscribe to the philosophy that Civil Defense and local government are one and the same, and that "Civil Defense Operations" occur when local government responds to disaster. The fact that we subscribe to a philosophy does not make it a reality. Elected officials, appointed officials, and department heads who have enjoyed prestige and power for years sometimes consider efforts of Civil Defense an intrusion into their domain. . . ofttimes will accept no responsibility for emergency planning. . . then pass it off by saying—"when I need you I'll let you know."

We have come to expect other government agencies to become involved in our program because we know they should. We have not taken the time to become involved in their programs. Until we become more involved in the everyday problem of government, we are likely to continue to be treated as a departmental stepchild.

If we, as local directors/coordinators do not accept the responsibility for the improvement of Civil Defense as a profession. . . then who will? If we fail to accept this responsibility, we are doomed to mediocrity and failure. It may already be too late, but we must attempt this massive task because our people deserve a better fate.

Dr. Waldo H. Dubberstein, Chief, Mideast and African Division, Central Intelligence Agency, expanded the examination of civil defense postures beyond our contiguous and friendly borders in an up-to-date survey of the international situation vis-a-vis Eastern and Western Europe, the Middle East, and (with particular emphasis) Communist China. He also examined the state of civil defense in Southeast Asia, Africa, and Latin and South America.

Mayor Henry W. Maier of Milwaukee said that the career development program would provide an excellent way to train the career man to be a coordinator of community resources—a sort of executive inventory taker.

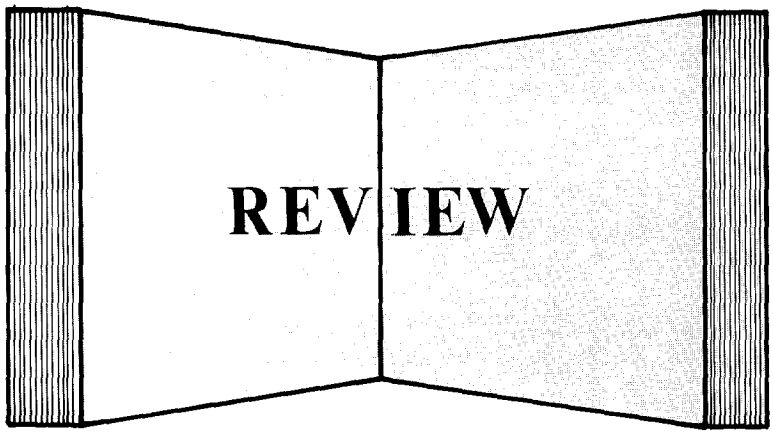
Domestic attitudes and efforts of our own business and industry community were outlined by L. C. Michelon, Vice President for Public Affairs, Republic Steel Corporation. He chided the civil defense coordinators in the class stating, "If you don't stimulate action, we (business) are not going to assume additional responsibility. It's up to you (CD Coordinators) to establish proper priorities on your programs and also in relation to other programs."

Other featured speakers included: Captain Andrew Serrell, USN, Industrial College of the Armed Forces; Eugene J. Qunidlen, Director, Government Preparedness Office, OEP; Walmer E. Strope, Assistant Director of Civil Defense, OCD; and Roth Schleck, Civilian Aide to the Secretary of the Army.

As more and more of our CD officials are exposed to the advanced examination of the civil defense process, the increased professionalism which has been needed for so long will at last become a reality.

The Staff College can and must act as the "seed-bed" for new ideas and uninhibited inspection of civil defense as it really is. From these beginnings, an increased dialogue will develop and our leadership and citizens will come to accept and respect civil defense for what it ultimately must be: a perceptive and comprehensive "first line" of the nation's passive defense and the active response made to any and all major disaster situations. ■

*Duck: President of the Florida Civil Defense Association, Director of Public Safety, Putnam County, Florida.



How Many Lives Can We Buy?

The July-August 1968 issue of Survive carried an article, "How Many Can Be Saved?", summarizing the answers found by R. A. Uher to this question. He estimated the number of lives that could be saved by a U. S. national blast shelter system in a nuclear attack and the cost of building these shelters. A new report[1] is now available presenting more recent work on this subject by C. M. Haaland. Mr. Haaland estimates the number of fatalities that the United States might expect to receive as the result of blast, fire and radiation from a nuclear attack around 1975 if a blast shelter system is available. He considers different kinds of blast shelters and shows the value of spreading a city population over a wider area than normal preceding an attack.

Figure 1 presents his estimates[2] of the percent of the U. S. population that would survive a relatively small attack in 1975. The total explosive energy of all the bombs was assumed to be 75 megatons if each bomb has a size of one megaton. This is an attack larger than the Chinese are likely to be able to launch but is much smaller than the Soviet capability. The U. S. could expect something like 55 million fatalities if no improvements are made in its civil defense. We see, however, that an investment of $30 billion in shelters would reduce these fatalities by a factor of almost ten–a saving of approximately one life for $600. A total investment of $50 billion would save another 2.5 million people.[3] The shelter system would be built over a number of years, and so the annual cost would be some fraction of the indicated total costs.

Figure 2 shows the number of survivors for a 5,000 megaton attack on U. S. cities in 1975. Testimony by Assistant Secretary of Defense Packard[4] before a Congressional committee indicates that the Soviet Union may be able to deliver an attack of this magnitude in that year if they continue their current rate of missile production. An investment of $30 billion saves something like 46 million lives at an average cost of $650 per human life. Raising the shelter investment to $50 billion saves an additional 50 million people. This additional $20 million dollars saves a life for each $400 investment.

These numbers presented by Mr. Haaland are only rough approximations and indicative of the cost effectiveness of shelters. The attack sizes indicated are measures of the total number of explosions theoretically occuring in the United States. The Soviets would need to have appreciably more missiles, perhaps thirty percent more, to allow for those that fail to reach this country. On the other hand, the number of people surviving will be less than that indicated because of the increased difficulty of living in a country devastated by an attack.

To put these population losses in some perspective, it is important to recall that the communist government of the Soviet Union caused the deaths of about 10 million people in its program of forced collectivization of its farms. The Soviet World War II population losses from the direct effects of the war itself amounted to roughly 23 million.

According to Fig. 2, if nothing is done to improve our civil defense posture and we receive an attack of 5,000 megatons in 1975, our population will be reduced to about 80 million–the present population of West and East Germany combined. On the other hand, if we have a shelter program with a total cost of $50 billion, our population will be reduced to 175 million–the population of the United States in 1959.

In his investigation into the problem of reducing the casualties in the city of Detroit, Mr. Haaland discovered that the number of people per square mile could be reduced by a factor more than two by requiring that most people walk a distance of about six miles after receiving warning of attack. The number of people killed by blast from nuclear explosions is proportional to the number of people in the area that each bomb blasts out. Thus a reduction of the number of people per square mile by two would cut the fatalities in half.

One of the most uncertain figures in Mr. Haaland's cal-

culations is the cost of building the individual shelters. This emphasizes the value of building a few prototypes located in various parts of the country. The sooner this is done, the sooner proper plans can be made for a national shelter program.

In addition to the few facts listed above, this report has several tables and charts presenting his calculational results and the input data needed in his work. His methods are outlined, and suggestions for future work are made. He and his colleagues at Oak Ridge are continuing this research and are considering the reduction in fatalities that can be made by the addition of an Anti-Ballistic Missile (ABM) system to the shelters. We can look forward to the publication of these figures upon completion of Mr. Haaland's research. (AAB)

[1] C.M. Haaland, *Systems Analysis of U. S. Civil Defense Via National Blast Shelter Systems,* Oak Ridge National Laboratory, Oak Ridge, Tennessee, Report ORNL-TM-2457.

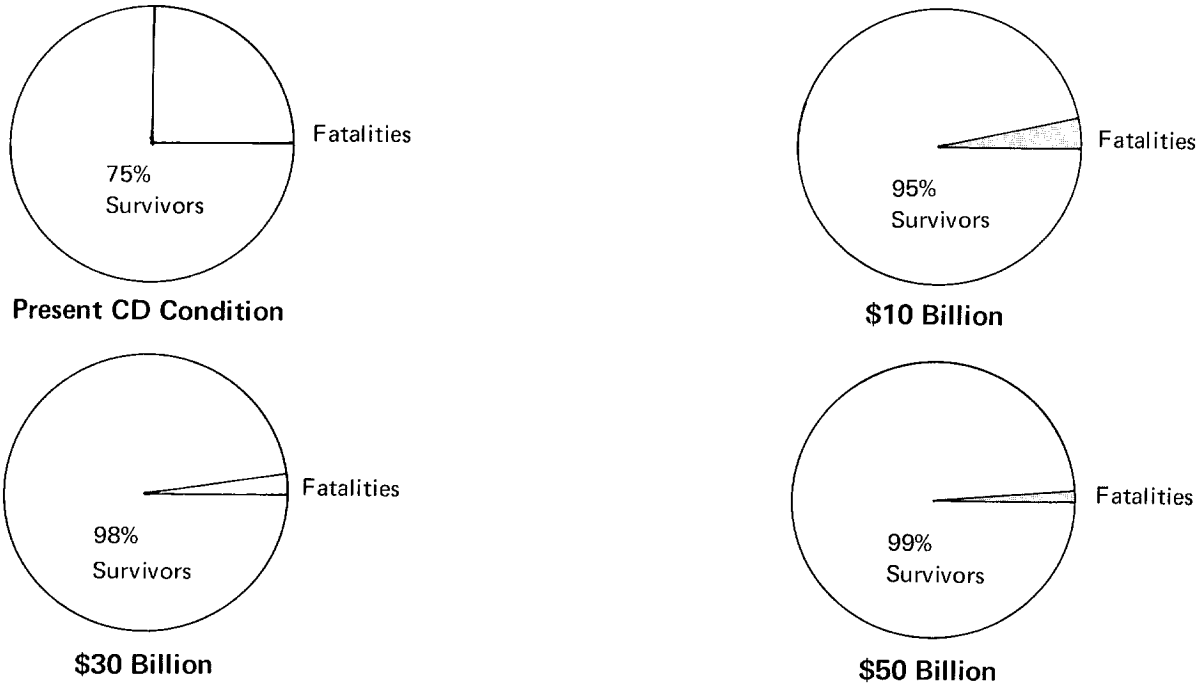
[2] The fatality figures with our present state of unpreparedness are not given in the report but were supplied by Mr. Haaland by private comminication.

[3] The fatalities may be computed from the formula

$$F=8.5\frac{(NY^{2/3})^{2/3}}{C}$$

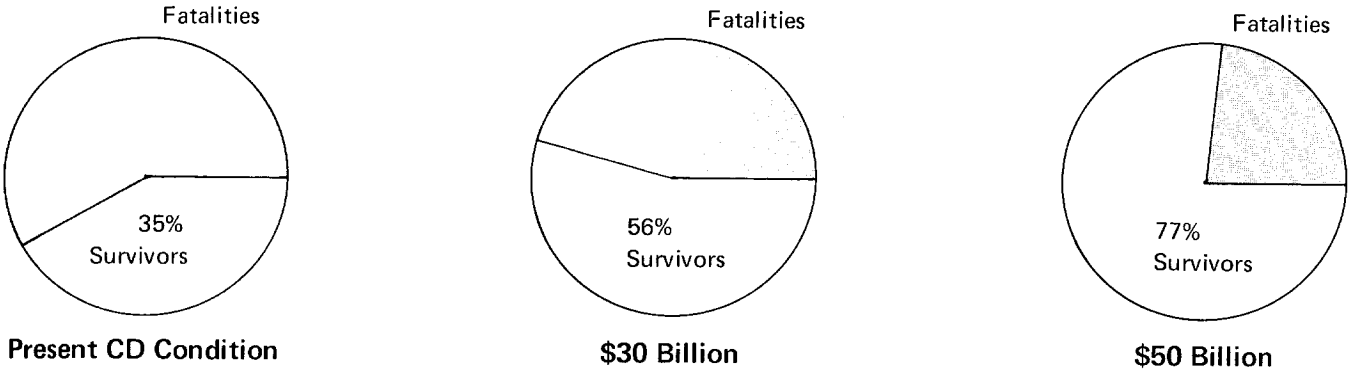
where F is the fatalities in millions of people, N is the number of delivered weapons, Y is the yield of the individual weapons in megatons, and C is the cost of the shelter system in billions of dollars. The formula is only useful for F, N, and C greater than 10 and F less than 100. The 1975 U. S. population is assumed to be 226 million.

[4] See "Countdown to Crisis" by A. A. Broyles in the May-June, 1970, issue of *Survive.*



Percent of U. S. Population Surviving Immediate Effects of a 75 Megaton Attack on U. S. Cities. Costs Indicated are for Blast Shelters.

Figure 1



Percent of U. S. Population Surviving Immediate Effects of a 5,000 Megaton Attack on U. S. Cities. Costs Indicated are for Blast Shelters.

Figure 2

SHELTER FOR THE UNSHELTERED

a Survive Staff Study

The U. S. is shelter shy and shelter short. Millions with no ready protection will need it desperately at the time of nuclear attack. What to do? The answer here is "make do with makeshift." It can never match the survival odds of planned permanent shelter. But it's much better than nothing.

In Sweden and Switzerland civil defense plans are to have "hard" shelter for everyone. Attainment of this goal is in sight. Schools, factories, apartment houses, railway stations, air terminals–all public and most private buildings –*must* provide shelter. Shelter not only against fallout radiation, but against blast and fire, and against chemical and biological weapons.

In the United States the story is remarkably different. Here we have uncovered in existing structures shelter for a portion of the population. This shelter is *fallout* shelter only, much of it substandard, most of it in cities where it would be largely useless against blast and fires.

Fallout shelter in rural America–away from possible targets and subject to fallout only–*is* effective. However, here over 60% of the people have no such shelter. Although it may seem at first glance that nothing can be done to help them in crisis this is not really true. Ingenuity, imagination and a good bit of hurry and sweat can provide a tremendous variety of last-minute improvised protection.

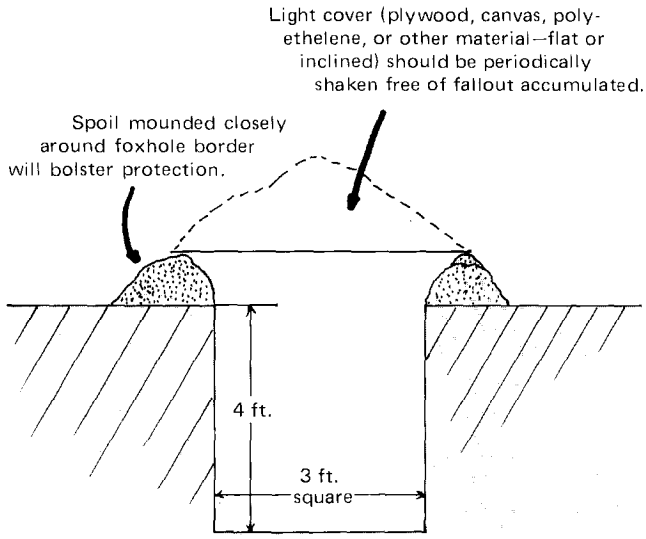
Their predicament is something like that of the trusting young lady who refused to believe that rape was a real danger. When suddenly faced with an actual attack late one night she was finally able to realize that she ought to have taken a number of simple precautions.

Having failed in these precautions she could still, when the "impossible" happened, fall back on horse-sense reactions and a defense which, although not as good as prior planning, would be much better than none. She could scream, bite, kick, run, and discourage her assailant in other opportune ways.

The same reasoning applies to improvising shelter by those who find themselves unprepared in the face of nuclear attack. Civil defense literature is rich in these ideas. *In Time of Emergency* (H-14), the federal civil defense handbook, contains invaluable pointers. Community shelter plans also provide a special kind of guidance that stresses the types of expedients locally practicable.

In many areas, for instance, a covered boat can be a real lifesaver under fallout conditions. A couple of hundred feet or more from shore, all surfaces swept or washed off, and in water over five feet deep a boat would afford protection from fallout radiation about as well as a good basement.

A foxhole or trench can be a particularly handy expedient shelter, although not quite the last word in comfort. It needs a light cover overhead periodically cleared during the descent of fallout. A heavy cover–such as a motor vehicle–is better, but foxhole sides sometimes crumble. In soft soil support of the sides may be in order.



A PF of about 40 is provided by a foxhole 3 feet in diameter and 4 feet deep (*The Effects of Nuclear Weapons,* 1964, Atomic Energy Commission).

Figure 1

Possibilities for expedient shelter are limited only by the imagination of those seeking protection. The No. 1 criterion for protection against fallout radiation is mass–the weight of materials between those protected and the expanses of fallout particles. For convenience, this is usually measured in weight per square foot of protecting surface–floors, walls, and roof. The greater the mass–or weight–of the materials giving protection the more these materials reduce the radiation. One hundred pounds per square foot (psf) overhead and laterally is a practical minimum to shoot for. Where

overhead weight is a problem, 50 psf overhead and 200 psf laterally will do about as well. One hundred psf overhead and 200 laterally brings the "protection factor" up near the federally-accepted level of 40.*

In a boat this mass is represented by the water (fallout particles, like dirt, settle to the bottom), and the deeper the water the greater the protection. Also, the farther away from land the greater the protection. In a foxhole horizontal protection can be considered infinite. The smallness of the overhead opening (plus clearing of fallout from the cover) cuts down on radiation from that direction.

Weight, of course, needs *support,* and this is a technical question which needs serious consideration. Adequate ventilation is hardly less important, is relatively easy to provide, but cannot be neglected.

A variation of the foxhole shelter is the "through-the-floor" shelter in a frame house. After making a hole in the floor you simple dig a foxhole or a narrow trench—and you wind up with a dry refuge that gives pretty fair protection. A barn or almost any other building with a wood or dirt floor holds similar promise. Usually supported materials can be put in place over the hole to increase the protection factor.

Caves, culverts, tunnels, mines, sewers, pier ends, grease pits, stadiums, bridge abutments, hilltops, boiler rooms, and old military tanks in most cases are expedient shelter for the asking. In tunnels, hallways of large buildings and similarly shaped spaces the farther back one goes the smaller the field of fallout exposure from the opening becomes. At about 25 feet or so from the opening, depending upon the height and width of the space, there is significant protection without blocking it off. Careful baffling will increase the protection as well as the usable space.

Mass can be found in stacks of books in a library, and shelves are often so high that a modified "foxhole effect" is evident. A warehouse for this same reason may be excellent expedient shelter. Even though the building itself is usually of little protection, stored materials may provide so much mass and be stacked so high that protection approaches that of lower-grade permanent shelter.

Lumber yards, factories, subways, bunkers, stone quarries, freight yards, kilns, crypts, and prisons also contain excellent expedient shelter possibilities. Materials in commercial outlets such as supermarkets and appliance stores may well be heavy enough and plentiful enough for use in "building" interior shelters. Cases of canned foods and beverages, for instance, make ideal "walls."

A house may at first glance show little promise as shelter. Even so, there are improvements which can give it value as an improvised shelter. A basement is a big help. Floors, ceilings, and even roofs may provide space (and support) for materials that in turn provide mass and protection. Furniture, appliances, books, baggage, canned goods, bottled water, containers of dirt, bricks and stone, old papers and old junk are among the endless items which may be the building blocks of expedient shelter. (See the H-14 handbook.) Even vehicles drawn up close to outside walls and entrances can be of significant help. So can the bulldozing of dirt, which is also a technique used for animal shelter.

Shelter against blast and thermal effects is considerably more difficult to come by. Blast zone survivors of Hiroshima and Nagasaki testify that reinforced concrete buildings provided lifesaving protection deep into the "total damage" area. Later experiments gave similar evidence. Conclusions can be drawn on likely expedient blast shelter locations. Reinforced concrete buildings provide fair survival odds. So do many steel-framed buildings. The fewer and the smaller the windows and the farther away the windows are from a person seeking protection the higher are chances of survival. Shattering windows make lethal projectiles of glass slivers. A basement, especially one with a reinforced concrete slab overhead, improves odds. A bank vault or similar structure does the same. Anything with some type of shield against the explosive force and flying debris—an underpass, a ditch, a vehicle—may spell the difference between life and death. Time is a precious commodity. Heat is instantaneous and may last for as long as a minute. Blast arrives in a matter of seconds. (See "In the Shadow of Ground Zero," by Wm. Cornelius Hall and Carsten M. Haaland, *Survive,* May-June 1969.)

Continued on Page 17

Table 1

Estimates of Protection Factors Attainable Under Ideal Conditions in Expedient Shelter

Fox hole (cleared light cover)	40+
Fox hole (cover exceeding 100 psf or a cleared area 4 feet wide around fox hole)	100+
Boat (cleared surfaces)	50+
Culvert	20+
Cave	200+
Mine	200+
Aircraft (over 2,000 feet)	200+
Pier end (with cleared tent-type cover)	20+
Bridge abutment (underneath concrete)	25+
Library (using books and tables)	40+
Lumber yard	30+
Subway	200+
Crypt	100+
Home: (all with expedient improvements)	
One-story, no basement	15+
Two-story, no basement	25+
Basement	40+
Through-the-floor dug-out	80+
Warehouse	25+

(The above figures are intended as a rough guide and depend on the amount and arrangement of the protective mass. Overhead support, ventilation, water, food, sanitation, and medication are problems which easily become acute—or are acute to begin with—in expedient shelter.)

**The amount by which the radiation is reduced by this shielding is called the "protection factor" or PF. If, for instance, the shield cuts radiation to 1/20 of its outside value we have a PF of 20.*

SPOTLIGHT

NEW CANADIAN AMPHIB: SUPER FIREQUENCHER

(See cover picture)

Getting plenty of water to a spreading forest fire quickly is a firefighter's prayer. It means early control—can save millions of dollars in one fire.

The revolutionary CL-215 "utility amphibian," manufactured by Canadair Limited* of Montreal, may well prove to be the answer to this prayer. With no tortuous terrain to penetrate, with a response measured in minutes, and with gravity as its ally instead of its enemy one CL-215 can place six tons (1440 gallons) of water on a remote fire in one drop.

It can repeat this performance a number of times in quick succession by dipping down to the nearest good-sized lake or river for "instant" water resupplies. Needed is a clear water space 5500 feet in length. A time-frame of less than 40 seconds is required for touch-down, blitz-loading of six tons of water, and take-off. With a flight from its base of not over 100 miles and a source of water within 10 miles of the fire, one CL-215 can pick up and deliver on target over 120 tons of water in 20 circuits without re-fueling. With shorter distances the number of water drops can be significantly increased.

The CL-215 was designed specifically for the forest ranger's emergency needs and is meant to replace modified military aircraft which, even with their stringent limitations, have been of great value. The new plane can also be employed in combatting other types of fires. In the event of nuclear war, for instance, fires in areas of heavy fallout concentrations—heretofore considered unapproachable—in many cases could be dealt with by the CL-215.

The versatile amphibian boasts a variety of uses. Among them are air-sea rescue, flood relief, aerial spraying, emergency evacuation, coastal patrol, and emergency cargo service.

France placed the first CL-215 order and received the last of ten planes last July 1st. Canadair is now completing delivery of fifteen CL-215s to the Province of Quebec. First reports from France and Quebec indicate that the CL-215 may well be a giant step forward in the fight to conserve natural resources and to combat disaster.

NAS COMMITTEE CALLS FOR FOCUS ON BUILDING CODES

The Alaskan earthquake proved that construction guidelines in earthquake-prone areas need to be reviewed and in most cases revamped. This was the judgment of a joint National Academy of Sciences-National Research Council report. *Unscheduled Events,* a quarterly pamphlet which specializes in analyzing disasters, says:

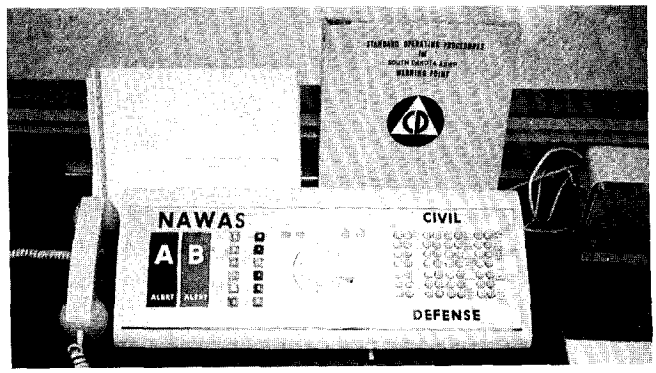
> "The committee urges primary consideration of safety factors in building design and construction. Building code revision and assessment of the comparative seismic risk of various sites are recommended especially in densely populated areas and previous to the construction of such public buildings as schools and hospitals. To this end the committee recommends establishing a more complete geodetic network to determine the dangerous seismic areas. In addition, they advise that older buildings in seismic areas be examined periodically to reduce hazard."

The report includes twelve recommendations and is entitled: *Toward Reduction from Earthquakes: Conclusions from the Great Alaska Earthquake of 1964.*

(Aseismic structures subjected to high blast pressures in the 1945 Hiroshima and Nagasaki nuclear disasters fared remarkably better than conventional buildings.)

SOUTH DAKOTA TESTS NEW WARNING SYSTEM

A year's test of a streamlined NAWAS (National Warning System) "hot line" telephone network will be completed in February, 1971 by South Dakota. The principle feature of the new development is the capability of handling point-to-point communications without bringing in stations not involved. This flexibility is accomplished through the use of two-digit dialing, with automatic "conference call" override for state and federal alerts. Any one of five area emergency operating centers can assume net control.



State NAWAS control phone now undergoing South Dakota tests.

*Canadair Limited, P. O. Box 6087, Montreal 101, Quebec, Canada.

CIVIL DEFENSE ABROAD

CANADIAN CD POSITION

(Condensation of remarks by the Hon. L. Cadieux, Canadian Minister of National Defense.)

Planning for the defense of Canada and its people is a vital responsibility of governmental leadership and one which must take into account possible causes and potential consequences of international conflict. We must always be conscious that the existing balance of peace can be threatened by a variety of situations, such as Vietnam, Cambodia, the turmoil in the Middle East, the Sino-Soviet confrontation and, generally, the continuing conflict between Marxism and Capitalism. In the defense of Canada the Prime Minister has assigned the following priorities to the roles for the Canadian Forces:

(1) The surveillance of our own territory and coastlines, i.e. the protection of our own sovereignty;
(2) The defense of North America in cooperation with the United States;
(3) The fulfillment of such NATO commitments as may be agreed upon;
(4) The performance of such international peace-keeping roles as we may, from time to time, assume.

These priorities recognize the need for continental defense. For me, the defense of Canada means not only the classically accepted active defense activity, but also the protection of the individual and of the social structure from the direct effects of modern warfare.

To meet the need for total defense planning, the support of local governments is an absolute essential. Here the Canada Emergency Measures Organization gives assistance by the provision of leadership and coordination, by the allocation of shared funds and by interpreting the current raison d'être for civil emergency measures. Planning for the defense of Canada, survival of the nation as a whole and recovery, should war ever occur, is, however, a collective responsibility, our mutual responsibility no matter what government we serve.

SWISS POINT OF VIEW–

"There was a time when the defense and the security of the country were the responsibilities of the Army and its chiefs–and no one else. But times have changed. The development of science and technology has produced new weapons and new combat methods. And these in turn mean that warfare threatens not only the front lines but the country as a whole and its entire population. . . Our people and the army are henceforth inseparably tied together as one in the face of an irreversible destiny.

"Civil defense is a decisive partner in national defense. Like the army it can only accomplish its mission through the use of echeloned trained cadres–which it still wants for. Further, the fighting spirit and the will to resist of our soldiers will be substantially reinforced if they are sure that their families, their loved ones, their homes, and their farms or their job sites are protected.

"Today the duty of military service is parallel with that of service in the ranks of civil defense. We could very well combine these two ideas and speak simply of the "duty of service." It is really of little importance whether the men and women of our country discharge this duty in the army, in civil defense, in resources control, or in psychological warfare. Every person, in his assigned sector, has his own role to play in the overall defense effort. The one important point is that each person do his duty to the best of his ability."

Colonel Pierre Hirschy
Chief of Army Instruction
Swiss Army

"Until war is eliminated from international relations, unpreparedness for it is well nigh as criminal as war itself."

Dwight D. Eisenhower

SHELTER FOR THE UNSHELTERED

Continued from Page 15

Space limitations have here allowed us only to scratch the surface of the subject of expedient shelter. Details have been sacrificed. In many cases there are restrictions which must be taken into account (for instance, foxholes will be of little value in low, marshy country–and boats might not be practical in mountainous terrain).

Analyzing expedient shelter possibilities beforehand in the light of probable environments at the time of the emergency will be of great help. Perhaps most important: *once a serious analysis is made, the advantages of a permanent-type shelter become obvious.* After all, this is the *real* solution. An expedient shelter may well be a lifesaver. But a first-class permanent shelter is the only device that can fill this role with the kind of sure-fire odds we honestly want for ourselves and our families when the nuclear chips are down. ■

AFTER A DISASTER

- WHAT WILL YOU EAT?
- HOW LONG WILL IT LAST?
- HOW MANY MUST YOU FEED?

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