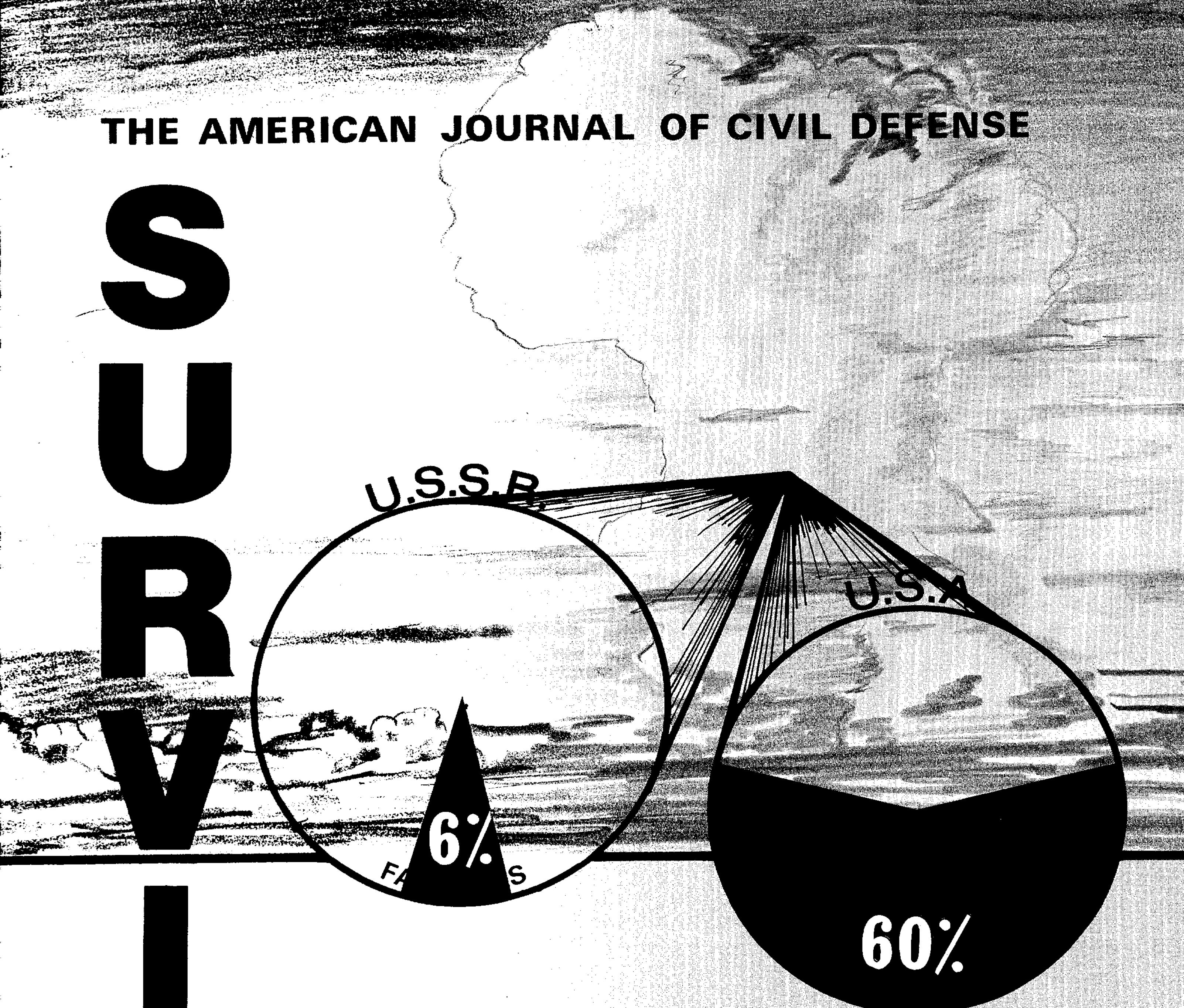
THE AMERICAN JOURNAL OF CIVIL DEFENSE

SURVIVE



see:
SIX and SIXTY
pg. 11

MAY - JUNE 1972

PENTAGON COMPARISON OF USA - USSR PREPAREDNESS

Excerpt, February 28, 1972 Statement of Dr. John S. Foster, Jr. (Director of Defense Research and Engineering, Department of Defense) before the Defense Subcommittee of the Appropriations Committee, U.S. Senate, 92nd Congress.

I would like to illustrate the current U.S. technological position relative to the Soviet Union's by some simple side-by-side technical comparisons of equivalent operational systems. I must stress from the outset that this is not what I will refer to later as a net technical assessment of combat capabilities; it is a far simpler and more primitive technical comparison of presently deployed U.S. and Soviet systems side-by-side, not face-to-face. It may reveal to you a more modest appraisal of our present superiority than you expected. We would currently credit *Soviet-deployed* forces with *technological superiority* in –

* antiballistic-missile systems**
* fractional-orbit ballistic missiles**
* strategic air-defense interceptors
* all aspects of civil and industrial strategic defense and recuperative planning
* tactical antiship missiles
* surface attack ships (excluding carriers)
* antiaircraft artillery systems
* some armored combat vehicles
* medium- and high-altitude SAM air defenses
* surface-to-surface tactical missiles
* heavy-lift helicopters

We would currently acknowledge *approximate technological parity* with Soviets in *deployed systems* such as –

* tanks and antitank weapons
* satellite tracking systems
* satellite navigation systems
* small arms

But we believe we still retain *our technological lead* in *deployed systems* in –

* ICBM guidance and penetration aids
* strategic bombers
* strategic submarines and SLBMs
* attack submarines
* ASW sensors and patrol aircraft
* satellite communication systems
* airborne warning and control systems
* airborne surveillance sensors
* defense-suppression weapons and systems
* deep-strike tactical aircraft
* aircraft carriers
* guided ordnance
* air-to-air superiority weapons
* man-portable air-defense systems
* close-support helicopters, aircraft and aerial weapons
* long-range logistic transports
* artillery munitions

Various experts are certain to disagree with individual details of these statements. However, the point here is not that we must excel in every area of warfare. It is simply to acknowledge that we have already reached a point in many areas where we do not excel. Relative to the popular image of unquestioned U.S. technological supremacy of the 1940s and 1950s, it is evident that we have not held our own against determined competition. More important, in those areas where we acknowledge technological parity or inferiority, we cannot have high confidence in our estimates of Soviet capability, nor can we predict with confidence what their next step forward will be.

We must continue to focus on the need to maintain – and, where necessary, regain – a realistic level of technological superiority, particularly in our operational systems. I see no security for us in pausing at some technological plateau when the Soviets appear committed to continuing their own impressive rate of progress. There is ample evidence that they are so committed – and none to the contrary. ■

**On these items, the U. S. has no deployed capability at this time.

"Although the discussed means of destruction are called mass means, with knowledge and skillful use of modern protective measures they will not destroy masses of people but only those who neglect the study, mastery and use of these measures." –*V. Chuykov in* Our Common Task

SURVIVE

VOL. 5, NO. 3 MAY - JUNE 1972

CONTENTS

EDITORIAL

WORLD CD CONFERENCE IN U.S.?

A good portion of this issue of *Survive* is given over to civil defense outside the United States. The principal reason for this diversion is the Sixth World Civil Defense Conference held in Geneva, Switzerland February 22-29, 1972 and attended by two *Survive* staff members. (We think that *Survive* readers want pertinent and timely spin-off from such events.)

Survive of course is interested primarily – almost exclusively – in the American civil defense posture. The sophisticated problems and severe shortcomings of civil defense in the United States are *Survive's* raison d'être.

The most meaningful demonstrations of how to build an effective civil defense come from abroad.

At the Geneva conference we talked with many serious students of disaster survival, and we learned a few things. To our surprise we found that esteem and affection for and faith in the United States was much in evidence from all quarters – even (perhaps especially) from representatives of those countries which we assumed had been chilled or worse by America's international and internal dilemmas.

And we were you might say "touched" by the fact that *Survive* was pretty well known around the world. Many who had never seen it knew of it through credited *Survive* articles published in other civil defense or civil defense type publications. The 100 copies we took to the conference for distribution should have been a much bigger bundle. They lasted less than a half day on the secretariat counter.

Most of the 54 participant nations benefitted to a substantial degree by the week-long meeting. In terms of attendance it was a resounding success. Which brings us to our punch paragraph:

The International Civil Defense Organization (ICDO), which promoted the Geneva conference, has made in the past two years serious efforts to hold a meeting in the United States. Chicago, Dallas, Miami and San Francisco were considered. Chicago was particularly warm to the possibility (official invitations had come from Chicago's mayor and the Governor of Illinois). But for reasons not clear to *Survive* and perhaps not at this point important arrangements did not jell. But maybe the fact that the ICDO still would like very much to stage a world conference in the United States *is* important. It certainly is *most important* that such a conference would play the spotlight on U.S. civil defense deficiencies and act as a vitally needed stimulant. This is our motive in bringing it up. Incidentally, it would not hurt our world image.

It would be good if some American city were again interested in offering itself as host for a Seventh World Civil Defense Conference for 1973 or 1974. From what we learned in Geneva civil defense officials of fifty or sixty nations would thoroughly welcome the opportunity of attending such an event in the United States. ■

SURVIVE

THE AMERICAN JOURNAL OF CIVIL DEFENSE

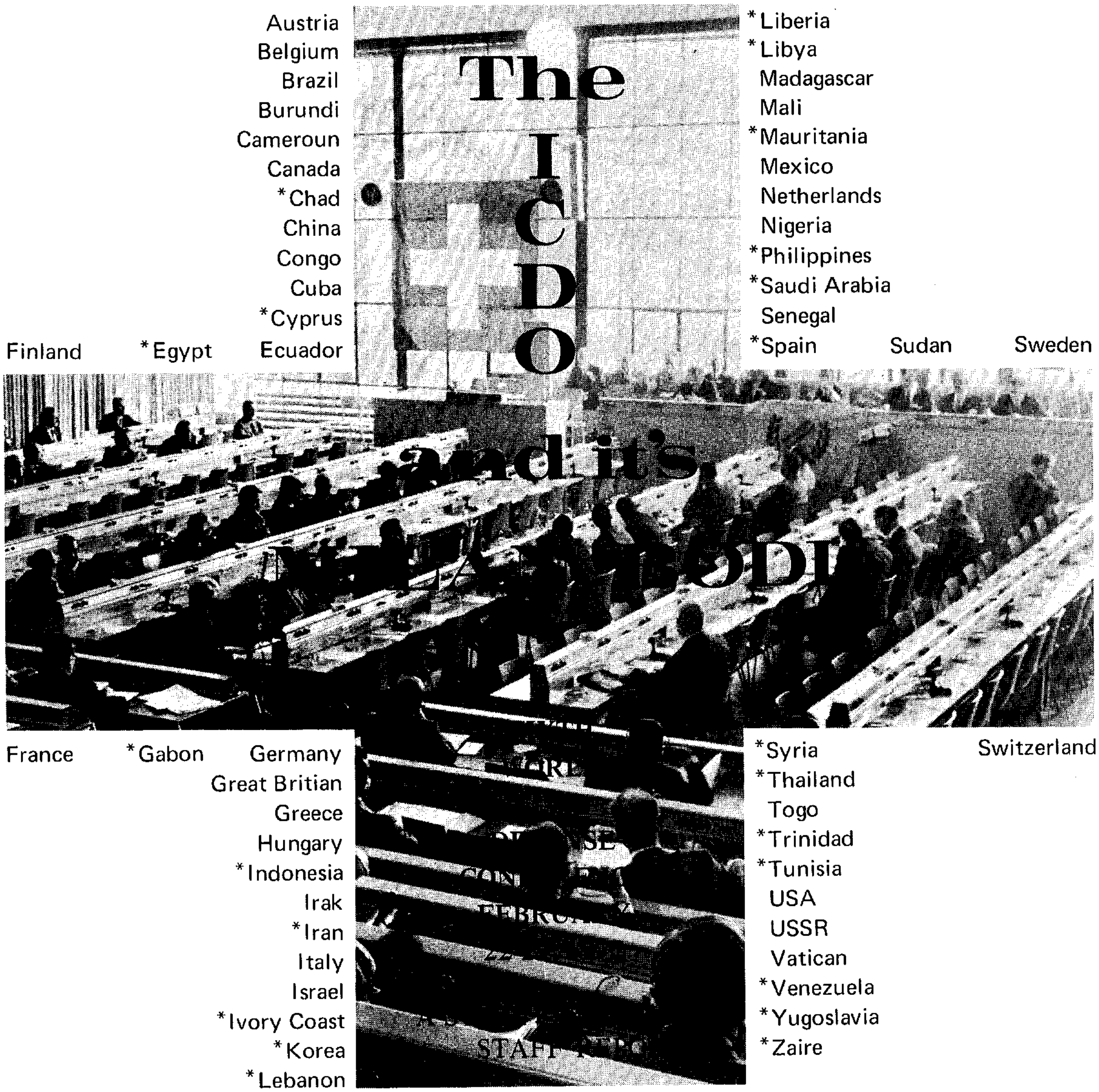
Sponsored by
The Civil Defense Forum
The Oak Ridge Civil Defense Society
The Professional Society for Nuclear Defense
The Association for Community-Wide
Protection from Nuclear Attack

Survive is published bimonthly by the Oak Ridge Civil Defense Society. Address: *Survive*, Post Office Box 910, Starke, Florida 32091. Subscription: $3.00 per year.

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 advisory 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.

Survive is printed by D & D Quality Printers of Jacksonville, 1609 San Marco Blvd., Jacksonville, Fla. 32207.



Austria
Belgium
Brazil
Burundi
Cameroun
Canada
*Chad
China
Congo
Cuba
*Cyprus
Ecuador
*Egypt
Finland
France
*Gabon
Germany
Great Britian
Greece
Hungary
*Indonesia
Irak
*Iran
Italy
Israel
*Ivory Coast
*Korea
*Lebanon
*Liberia
*Libya
Madagascar
Mali
*Mauritania
Mexico
Netherlands
Nigeria
*Philippines
*Saudi Arabia
Senegal
*Spain
Sudan
Sweden
Switzerland
*Syria
*Thailand
Togo
*Trinidad
*Tunisia
USA
USSR
Vatican
*Venezuela
*Yugoslavia
*Zaire

+ fifteen international organizations including:

International Red Cross
International Salvation Army
Catholic Relief Services
World Metereological Organization
World Council of Churches
European Nuclear Research Organization
International Health Organization
International Telecommunications Organization

*Indicates Member of ICDO.
Six member nations were not present.

Geneva, Switzerland
Dr. Milan Bodi,
Secretary- General of the
International Civil Defense Organization

Left to right:
Tarik Abdul Baki, Director of Civil Defense for Libya; Mohamed Helmy Seddik, Director of Planning, Civil Defense Department, Egypt; Abdoulaye Diallo, National Gendarmerie Commander of Mali; and Milan Bodi, Secretary-General of the International Civil Defense Organization.

Geneva's International Civil Defense Organization (ICDO) is unique in the world. The dynamo which makes its wheels turn is gruff, laconic, tireless Dr. Milan M. Bodi – Yugoslav expatriot, U.S. Medal of Freedom recipient, and Number One disaster recovery promoter. The criticism often levelled at Bodi that he dominates ICDO activities begs the question: Who would run it if Bodi didn't? Bodi can point to strong support not only from 28 member ICDO countries but from home-base Switzerland (which provided major punch for ICDO's 1972 Sixth World Civil Defense Conference in Geneva) and elsewhere. The following interview took place at Bodi's headquarters near the close of the conference – between Bodi and *Survive's* editor, Walter Murphey.

Survive – Dr. Bodi, it is often pointed out that civil defense must first of all be a *national* concept. That is, providing means for minimizing casualties in modern warfare is internal and not shared. With this in mind we assume that the ICDO idea of international civil defense focuses mainly on preparations for and conduct of rescue and recovery operations and their effective coordination. Is this correct?

Bodi – Yes. Except that nations which are closely allied in common defense may – and sometimes do – work closely together in providing protection against the effects of modern war for their peoples. But ICDO is primarily geared to work with the results of natural – not man-made – disaster. although its expertise can and would be applied to the latter should it become necessary. There is also a psychological and economic factor involved, and that is it is considered more reasonable, more within a country's capabilities, to make preparations for natural disaster – which we are sure will come often – than to attempt the much more sophisticated and expensive job of preparing overtly for the effects of nuclear war – which we are determined to hope will never come. And this is particularly true of new "developing" countries. And even if nuclear war comes the chances are that ICDO countries will not be seriously affected by weapons effects. After all, only the United States and the Soviet Union are mainly concerned.

Survive – What about Sweden and Switzerland, both of which have civil defense programs geared to war situations?

Bodi – Switzerland has a program, it is true, that will afford its population good protection in case of war. And under the new Swiss accelerated plan in a few years every Swiss citizen will have a "hardened" shelter space. But the incentive here is still preparation for natural disasters, which occur frequently in Switzerland. In Sweden, I agree, the preparation is for possible attack in a war emergency – Sweden does not suffer from natural disasters.

Survive – Would you not say that the Swiss preparation is in part done for war emergencies? For instance, Swiss underground hospitals must be for use in wartime.

Bodi – They are certainly admirably suited for war. But they were built with the idea of natural disaster use in peacetime, and in fact they have been used for hospital overflow in natural disaster. So they too fit into the pattern I have outlined.

Survive – Many countries participate in your meetings which are not members of your organization. Great Britain and West Germany are examples. How do you explain this?

Bodi – It is explained simply by the fact that ICDO is growing and that its credibility is being established with that growth. This growth will continue with the addition of other countries in the very near future. As you say in

America things are "looking up" world-wide for better disaster teamwork.

Survive – What services and other advantages does a country acquire by becoming a member of ICDO?

Bodi – In a general way these include:

(1) Administrative and planning documents which form a basis for civil defense development and liaison;

(2) Analysis of a country's specific requirements in civil defense and recommendations for making civil defense progress;

(3) A plan for training staff and instructor personnel;

(4) News of latest civil defense developments and information on technical questions;

(5) Organized assistance in the event of disaster within the country;

(6) An open liaison with other ICDO members and with ICDO headquarters; and

(7) Other services and counselling as indicated.

Perhaps a more objective answer could be provided by asking a country which is now an ICDO member.

Survive – What does it cost to belong to ICDO?

Bodi – This works on a sliding scale similar to the United Nations but of course at much lower levels. It depends upon the country's population and economic development. For a new "developing" country the cost is about $1,620 per year. For the United States it would be about $40,000 per year.

Survive – Do you have other types of memberships?

Bodi – There is an associate membership arrangement, not for countries, but for civil defense type organizations, and the cost here is $70 a year. Organizations in France, Great Britain, India, Italy, Japan and Switzerland are now associate members.

Survive – How about individuals?

Bodi – Individuals may subscribe to ICDO documentation, and this costs $20 a year.

Survive – Arabian- and Spanish-speaking countries and the developing African nations make up the major part of your membership. Why?

Bodi – These countries are more subject to the impact of disaster. Experience and the feeling of being isolated has made them civil defense conscious. And let me repeat: other countries are now considering membership in ICDO.

Survive – What are your contacts with the United Nations?

Bodi – ICDO is looking forward in this area. The United Nations General Assembly appointed a United Nations Disaster Assistance Coordinator in December 1971. ICDO now will enjoy a close liaison and will be able to propose directly to the new coordinator the utilization of ICDO disaster assistance capabilities.

Survive – In Sweden and Switzerland there is the theory – and it is also found elsewhere – that a really effective development of civil defense, *in particular shelter designed to resist anticipated weapons effects,* will dramatically reduce expected casualties, will because of this preparation make attack by nuclear weapons of doubtful value, and is in this way the most practical method of opting for peace. Do you agree?

Bodi – Yes.

Survive – Then would it not be appropriate to put heavy accent on this concept on an international plane – at least for those nations at major risk in nuclear war?

Bodi – Civil defense planning must be for peacetime disaster with the idea that such planning will do also for war situations. Otherwise countries will not subscribe to the idea. I am speaking of countries now members of ICDO. Of course the situation is radically different for countries which are potential belligerents.

Survive – In your opinion what has the 1972 ICDO meeting accomplished?

Bodi – We have come a good bit closer to our objectives. The participation of 54 nations and 15 international organizations was much better than expected, more than we have ever had before. It has set a new record for us, and it is very encouraging.

Survive – And what are these objectives?

Bodi – To build up throughout the world our organized mutual assistance regions that will provide *coordinated and effective* help for disaster areas within their respective regions.* Also to qualify at our Geneva school more civil defense rescue instructors to support preparedness activities in the mutual assistance regions.

Survive – Dr. Bodi, one last question: Some months ago ICDO was in touch with several American cities in reference to holding a world civil defense conference in the United States. It appeared finally that serious arrangements were in progress for a Chicago meeting. But then nothing further was heard. What happened?

Bodi – The Mayor of Chicago and the Governor of Illinois gave ICDO very warm invitations, but through a convention bureau or other responsible office the business arrangements must follow. That is, some way has to be found to underwrite conference costs. This is normally done locally. For instance, the Geneva authorities participated in Geneva in the costs of the ICDO conference, and though it required some very modest outlay of funds there will be no actual loss involved. In the case of Chicago this follow-up to the kind invitations of the Governor and the Mayor did not occur.

Survive – Then you would still be receptive to an invitation from an American city?

Bodi – Why not? It [an American invitation] would be submitted to the Executive Council of our organization. ■

**These are to be developed from experience gained in the first two regional plans – those of the Eastern Mediterranean area (Arab Republic of Egypt, Cyprus, Lebanon, Libya, Saudi Arabia and Sudan) and Southwest Asia (Indonesia, Thailand, Philippines, Malaysia, Singapore.) Both of these plans were formulated in October, 1971.*

SPOT LIGHT

U. N. FOCUS ON DISASTER

On March 1st the United Nations opened in Geneva, Switzerland, its "Office of the Coordinator for Disaster Relief."

Appointed to head up the new function, with the rank of Under-Secretary-General in the United Nations, was Faruk H. Berkol, previously Ambassador of Turkey to Belgium. According to Assistant Coordinator Robert Rossborough the office at the moment is primarily concerned with establishing contacts with organizations active in the disaster assistance field.

·Rossborough, a Scot from Great Britain, had this to say for *Survive* at his Palais des Nations bureau:

> "We are first trying to line up sources of information and assistance in organizing our operation. The experience of organizations in all countries which are working in the field of disaster relief needs to be brought together and this includes the experience of civil defense organizations.
>
> "In reviewing past disasters of major proportions we note (1) that help has usually been spontaneous and plentiful, and (2) that it has lacked organization. One result has been that items and services not required have often been sent in abundance while things which were badly needed have been overlooked. We hope to do our part in helping to remedy this situation.
>
> "Our attention will be directed toward those countries which need outside help in disasters rather than toward those which have their own developed recovery resources.
>
> "I think you might say that our objectives will be to help develop more rapid and accurate techniques of assessing relief needs, particularly those needs that can only be met with outside help, to determine more accurately what assistance can be looked for from what sources and to bring the two together. It will also be our policy to encourage national disaster relief planning. Indications are that many countries would greatly improve their ability to avoid, to withstand and to recover from disasters through effective planning. And, of course, in this way they would succeed in minimizing casualties.
>
> "We hope our Office will be able to be of substantial use in developing closer links between all those concerned with the humanitarian task of disaster relief."

The U.N. Office of the Coordinator for Disaster Relief is in fact the answer to requests by a number of U.N. nations for U.N. machinery to deal effectively with major disaster recovery.

SURVIVE ★ 1972 ★ PREPAREDNESS AWARDS

Survive Preparedness Awards will be made for 1972 using basically the criteria established for the 1971 awards and stressing *practical means for survival and local initiative.*

In reviewing the submissions for 1971 the Awards Committee pointed out that:

1. The size of the locality making a submission makes no difference, except that some cognizance must be taken of the differences in survival problems facing large and small communities. Geographical locations might also affect local solutions. (The National *Survive* Award for 1971 went to Shawnee, Oklahoma, a town of 25,000 population.)

2. *A practical means for survival* is the most important yardstick. Local preparations in meeting the challenge of giving the community best possible survival odds must rank as a top consideration. This objective may be accomplished, it may be in the process of being developed, or it may be projected for development.

3. Organization for natural disaster, communications networks, search and rescue development, training and several other services (police, fire, etc.) are of major importance mainly as *support* to the main effort. For instance, a first-class emergency radio network in a community with no shelter and no plans for shelter may be of questionable civil defense value in the opinion of the Awards Committee.

4. Compliance with directives, required planning, attendance at routine meetings, etc. are certainly important but are assumed to be part of any normally efficient organization.

5. Clarity and simplicity and brevity are desirable qualities in submissions.

6. Entries must reach *Survive* not later than January 20, 1973. Eight regional awards and one national award are planned. Local civil defense organizations only are eligible for the awards, although nominations may come from any source.

Further information will be published in later issues.

COMMENTARY

I was flabbergasted to read in the January/February issue that the Arizona Society of Architects' Board of Directors made the resolution quoted, with reference to the Arizona Shelter Law. Part of the quote was, ". . .The law also sets an undesirable precedent of public determination of design and environmental values."

I am sure that they, upon reflection, would prefer to delete at least that particular statement from their resolution in opposition to the shelter law. To do otherwise would put them in the position of saying that the public has no right to require earthquake resistant design, fire exit criteria, ramps for wheelchairs, electrical and sewage codes, building height and set-back limits, etc., ad infinitum. The precedent for "public determination" of such design and environmental criteria is well established. For an ill-advised opposition to that precedent to be attributed to the architectural profession is, or should be, highly embarrassing to thoughtful and ethical architects. If the criteria can be demonstrated to be in the public interest or for public safety, then it should be supported by architects.

If some architects object on political or philosophical grounds, that is surely their prerogative, and I suggest they may therefore refrain from accepting commissions to design buildings falling in this category, lest they subvert their own philosophical code.

—H. H. Hardin,
Assistant Program Director
Civil Defense Program
University of Hawaii

I have been a devoted reader of *Survive* for several years and find myself in full accord with the articles therein, most especially with the concept that our nation needs and is woefully short of shelter. I also agree whole-heartedly with the often expressed concept that the Federal establishment should do a great deal more in this field than is presently being done.

However, I also hold the view that shelter is far from the total goal of Civil Defense. In my personal view, Civil Defense per se and all its delegate agencies should be actively engaged on a day-to-day basis in preparing to cope with any disaster, including nuclear. This is a project well within the capabilities of any political subdivision and requires neither Federal funds nor Federal guidelines.

All disasters, including nuclear, contain the same elements. The only real differences are (1) order of magnitude, and (2) the presence of fallout as an additional factor in a nuclear event.

There is no reason why any given community cannot, on its own, prepare to cope effectively with any disaster. In fact, the onset of a disaster invariably presents a community with the absolute necessity of taking some immediate action even though assistance will invariably be sent by neighboring communities, the state and the nation. For a period, however, the disaster is the absolute responsibility of the community wherein it occurred.

If nothing more, communities can prepare themselves to respond effectively to the situation during this period while outside assistance is enroute to them. With adequate preparation, many disasters could be handled by existing community agencies acting in concert without outside assistance. The keys to success in disaster operations are communication and coordination. These two items, communication and coordination, are surprisingly hard to achieve and are obtainable only through practice.

Florida has achieved a measure of success in obtaining apparently effective communication and coordination on the community level by means of Community Disaster Drills. These are jointly sponsored by the State Division of Health and the Division of Emergency Government (Civil Defense). They revolve around a realistic scene with very realistic looking and acting fake casualties.

The purpose of these exercises is to test the effectiveness of the existing plans for handling major disasters. We find that almost all agencies have a plan for such an event and that almost all of these plans appear, on reading, to be reasonably adequate; that is, they look as though they should work. However, these are all plans for some specific agency of local government and apply to that agency only. Also, we find that as far as the specific agency is concerned the plan does work reasonably well in most cases. The problems arise when several agencies have to work together such as the fire department, the city police, the sheriff, the ambulance service, possibly a rescue squad and one or more hospitals.

The primary finding in most drills is a total lack of communication between agencies. In this case, I am not referring to equipment such as radios or telephones, I am saying that people, within arms reach of each other, if they wear different uniforms, do not talk to each other. Basically, communication is the interchange of information between he who has it and he who needs it, and we find that people actually have to be trained to talk to each other. Without this interchange, coordination simply does not occur.

I am not downgrading the necessity of improving the shelter capability of the nation and/or its political subdivisions. This facet of Civil Defense does indeed need upgrading, but I do say that the nation also needs to achieve a very high performance communication and coordination capability.

– Claudius J. Walker
Health Mobilization Coordinator
Florida

Development and testing of blast shelters has been carried out by the Canada Emergency Measures Organization as part of a responsibility for co-ordinating the planning, preparation and evaluation of measures which will enable the nation to survive and recover from war emergencies and peace-time disasters.

The second generation of a Canadian-developed fiberglass reinforced plastic shelter consists basically of a cylindrical shell with rounded ends. The shell thickness is nominal and forces are not resisted rigidly, but rather in a manner allowing energy to be absorbed by bending under sudden loads from blast pressures.

In a field trial in 1970, two equipped prototypes of this shelter were tested, one at 30 psi (pounds per square inch) and one at 50 psi overpressure.

CANADIAN FIBERGLASS BLAST SHELTER TRIALS

J.P. Nielsen

Following the end of the Second World War when everyone hoped for a peaceful world after this "last war," it was understandable that one did not think too much about shelters. Yet, in the countries that suffered most from air attack, a large portion of the civilian population was able to survive because of the available shelters. During the Great War of 1914-1918, armies fought mostly independently of the civilian population, while during the Second World War, just as many civilian as military persons were killed. In Korea and Viet Nam, this relationship of civilian versus military losses became even more unbalanced with heavier casualties inflicted on the civilian population, even though mass destruction weapons were not used in these two wars. Nuclear war will increase this imbalance out of all proportion.

In the search for data for use by planners in preparations to ensure the highest number of survivors in a war where weapons of mass destruction might be used, the Canada Emergency Measures Organization has, since 1960, actively investigated the behavior of structures under dynamic loading as the result of nuclear attack. A portion of this investigation has been carried out with the aim of developing efficient blast shelters. After the development of satisfactory family shelters constructed in reinforced concrete, our interest shifted towards investigating the possibilities of fiberglass shelters, and final structural trials on the second generation of a fiberglass reinforced plastic shelter, the MK II shelter, are near completion. The final field test of the underground shelter took place in Suffield, Alberta, July 1970, where the complete assembly was exposed to the detonation of 500 tons of TNT.

THE MK II SHELTER

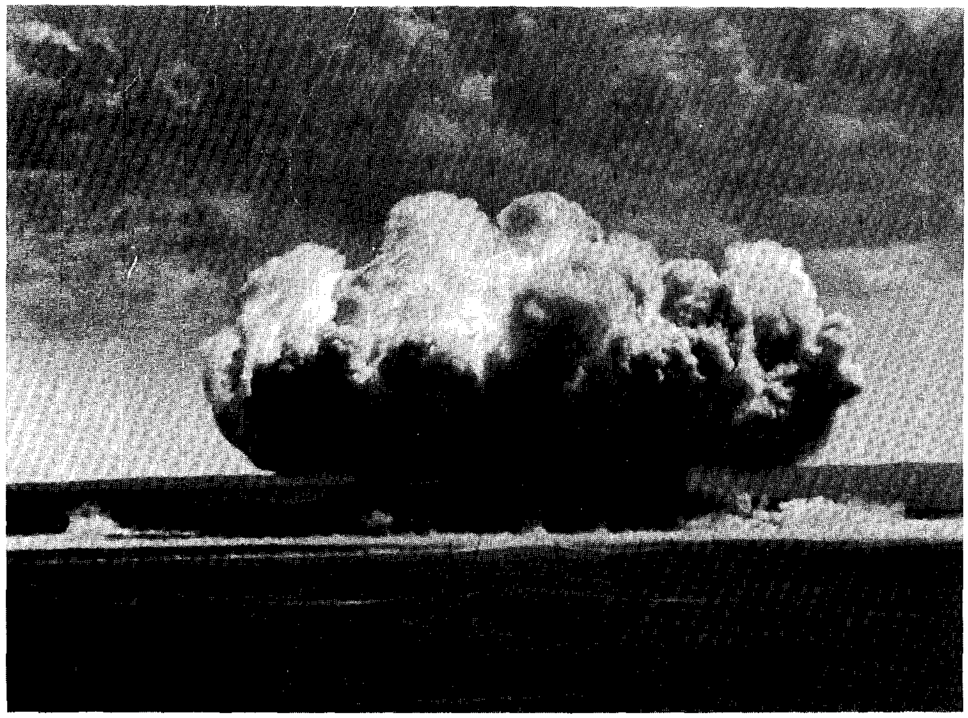
The basic MK II shelter consists of a fiber reinforced plastic cylinder about 8 feet in diameter and 8 feet long (Fig. 1). Each end of this cylinder is closed off by a shell-shaped end wall. The shell thickness of the shelter is 5/16 of an inch, and the cylinder itself is stiffened at regular intervals by reinforcing ribs of similar material. Access to the installed shelter is by means of a tube sloping down at 45 degrees from the ground surface.

Jon P. Nielsen holds a M.Sc. degree in Civil Engineering from the University of Denmark and a Diploma in Engineering from the University of Manitoba. After graduation in Denmark, he served as Lieutenant in the Royal Danish Army and then worked in a Consulting Engineering Office.

His work in Canada has been in the Consulting Engineering field, and he has been employed in the Department of National Defense since 1967, joining the Canada Emergency Measures Organization in 1970.

The MK II shelter arrangement, (Fig. 2), includes the following components:

Hatchcover. The hatchcover is compatable with the rest of the structure, as both the cover and the structure must be able to withstand the same blast pressure level. In the present configuration, the hatchcover is placed horizontally on the opening of the entrance tube. This provides for a stronger and less expensive entry than would a walk-in door at the base of a dug-in stairway.



Canada's 500-ton TNT Explosion (½ kiloton).

Blast Valve. To prevent blast pressures from entering through ventilation openings, thus creating pressure build-up and heat flashes in the shelter, blast values are placed in the ventilation system. The blast valve was developed by Canada EMO and thoroughly tested in blast simulator trials. The cost of this blast valve is nominal when compared to other types of valves and it has the added advantage of containing no moving parts. The blast valve provides protection for the full duration of the blast pressures.

Escape Hatch. As the shelter installation is intended to be independent and clear of existing structures, it has not been considered necessary to provide an escape hatch. If, however, the shelter is installed in such a way that debris might block the hatchcover, then another means of escape can be provided by adding an opening in the other end of the shelter, leading to a sand filled shaft ending at the ground surface.

Backfilling the MK II shelter.

Ventilation. To replenish oxygen and to remove excess heat, ventilation of shelters is required for a prolonged stay. Commercially available or improvised mechanical ventilators can be used, but tests are now being carried out to evaluate the rate of ventilation which can be obtained by installing a wind driven fan on the air outlet, or by placing a candle or lamp at the bottom of the outlet pipe to create a rising air flow. It is believed that this approach to the ventilation problem will suit most modest installations.

Filters. The air intake for the ventilation system has been designed so that air is drawn upwards to the intake, so as to decrease the amount of dust entering the ventilation system. Radioactive dust entering the system can be collected on standard replaceable filters. It must be noted that the present development does not provide protection against chemical and biological agents, but it is believed that additional special filters might be incorporated into the ventilation system.

Furniture. Development and testing of spring-mounted frame beds has been carried out, but the high cost of this type of furnishing has led to studies on the adequacy of simple hammocks. In the MK II shelter, four hammocks were installed, two at each side of the centre floor area. The results proved satisfactory in actual test. As occupants should not be in contact with the walls at any time, a floor was installed which rode on simple spring-type supports. Tests showed this innovation provided a safe environment for occupants in or out of the hammocks at the time of passage of the blast wave. Incidentally, the space below the spring supported floor, accessible through a hatch, could contain a waste holding tank as well as emergency food and water for an extended stay. One small table with a cupboard for utensils completes the sparse furnishings of the shelter.

Sanitation. Several installations have been considered, ranging from buckets with disposable plastic liners or bags, to elaborate toilets with collection tanks, which when full can be emptied by manual pumping to the outside. The shelters tested at Suffield were equipped with the latter type of toilet facilities. The shelter also had equipment for pumping drinking water from a storage tank below the floor space to a sink which drained to the collection tank.

TEST RESULTS

At the 500-ton 1970 explosion, two fully equipped prototypes of the MK II shelter were installed, one at 30 psi and one at 50 psi overpressure distances, about 700 feet and 500 feet respectively from the charge. Both shelters were placed so that the top of the shelter body was three feet below grade. The excavated silty clay soil was used as backfill.

Despite the severity of the shock the shelters remained virtually intact and proved beyond any doubt that they and the people in them would suffer no ill effects. At the 50 psi overpressure level, the structural shelter shell suffered only

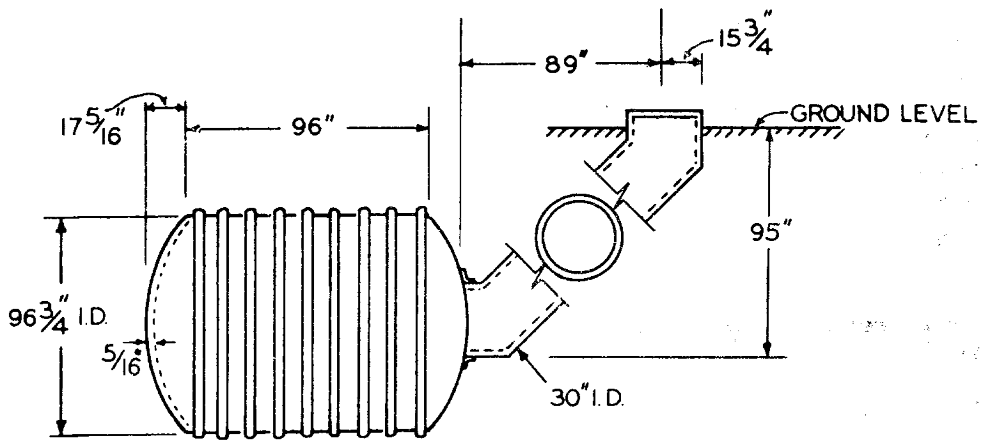


FIG. I MK. II SHELTER, SIDE VIEW

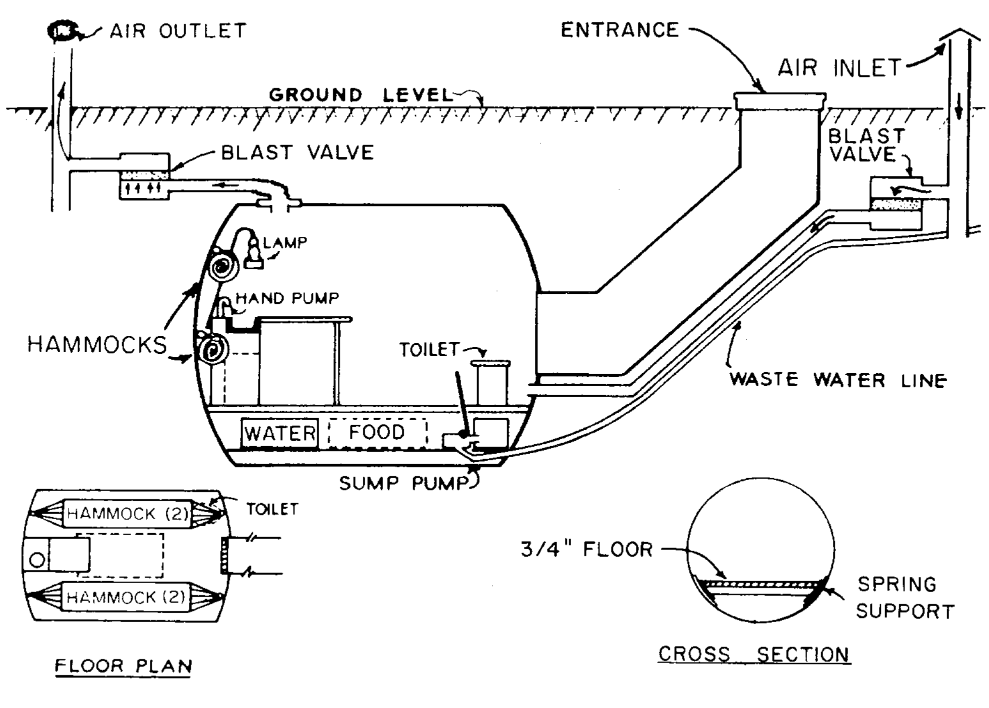


FIG. 2. MK. II SHELTER, LAYOUT

one small crack at a corner, after bending down a couple of inches under the blast load. The crack was so small that it did not reduce the structural strength appreciably. The movement of the floor and the hammocks were well within the the limit of tolerance for habitability. It was also recorded that the shell of the shelter went through violent movements, but not so severe as to cause injuries had an occupant been in the shelter. The blast valves installed in the air intake system reduced the outside pressure to about ¼ psi, or the same as about 160 decibels. The overpressure within the shelter was well below that which could cause damage to the ear. After the test, the interior of the shelter was inspected, and it was interesting to note that dishes, forks and knives set out on the table prior to the test were still in approximately the same position because of the springmounted flooring.

None of the components in either shelter were destroyed in the test, and water and waste pumps were functional afterwards, but, at the ground surface, the air intake pipe and outlet pipe were stripped of their protective hoods by the force of the explosion. Future tests will determine adequacy of the ventilation flow in the shelter and will explore if blast stripping of protective hoods has any appreciable effect upon the habitability of the shelter.

CONCLUSION

The MK II shelter has been tested successfully and has been found capable of withstanding the pressure levels up to about 30 psi peak incident overpressure from megaton weapons. The quantity production cost of the fiberglass reinforced plastic shelter is estimated to be about $1,200.00, and based on this estimate, the cost per shelter space, for a six person unit, is about $200.00. Canada Emergency Measures Organization program of research has resulted in a potential reduction of blast shelter costs to the point where it compares favorably with exterior permanent fallout shelter installations. ■

Excerpt of a *U. S. News and World Report* (February 14, 1972) interview with James R. Schlesinger, Chairman of the U. S. Atomic Energy Commission:

Q. Could the U. S. survive an all-out nuclear war if it developed a civil defense program?

A. I think that the U. S. would survive, but not in the form that we know it today. The estimates are that something on the order of 100 or 110 million of our people would die in an all-out nuclear war, and it might go even higher than that. That is assuming the most fragmentary kind of civil-defense program.

Civil defense, even so simple a scheme as evacuation of the public from major metropolitan centers, would save on the order of 40 or 50 million lives if there were strategic warning.

The Soviets have had a more ambitious civil-defense program than has the United States.

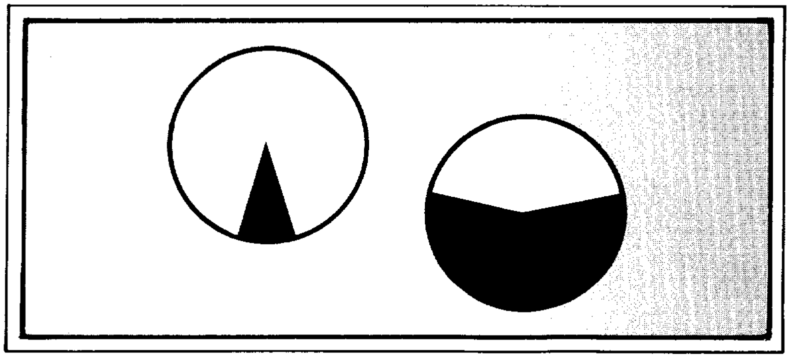
The point is that we are not going to have all-out nuclear war. All-out nuclear war would be a catastrophe for the nations involved. But the end of life on the planet—or even the end of life in the countries targeted—represents a vast overstatement.

Q. Does the U. S. have a plan for evacuation of major urban areas?

A. No.

Q. Should there be such a plan?

A. In my personal judgement, yes.



SIX and SIXTY

In its January-February and March-April issues *Survive* published statistics showing that in a nuclear exchange the United States would suffer very high losses while the Soviet Union would get off with relatively light casualties. Estimates vary with attack patterns and attack levels. 6% fatalities for the U.S.S.R. and 60% for the U.S.A. represent conservative figures. (That is, the 6% U.S.S.R. figure would probably be lower and the 60% U.S.A. figure could well be higher.) They pertain to heavy nuclear weapons exchanges involving mixes of military and population targets.

The pie-shaped charts on this issue's cover illustrate graphically these figures. The table below attempts to give broad basic reasons for the differences:

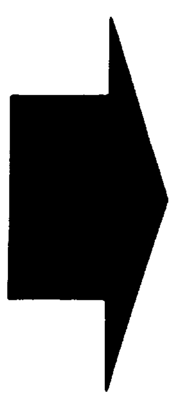
COMPARISON OF CIVIL DEFENSE PROGRAMS

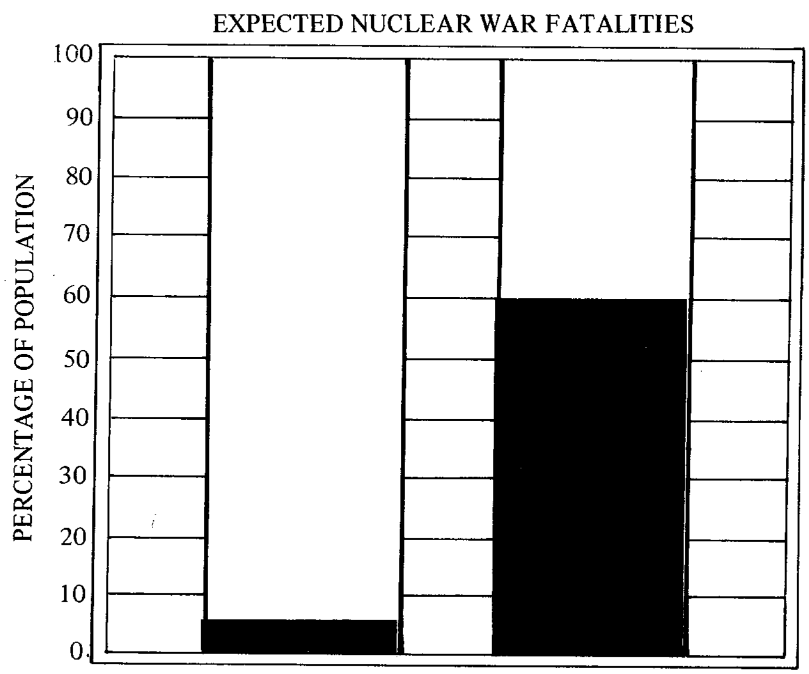
	Blast Shelter	Fallout Shelter	Evacuation	ABM
U.S.S.R.	STRONG	STRONG	STRONG	STRONG
U.S.A.	NONE	WEAK	NONE	SLOW START

The same disparity of anticipated casualties can be expressed by a bar graph.

And the conclusion can be drawn that the civil defense system developed by the Soviet Union makes it a very poor nuclear target, while the failure to develop a creditable civil defense in the United States makes it an excellent nuclear target.

RESULT:





The claims that were made in the 1960's about what our missile force could do in a retaliatory attack never included the assumptions that the Soviet population was in shelter at the time of attack of that Soviet cities had been evacuated.

Again we must note that the Soviets have built these shelters despite the widely voiced opposition to shelters, even to fallout shelters, in the U. S.

Thus the evidence is increasingly clear that unilateral restraints on our part seem to have had exactly the opposite effect on Soviet planners than we had hoped for.

—Mark E. Schneider

Film: *A Date With Disaster* produced by the Office of Emergency Preparedness. 16mm, color. 30 minutes. Price $125. Available for free loan. (1971)

In *Survive's* "Commentary" (page 6 of this issue) Claudius J. Walker says: "Basically, communication is the interchange of information between he who has it and he who needs it, and we find that people actually have to be trained to talk to each other." Radio waves and telephone wires are *means* to achieve communication. Too often they are presumed to be the art of communicating. In the disaster medical world the end result is an effective mass casualty operation. This takes hard-shell shoulder-to-shoulder coordination whether it is across a conference table or over the air waves.

And this is what *A Date With Disaster* is about. It is put together by pros. Its message of organization, planning, coordination, communication and critique is expertly handled. Jack Webb of "Dragnet" fame does the narrative. No pat solutions are prescribed. Casualty sorting problems are given a flexible treatment. Drill and real disaster are cleverly interwoven. The use of moulage is dramatically portrayed. A manual is provide the viewer to outline the film's seven main "steps to preparedness," which he may use later to help guide his own planning.

For the professional medic – the serious student of disaster response – and for those preparing for disaster drills the new film is an invaluable aid. And obviously this is the intended audience.

(For the wider audience of the sentient politician and the public the appeal would be greatly enhanced if most of the planning sequences were cut. Cutting has been successfully practiced with other training films. A 15-minute version of *A Date With Disaster* would furnish the non-technical viewer with a thoroughly convincing case for disaster preparation.)

At any rate *A Date With Disaster* is another argument for assigning enough top talent to the preparation of a training film to make it a first-class production. It's good. ■

Survive's circulation operation is now being thoroughly revamped due to a number of complaints of non-delivery or poor delivery. The situation should be corrected with this issue.

However, should any *Survive* readers experience any further difficulties in this respect they are asked to contact:

Circulation Manager
Survive
Post Office Box 910
Starke, Florida 32091

We regret profoundly the inconvenience caused.

"If the United States is to reassert in any real sense leadership of the 'free world,' what it most needs is purpose, coherence and intergrity from its leaders.

"The American people need to know once more where they are going. They need to be won to some purpose more stirring than outdoing the Russians or outselling our allies.

"They need to feel that our foreign and domestic policies hold together in some consistent and compatible whole. They have to be convinced that their president will honestly level with them about everything they need to know, that he will never mislead them about anything whatsoever."

– Charles W. Yost (U.S. Diplomat)

CIVIL DEFENSE ABROAD

The Soviet Union now has in operation the world's first fast-breeder 350,000-kw nuclear power plant at Shevchenko on the Caspian Sea. England and France have 250,000-kw fast-breeder plants under construction. The United States, the world pioneer in breeder-reactor technology in the early 1950's, has initiated planning for a 350,000-kw fast-breeder plant to be in operation in about 10 years. The fast-breeder reactor, which produces more fuel than it burns, is looked to as a solution for the power problem in the next 50 years.

"Our civil defense is aimed at making Sweden so tough to attack that no rational enemy will ever try. Should in spite of this Sweden be attacked then the *first aim* of Swedish diplomacy, civil defense and other parts of Swedish total defense -- i.e. peace – will have failed.

"In this event the *second aim* – the fight of our total defense for Sweden's freedom – will take over.

"If the worst should happen – atomic bombs over Sweden – the survival of Sweden and its population will be in jeopardy.

"For the survival of our population a good civil defense is needed. And I can say that our Swedish civil defense is good."

– Sven-Eggert Bergelin
Swedish National Board of Health and Welfare

Two years ago *Survive* reviewed the 1969 *Swiss Civil Defense Book* by Albert Bachmann and Georges Grosjean. The review read in part:

> "Pacifism and defeatism are written off [in Switzerland] as attitudes impossible to tolerate, incompatible with serious approaches to peace and freedom.
>
> "Switzerland, the manual stresses, will continue to be prepared, to opt for peace by making its defenses so strong that they cannot be overcome without a prohibitive price."

The book was originally printed in French, German and Italian. In 1970 it was translated into Japanese. And in 1971 into Arabic.

Politics and ideologies aside, history got another reverse twist with the surrender of Pakistani forces to India in their brief December war. Highly touted as "invincible" the Muslim fighters of Pakistan had never before been defeated. "Tiger" Niazi, Pakistani commanding general in Dacca, loudly proclaimed victory for his troops as the crisis deepened and war appeared to be inevitable. "Just look at your history books," he told the press. There was indeed much contempt for the Hindu. With Pakistan's surprising defeat history was discredited along with Niazi's boast.

CD CALENDAR

(State, regional, national and international meetings)

May 5-7	Conference, Nebraska Civil Defense Directors Association – Agalalla, Nebraska
May 10-11	Florida CD Association – Tallahassee, Florida
May 16-18	Missouri Emergency Preparedness Seminar – Jefferson City, Missouri
June 2-8	Exposition: L'Homme, l'Air et l'Eau – Paris, France
June 5-7	Conference, Region VII United States CD Council – Phoenix, Arizona
June 6-9	Conference, Region V United States CD Council – Albuquerque, New Mexico
June 10	Conference, Indiana Civil Defense Directors – Vincennes, Indiana
June 11-12	Conference, Georgia Civil Defense Association – Thomasville, Georgia
June 11-14	Annual Conference, National Association of State Civil Defense Directors – San Antonio, Texas
June 12-15	Conference, Region II United States CD Council -- Ocean City, Maryland
June 18-21	Conference, Region VI United States CD Council -- Abilene, Kansas
July 16-19	Conference, Region III United States CD Council – Greenville, S.C.
July 26-28	Conference, Region VIII United States CD Council -- Pocatello, Idaho

(Officials of state, regional, national and international civil defense associations are invited to submit dates and places of meetings. Please submit early.)

Q&A CORNER

Q Why does *Survive* want more nuclear arms when we already have enough to kill everyone in the world 17 or 18 times?

A *Survive* does not want more nuclear arms. It would prefer a strict arms control or the outlawing of nuclear arms. Faced with the United States being outclassed by potential enemy nations *Survive*, however, would prefer the delicate "balance of nuclear power" to an imbalance that would lead to subjugation or defeat in war. *Survive's* real stand, however, is for the development of *defense* against nuclear weapons. The successful development of defenses (which are not capable of being used for attack) gives a nation the muscle it needs to make itself an unattractive target and push for a policy of peace.

The statement often made that we have enough nuclear weapons to kill all the people in the world 17 or 18 times is emotional nonsense. There are enough knives in the world to do the same thing. And in World War II it is estimated that there were enough small calibre bullets fired to kill the world population 20-30 times over. The answer is not hysteria. It is *protection*. This is the answer that the USSR, China, and other countries have provided through shelters and evacuation plans for their peoples.

Q It is true that the greater the yield of a nuclear weapon the more heat it takes to burn a person? (This sounds cockeyed.)

A True. With a 20KT weapon, for instance, it takes only 7.3 calories per square centimeter for a 3rd degree burn. With a 20MT weapon it takes 11.4 calories per square centimeter to do the same. Reason: the larger weapons deliver their heat at much slower rates, giving greater opportunity for heat to be removed from the irradiated surface by conduction or convection. If the rate of energy delivered by the radiation to the surface were exactly the same as the rate of heat removed from the surface by conduction or convection, there would be no temperature rise at the surface, and no burns.

Also, because of the slower rate of delivery, there is more time to take evasive action with the larger yield weapons. This is not to say that thermal radiation is less of a problem with larger yields. A 20MT weapon emits a thousand times more heat radiation than a 20 KT weapon so that it covers a very much greater area.

Q I have read that radiation can cause cancer, also that radiation can cure cancer. Can you explain this?

A It is a fact that radiation may cause cancer even though this danger has been exaggerated by some. In the case of a person who has cancer, the danger from this disease is so great that the danger of causing additional cancer is taken into the bargain. Radiation does destroy cancer cells preferentially and has cured innumerable cancer patients. When properly administered, it affects only a small part of the body, and could cause cancer only there, but one hopes that it will not, but will rather destroy the cancer cells which are there.

NEXT IN SURVIVE:

The Swedish "Committee on National Defense" searches international crisis possibilities 15 years ahead and plans a tough "total defense" posture geared to prolong Sweden's century and a half of peace.

Historian Mark B. Schneider takes a hard incisive look at the current SALT situation and cites fresh statistics and defense developments which give special meaning to his title: "Problems of SALT: 1972."

SURVIVE
POST OFFICE BOX 910
STARKE, FLORIDA 32091

NON-PROFIT ORG.
U. S. POSTAGE
PAID
STARKE, FLORIDA
PERMIT NO. 61