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APRIL 1984

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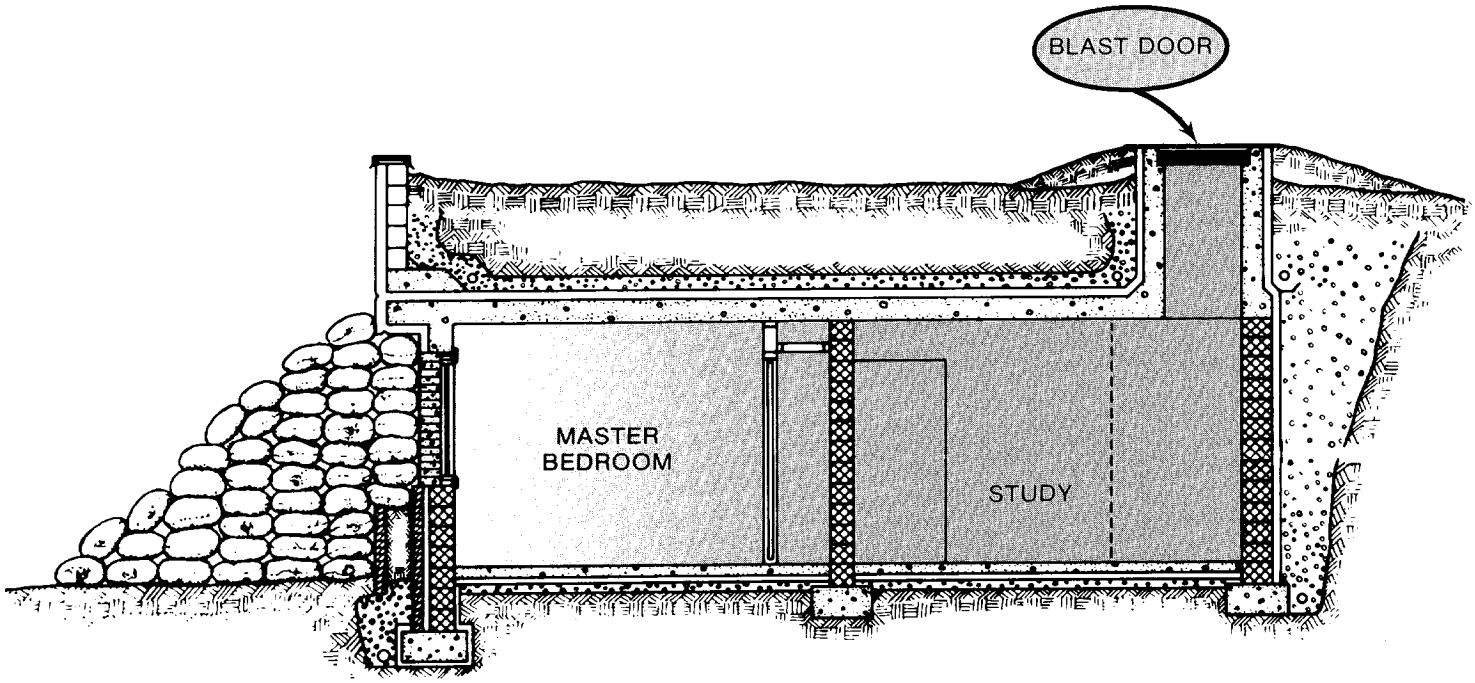
Journal of Civil Defense



EARTH-SHELTERED HOMES

TRUMAN'S CD FIGHT

NEW NUCLEAR STRATEGY

The American Civil Defense Association

TRADEMARK — THE AMERICAN CIVIL DEFENSE ASSOCIATION

The American Civil Defense Association

Journal of Civil Defense

Presenting the Views of Industry, Technology, Emergency Government and Concerned Citizenry

VOLUME XVII — NUMBER 2

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APRIL 1984

Sponsored by
The Civil Defense Forum
The Oak Ridge Civil Defense Society
The American Civil Defense Association

CONTENTS

COVER PICTURE

The cutaway view of an earth-sheltered home shown on our cover is taken from Figure 3 of the article "The Home As a Haven" on pages 6-9. The technique shown here provides economy, safety, cost, health and security advantages over and above its role as shelter. And it is not merely "dual-use" shelter. It is *"daily use"* shelter.

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The *Journal of Civil Defense* presents authentic information relating to civil defense—to the survival of free government, the United States and peace 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 committee for publication (the *Journal*, as a non-profit organization, pays no fees). Articles, preferably illustrated, should be 500 to 1,200 words in length, slanted to the non-technical reader, and oriented toward the civil defense field. Views expressed in contributions to the *Journal* are those of the authors and do not necessarily reflect *Journal* policy. Material may be reproduced if context is preserved, credit given, and copy sent to the *Journal of Civil Defense.*

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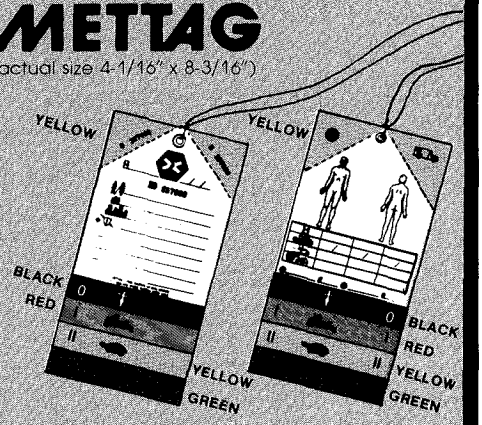

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- Instructions for making the first dependable homemade fallout meter for accurately measuring radiation dangers. Only common materials found in millions of homes are needed.

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This unique book has 239 pages (8 1/2 x 11 inches), with 83 dimensioned drawings, 26 sketches, 60 photos, and 4 cut-out patterns for the fallout meter. The low price is made possible by its being published by the American Security Council Education Foundation, a not-for-profit organization.

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COMMENTARY CAPITAL — Kevin Kilpatrick

ONE WEEK IN WASHINGTON (D.C.)

Sunday, February 26th: The National Coordinating Council on Emergency Management (NCCEM) came up with a timely noble gesture by staging what it called an "Executive Committee Dinner" at the Capitol Holiday Inn. The objective: "developing new avenues of communications and enhancing the growth of a comprehensive emergency management approach for disaster response" (according to the NCCEM invitation). Reliable scuttlebutt had it that this meant "coalition." And, inasmuch as representatives of several organizations attended, coalition appeared to be in the wind. Somewhat.

TACDA president Frank Williams and vice-president Charles L. Badley were on hand. So were officials from the National Emergency Management Association, the International Association of Fire Chiefs, the Association of Professional Emergency Planners, the International City Managers Association, the National Association of County Commissioners, and the National Fire Protection Administration. About 20 attended from NCCEM and another 20 from FEMA, including Director Louis O. Giuffrida, Deputy Director Fred J. Villella and John E. Bex.

A valuable first step was taken. Coordinated action and/or serious coalition maneuvering will of course depend upon what happens next. One big question that seems to be hanging in midair was just how outspoken to be about closing in on the nuclear attack defense question (vs. concentrating on natural disasters, etc.). A touchy issue in some quarters — one that won't fold its wings and go away.

Monday, February 27th: U.S. Senator Strom Thurmond (SC) left no doubt about his feelings on the hard-core civil defense question. Said Thurmond in his morning address to NCCEM:

"I propose . . . to examine this morning the factors which may lie behind our country's remarkable failure — except for a few years in the early 1960s — to support more than a token level of preparedness . . .

"What reason can there possibly be for this *conscious decision not to defend our people?* What other major power in history has arrived at such a peculiar and unusual decision? Why in the United States of all countries — with our two centuries of commitment to the rights of the individual — do we ignore the most fundamental right of all, the right to expect the best preparedness on the part of government to protect the very *life* of the individual? . . .

"WHAT REASON CAN THERE POSSIBLY BE FOR THIS *CONSCIOUS DECISION NOT TO DEFEND OUR PEOPLE?*"

"Natural and technological emergencies . . . do not embrace the full spectrum of disasters. Genuinely integrated preparedness means that we must also be prepared for the greatest potential disaster of all — the possibility of a limited nuclear attack upon military installations in the United States, or a less-limited attack including many cities as well.

"It is here that we encounter the remarkable and troubling phenomenon of a conscious decision not to defend our people . . .

"Nuclear war is, in many respects, unthinkable. But that does not mean it is impossible. And so long as that possibility exists, common sense dictates that we take out insurance against it in the form of a modest program which, if catastrophe does occur, could save the lives of millions of Americans. This is insurance, moreover, which will also save lives in the multitude of natural and technological emergencies which all too frequently threaten our people somewhere in the United States."

Thursday, March 1st: The Subcommittee on Military Installations and Facilities, chaired by Congressman Ron Dellums (CA) held a hearing on the 1985 civil defense budget. Appearing as witnesses before the subcommittee were FEMA Director Louis O. Giuffrida, NCCEM President Myra T. Lee and Deputy Under Secretary of Defense for Policy Richard G. Stilwell. All three gave strong support for the $252.5 million CD budget. Giuffrida and Lee accented the natural disaster role. However, General Giuffrida twice pointed to the "clear mandate" of Congress "to provide a system of civil defense for the protection of life and property in the United States from attack and from natural disasters." And Ms. Lee declared within the "all hazards" approach: "In that vein, we hope that fiscal 1985 will see the decisive rejection, at last, of the doctrine that our people should not be defended."

General Stilwell in his testimony related civil defense closely to the problems of national defense. He noted that the Senate Armed Services Committee had charged the Department of Defense in its oversight role to insure:

> "That Civil Defense planning continue to be fully compatible with the Nation's overall strategic policy, and
>
> "That legitimate needs of national security not be unintentionally subordinated to disaster relief in programming."

Stilwell also declared: "This Administration received a mandate from the American people to improve our nation's defenses, and to redress the effects of years of neglect. The Defense Department considers the proposed Civil Defense improvement program an important part of our national response to that mandate."

"THIS ADMINISTRATION RECEIVED A MANDATE FROM THE AMERICAN PEOPLE . . ."

Most of the members of the subcommittee appeared to support the budget, even felt that the budget was much too low. "We are lacking in our responsibility," observed Congressman Thomas F. Hartnett (SC), "if we appropriate only $250 million."

Chairman Ron Dellums, an inveterate opponent of civil defense, could only say: "I think planning for a nuclear attack is absurd, but I am in the minority in this committee."

Richard E. Sincere, Jr., President of TACDA's Washington D.C. chapter, who attended the hearing, warned that, as usual, pitfalls lay ahead for the budget and that TACDA's position was that $75 million needed to be added for CD educational purposes. He urged that all those interested in seeing a realistic budget adopted write members of the subcommittee and congressman representing their districts (address of all congressmen: House Office Building, Washington, D.C. 20515). April 4th is the date when the subcommittee meets for discussion on possible trimming of the CD budget. Congressmen on the subcommittee are:

Ronald V. Dellums (CA), Chairman
G. V. (Sonny) Montgomery (MS)
Abraham Kazen, Jr. (TX)
Antonio Borja Won Pat (Guam Delegate)
Earl Hutto (FL)
Thomas M. Foglietta (PA)
Dennis M. Hertel (MI)
Norman Sisisky (VA)
John M. Spratt, Jr. (SC)
Ken Kramer (CO)
G. William Whitehurst (VA)
William L. Dickinson (AL)
Thomas F. Hartnett (SC)
David O'B. Martin (NY)

It would be hard to find a team of scientists more experienced, more qualified and more lucid in the field of shelter design and construction than the group of five scholars who have produced this article. (Dr. C. V. Chester's Oak Ridge National Laboratory office will further respond to growing interest in shelter technology by giving a presentation on the subject at the TACDA seminar in Daytona Beach, Florida next November. It will also conduct a shelter workshop there.)

THE HOME AS A HAVEN

— Drawings for a Blast Upgradable Hazard-Resistant Earth-Sheltered Residence*

Conrad V. Chester
Dale Torri-Safdie[1]
George A. Cristy[1]
Hanna B. Shapira
Carl Taylor[2]

Energy Division
Oak Ridge National Laboratory
Oak Ridge, Tennessee 37831

ABSTRACT

A 1400-sq-ft passively solar-heated, elevational earth-sheltered residence which can be blast-hardened in a crisis has been designed under the auspices of the Oak Ridge National Laboratory. Detailed construction drawings of the design have been made available to the public through The American Civil Defense Association, POB 1057, Starke, Florida 32091.

Earth-sheltered structures, especially residences, have been studied at the Oak Ridge National Laboratory and elsewhere for a number of years as a means of reducing energy consumption in residences. The inherent fallout protection and potential blast protection afforded by these structures has been recognized from the outset (Chester, 1981). A study at ORNL on the hazard mitigation potential of earth-sheltered residences sponsored by the Federal Emergency Management Agency has recently been completed (Chester et al. 1983). One of the products of that study is a set of eight detailed construction drawings and cost estimates for a 1400-sq-ft, earth-sheltered residence which has been designed to maximize the protection of its occupants from all hazards including nuclear weapons effects, at minimum cost. Arrangements have been made to make copies of these eight drawings available to the public through The American Civil Defense Association at cost plus a small handling charge.

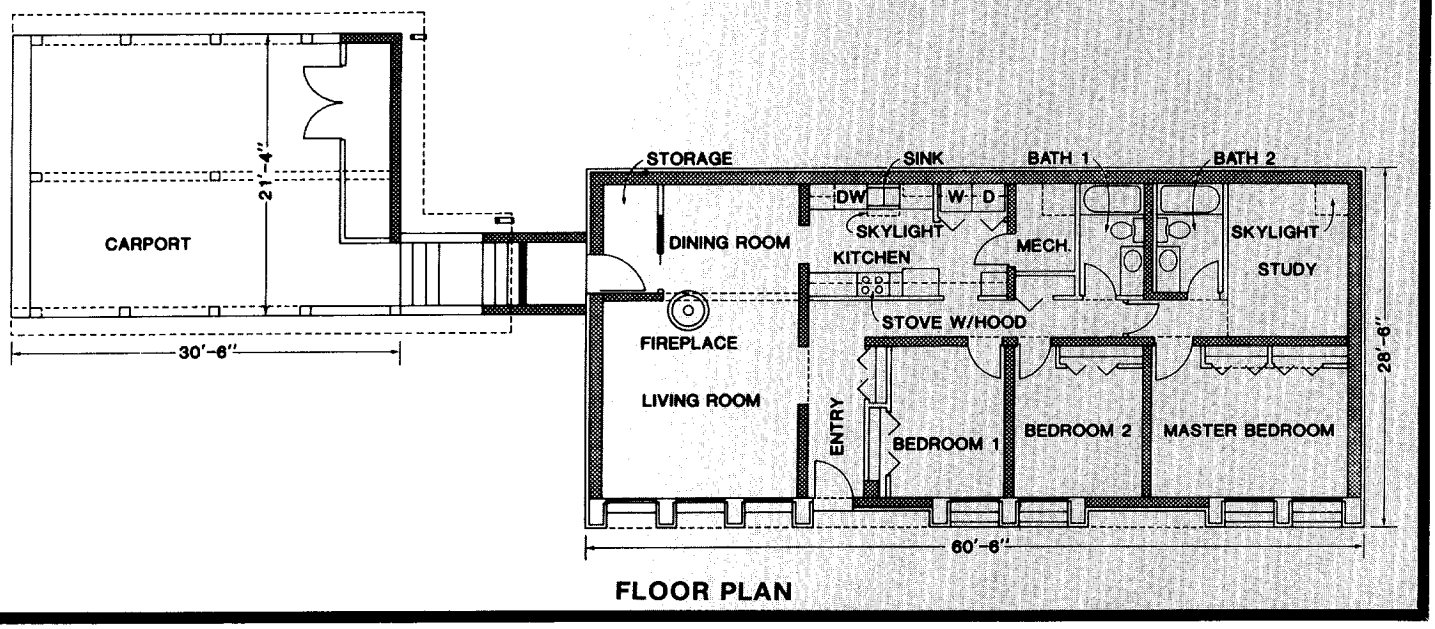
[1]Cristy Consultants, Inc.
[2]Adams Craft Herz Walker

*Research sponsored by the Federal Emergency Management Agency under Interagency Agreement No. EMW-E-0739, under Union Carbide Corporation contract W-7405-eng with the U.S. Department of Energy.

Concept

The concept shown in Figs. 1 and 2 is a 1400-sq-ft, earth-sheltered residence of the elevational design; i.e. — the south wall is exposed for

Figure 1



FLOOR PLAN

light access and solar heating. The design has the usual features expected of an earth-sheltered structure: very low energy requirements for heating and cooling, very large heat capacity from the concrete walls, good acoustical isolation, and protection against a wide variety of natural and technological hazards. In addition, this structure is designed to be upgradable in a crisis to withstand at least one atmosphere (15 psi) blast overpressure and possibly higher if the blast does not approach the structure from the south.

Protection Afforded

Earth-sheltered structures are designed principally to protect against cold weather during power outages. The very low heat loss and large heat capacity of the concrete structure will keep them warmer longer than conventional structures without heat from other sources. The elevational design with south-facing windows will maintain a more comfortable environment if the sun shines during the daylight hours. The addition of a fireplace or woodstove will permit the maintenance of a shirt-sleeve environment in any weather for as long as the wood supply lasts.

This design is very resistant to forest and brush fires providing care is used to prevent accumulation of vegetation in the vicinity of windows, doors and ventilation intakes. The structure is completely tornado-resistant except for the possible hazard of flying debris entering the front rooms. This hazard can be avoided by retiring to the back-rooms during the full intensity of the storm.

The design shown will provide a fallout protection factor of 600-800 in the rear room marked "Study" in its peacetime configuration. When upgraded, as shown in Fig. 3, it has a protection factor well in excess of 1,000 over the entire floor of the structure.

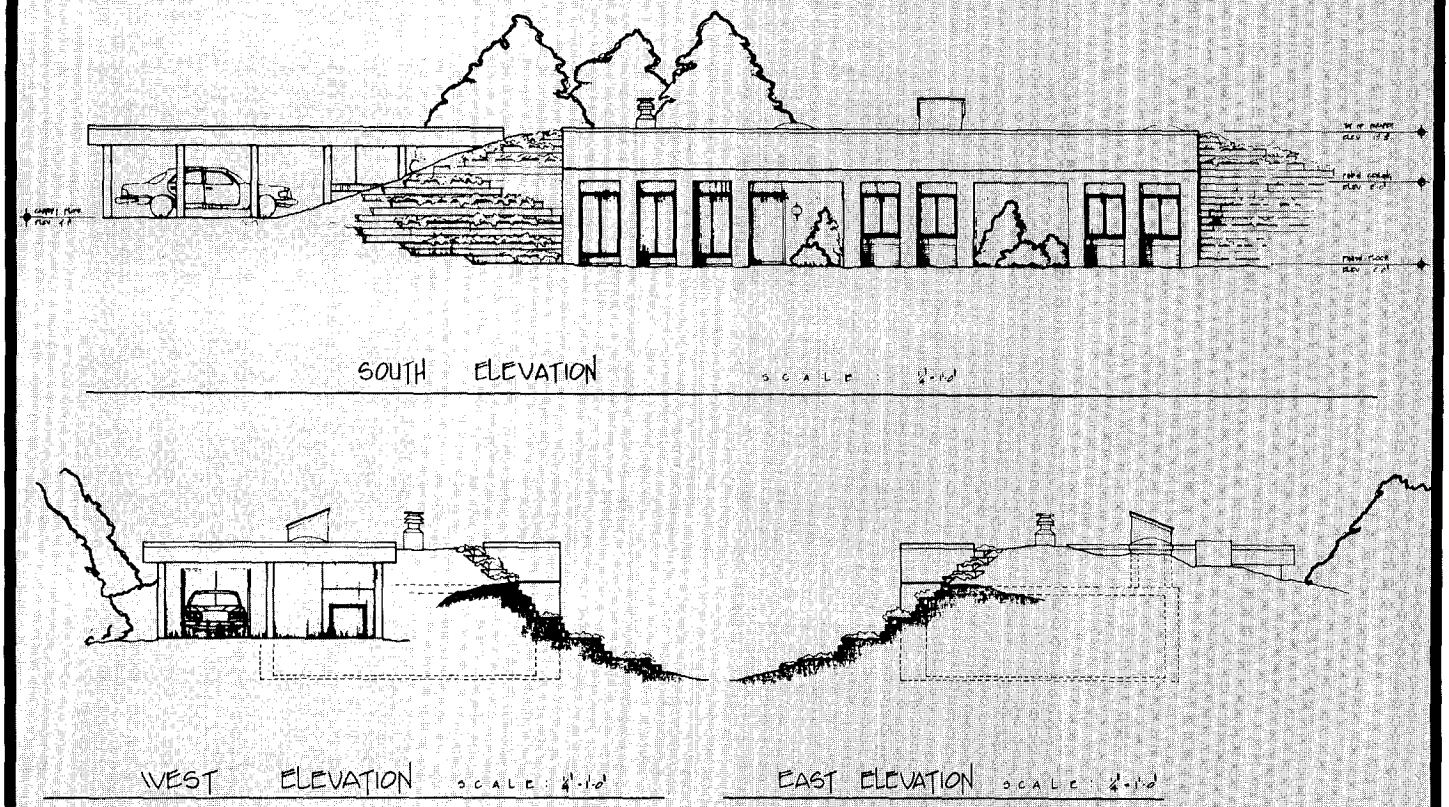
Construction Features

The most obvious unusual construction feature is the incorporation of large columns between the windows in the front walls. These are designed to take the horizontal load of blast overpressure from the south. The window openings have been carefully designed to permit stacking the specially designed patio tiles in the windows and anchoring them there with pieces of angle iron. The tiles have been designed to resist a 15-psi overpressure. Without upgrading, the back-room "Study" will provide a blast protection of approximately 5 psi. No credit has been taken for earth-arching from the soil shown piled in front of the building in the upgraded posture.

Common practice in earth-sheltered residential construction has not been followed in the design of the roof and interior walls. In this design, a cast-in-place roof is specified rather than the usual prefabricated concrete plank. The cast-in-place roof is little if any more expensive than the concrete plank, but has the advantage of much greater ductility and toughness, much better anchorage at the walls, and much more punch-resistance if extra support columns are used. It has better radiation shielding from the same bearing capacity. The 8-in. -thick roof functioning as a two-way slab is designed to resist one atmosphere overpressure. One support column is required in the center of the living room as part of the upgrading procedure. By putting four columns in the living room and adding one column at the center of each of the other seven structural bays, the roof would resist overpressures in excess of three atmospheres. A depth of cover on the roof of 3 ft is specified. If the earth used has a large enough content of sand or gravel, earth-arching to the walls and the columns will occur under blast loading, providing another factor of 2 protection against long-duration overpressures.

The skylights are designed to serve multiple functions as ventilators and emergency exits. In the peacetime configuration, they would have an acrylic weather cover and provision for ventilating, emergency egress, and winter insulation. Part of the crisis upgrading proce-

Figure 2



ELEVATIONS

dure would be replacement of the peacetime closures with a blast door and expendable/replaceable weather canopy.

Much greater use of load-bearing interior walls has been made. The walls can either be cast-in-place concrete or grouted block. They are arranged to provide more uniform support of the roof reducing unsupported roof spans, and in conjunction with the solid portions of the front wall, provide more protection from radiation and wind-driven missiles for the rear areas of the house. To this end, the smaller windows in the bedrooms have external planters or berms in front of the solid walls under them which significantly enhances fallout protection.

TABLE 1

Cost Comparison of Crisis Upgradable and "Conventional" Earth-Sheltered Residences with Aboveground Frame Construction

Type Construction	Cost Estimate for Knoxville, TN Jan., 1983	Percent Increase Crisis Upgradable*
Aboveground Frame Construction	$68,210	33.5
"Conventional" Earth-Sheltered	85,716	6.3
Crisis Upgradable	91,089	—

*Note: High cost of underground construction is partially offset by substantial savings in (1) energy consumption, (2) building maintenance, (3) insurance premiums, (4) vastly extended building life and (5) reduced building site dimensions. Add to these the intangible, but very real, advantages of (1) greatly simplified security, (2) built-in occupant safety against multiple hazards, (3) comfort and convenience benefits, and (4) peace of mind.

The attached garage shown in many designs with its difficult-to-protect doors and expensive walls has been moved away from the house so the west wall can be bermed. To control costs, the garage is shown as a carport.

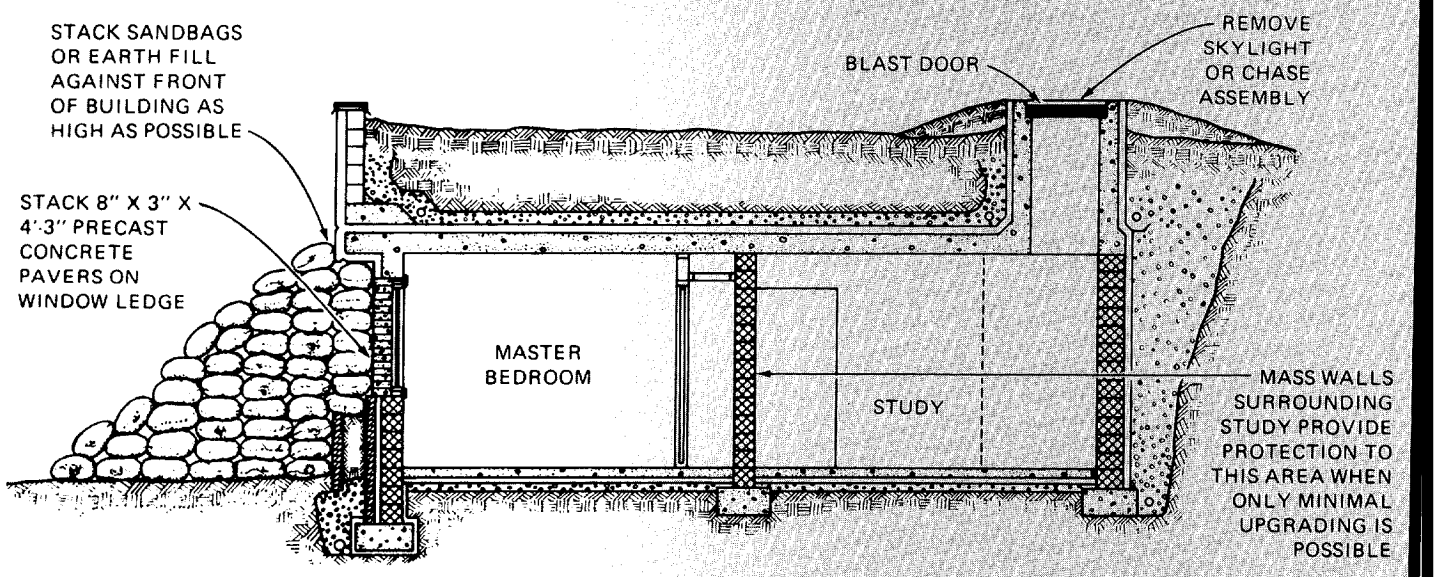
To control costs, and incidentally, to provide materials for crisis upgrading, the earth banks on either side of the house are shown stabilized with railroad ties rather than the retaining walls used in many designs.

Cost Estimate and Comparison

The cost of the crisis upgradable structure was estimated at a little more than $91,000 in January, 1983, for construction in the Knoxville-Oak Ridge, Tennessee area. The estimate was prepared by Adams Craft Herz Walker, an experienced architect/engineering firm of Oak Ridge, Tennessee, which has experience in the design and construction of earth-sheltered residences. The cost estimates compares favorably with other construction experience in this area.

It is instructive to compare the cost of this structure with a "conventional" earth-sheltered building

Figure 3



SECTION THROUGH UPGRADED STRUCTURE

and an aboveground frame residence of similar net floor area and amenities (Table 1). The costs of the aboveground frame construction and the conventional earth shelter were derived from the Cost and Energy Comparison Study (ORNL/CON-91 Shapira, 1983), with the prices corrected for 15% inflation from January, 1981 to January, 1983. The second column of Table 1 indicates the percentage increase in cost to go from the structure of that line to the crisis upgradable structure. The crisis upgradable structure is 33% more expensive than aboveground frame construction, but only 6.3% more expensive than a conventional "earth-sheltered" residence. The 6.3% increase is a cost due solely to hardening and principally comes from the addition of the strong columns in the south wall and the increased costs of running the electrical wiring and conduit in the floor, solid walls and roof. It is much cheaper to run wiring in hollow block or stud walls and a hollow concrete plank roof. The difference in cost between the aboveground frame and the earth-sheltered structure is due to the cost of replacing frame construction with the reinforced masonry and concrete construction required by going underground. It should be noted that if a commercial or industrial masonry structure were redesigned to go underground, the cost premium would be much less or possibly even zero.

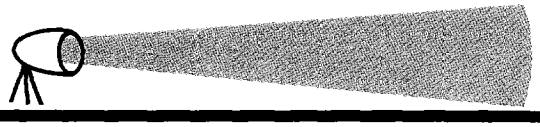
It is worth noting that the incremental cost for going from frame construction to crisis-upgradable underground construction is approximately $23,000, and produces approximately 1400 square feet of 15-psi shelter space. The incremental cost for the blast shelter is of the order of $15/sq ft or, if people are crowded into this building at a standard of 10 sq ft/person, the incremental structural cost for the shelter is a little under $150/space. This demonstrates the economic advantages of dual-use construction.

The U.S. residential housing industry is capable of producing almost two million such structures in a single year. If only a few percent of these structures each year made use of the blast hardening potential inherent in the structure, in a few years a very significant addition to the shelter space in this country could be produced.

The set of eight working drawings of this structure presently available through TACDA have been designed by experienced professionals but have not been subjected to the test of actual construction. Although they have been carefully reviewed by a number of knowledgeable people, small errors are likely to turn up. In making these drawings available, the authors, The American Civil Defense Association, Oak Ridge National Laboratory, the Federal Emergency Management Agency, the Union Carbide Corporation, and Adams Craft Herz Walker assume no liability for errors or oversights therein.

The authors of this article would be most interested in hearing from anyone who uses these drawings in construction. □

SPOTLIGHT



HIGH FRONTIER OFFERS FILMS TO TV — URGES SPACE DEBATE

Taking another big step forward in his free-swinging fight to provide the West with a timely defense against nuclear missiles, General Daniel O. Graham's "High Frontier" has now offered television stations throughout the United States two space-defense films free of charge.

The full-length version, for a 30-minute TV slot, is part of a series of "Counterpoint" debates and includes a face-off between Graham and former CIA Director Admiral Stansfield Turner. (Graham is former Chief of the Defense Intelligence Agency.)

A shorter 7-minute film is taken from the full-length production and features excerpts from President Reagan's space-defense talk.

"We are now engaged in a massive public information campaign to alert the citizens of our nation to the urgent need for a High Frontier system in space," said Graham. "We are planning to mail at least 15 million letters to concerned persons throughout the country this year, in addition to distributing about five million books on the High Frontier proposal and producing another 30-minute film on space-based defense later this year.

"The so-called 'Star Wars defense' is already a campaign issue and we have received an overwhelming amount of interest on this topic from the media. Since space-based defenses are best illustrated visually, we're providing [this] film, which includes the best footage on High Frontier ever produced to every TV station that requests it."

•

NUCLEAR POWER: VICTIM OF HYSTERIA?

From *Review of the News* (quoting Dr. John Silber, president of Boston University):

"Nuclear energy could safely replace much of our present combustion of fossil fuels. But nuclear energy is mistakenly regarded as dangerous because its risks have been greatly exaggerated and the risks of other energy sources largely ignored. In 1982, energy-related accidents around the world killed 1,662 people. None of these accidents involved nuclear power. Acid rain is one example of our failure to solve the problem of fossil-fuel waste products. The problem of nuclear wastes has already been solved. France is converting these wastes to inert glass for disposal deep in the earth. But we have no prospects of safe disposal of the millions of tons of wastes produced each year by burning coal and oil... There can be no end to acid rain until we substitute uranium for coal or resign ourselves to a third-world economy."

And from *Daily News Digest* (which quotes Bernard Cohen, Professor of Physics, University of Pittsburgh, in *The Wall Street Journal*):

"Polls of college students and members of the League of Women Voters in Oregon found that both groups believe that nuclear power is their # 1 'present risk of death,' outranking motor-vehicle accidents that kill 50,000 Americans each year and 12 other hazards that kill more than 1,000 each.

"Yet scientific studies find that the number of deaths expected from nuclear power, radioactive waste, and everything else connected with nuclear power, is less than 10 per year; even the principal anti-nuclear group, the Union of Concerned Scientists (UCS), estimates less than 150. . . .

"Another poll found that more than 80% of the public believes that nuclear power is more dangerous than its principal competitor, coal burning, which is typically estimated to kill 10,000 Americans each year with its air pollution — some studies estimate 50,000. Every scientific study (at least 20, including one by the UCS) has reached the opposite conclusion. . . .

"The present risk to the average American from the nuclear-power industry is equivalent to that of smoking 1 cigarette in one's life (1 cigarette per year according to UCS), of an overweight person increasing his weight by 0.004 ounces (0.2 oz — USC), crossing a street 1 extra time every 3 years (every 3 weeks — UCS), or increasing the national speed limit from 55mph to 55.001mph (55.12mph — UCS) . . ."

DDP NEWSLETTER ON WAY

Doctors for Disaster Preparedness (DDP) plans to resume publication of its newsletter starting in June 1984. The newsletter will be titled *Triage* and will go free of charge to all DDP members. For others it will have a subscripton price of $8 per year.

Triage will be put together at the DDP office in Starke, Florida, where DDP Administrative Aide Shelly Bowen will receive and collate materials. The *Journal of Civil Defense* staff will assist in layout and proofing, and Dr. Max Klinghoffer, DDP secretary-treasurer will exercise general supervision.

"*Triage* is certainly an appropriate name," said Klinghoffer, "for what it will do is to sort out and present pertinent materials of primary interest to medical professionals and others oriented toward emergency medicine."

•

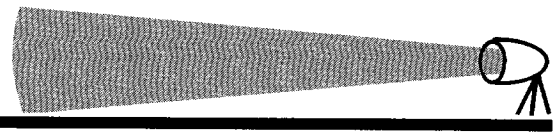
OKLAHOMANS EYE MOTHER EARTH FOR SAFETY, SECURITY, SAVINGS.

In one section of Oklahoma (from Bethel to Wellston) there are 20 underground schools. And more are on the way. The Eugene Field Elementary School in Oklahoma City will be one new underground school.

No windows mean a much better learning environment according to one Oklahoma City architect.

That's not the primary reason for going underground, however. The big appeal is safety from tornadoes. A 50% savings in energy costs is an important second considertion. Protection from nuclear attack, which provided the initial incentive for underground construction in the '50s and '60s is also an incentive today.

An example of the Oklahoma "boom" in underground homes is Newcastle, just south of Oklahoma City, where over 15 subterranean homes have recently been built. In Norman, architect Joe Hylton reveals that earth-sheltered housing designs are now in great demand. "Almost any building," he says, can be earth-sheltered. You're limited only by your imagination."



RED TAPE ELIMINATED FROM INDUSTRIAL SPACE PROJECTS

On February 24th President Reagan signed an executive order that freed private industry's bonds in working with expendable launch vehicles (ELVs) — rockets used once in putting satelites into orbit.

"Until today," said Reagan, "private industries interested in ELVs have had to deal with 17 government agencies. From now on they'll only have to get in touch with the Department of Transportation, and the department will clear away what Secretary Dole has called 'the thicket of clearances, licenses and regulations that keeps industrial space vehicles tethered to their pads."

Said DOT Secretary Elizabeth Dole: "We want the world to know that America's commercial space industry is open for business."

•

"THE DAY AFTER" MESSAGE: AMERICAN CD NEGLECT

In his *Bulletin of the International Civil Defense Organisation* (Geneva, Switzerland) Dr. Milan M. Bodi notes:

"Reactions among the Swiss public which had seen or heard about the film 'The Day After' were mixed. It should not be forgotten that in this country Civil Protection is denigrated by only a tiny fraction of the population. It is a fact that by a referendum in 1959 the Swiss people accepted the principle of service in Civil Protection . . .

". . . it is interesting to quote certain comments from a senior officer in the Swiss Army, Brigadier Walter Winkler, professor of experimental physics and reactors at the University of Bern, which appeared in an important German-language Swiss weekly . . .:

" 'As a Swiss citizen who is aware of the advanced state of Civil Protection installations already constructed, which includes numerous protected underground hospitals, I am shocked to note the absence of such buildings around Kansas City. The impression given by the film is that the American authorities have largely neglected the construction of adequate installations . . .' "

ENEMIES OF HOMELAND DEFENSE: US?

. . . Save for John F. Kennedy, no American President up to Ronald Reagan has exhibited any interest in the subject [civil defense]; the Congress has been even more heedless. Some secretaries of defense gave lip service; no secretary of defense tried to do anything to create an effective civil defense. . . .

Even more amazing, those who shout most loudly about the threat of nuclear war, its horror, and its imminence, such as the Union of Concerned Scientists and the Harvard doctors (Physicians for Social Responsibility), oppose civil defense. "Fire, fire," they shout, "but don't use any water."

Civil defense is not aggressive, it kills nobody, it destroys no property, and it cannot be provocative; for both the Soviets and the Chinese have been preparing passive defense of their own countries for many years. Civil defense can save millions of American lives. . . .

Civil defense is not enough. We need active defense that will ward off incoming missiles and bombers before their warheads burst above or on us. Our officials are working on active defense, but without any sense of urgency.

From the beginning of the atomic age, we have starved our defense, perhaps because the military has been obsessed with the offense, mouthing such cliches as "the best defense is a good offense." For the American civilian brought by ballistic missiles and nuclear-armed bombers into the front-line trenches while sitting in his living room, offense will not save his life if nuclear war comes.

Only active nuclear defense plus passive defense can cope fully with the nuclear threat to our survival. The two are not inseparable, however; civil defense by itself makes excellent sense.

We do not have to break any treaties to create an active defense against ballistic missile attacks . . . Nothing, except ourselves, stands in the way of developing effective nuclear defense.

— Laurence W. Beilenson and Samuel T. Cohen in *Human Events*.

A KEG OF NAILS

For the protection of our Minuteman missiles it is only necessary to establish a "point" defense — i.e., a defense of the few square acres surrounding each missile silo, and the small area surrounding a limited number of communication centers, command posts, and other military installations. The means for such a point defense of critical military sites are in hand today. The basic technologies have been proven, they are inexpensive, and they can be put into use with relative rapidity.

The key to these technologies is the miniaturized computer. Extraordinary developments in the miniaturization of computer circuits enable millions of transistors and other electronic components to be packed into a space the size of a thumbnail. As a result, defense technicians now have the means for building elaborate computer brains into a very small missile — a mini-missile — so that it can steer itself toward its target . . .

In essence, the defense consists of tossing into the path of the speeding warhead some TNT and a keg of nails. What makes this simple defense work is its computer brain . . .

This kind of technology is not visionary. Its important features are already in operational use in the Pershing-2 missiles being deployed in Europe . . . On the average, Pershing-2 warheads hit the ground within 30 yards of their targets, compared to an average error of 250 yards for the best missiles with old-fashioned dumb warheads. When the same kind of computer technology is used in mini-missiles for defense against ICBM warheads, the error comes down to a few yards, or even feet, or even inches.

— from Robert Jastrow's article "Reagan vs the Scientists: Why the President is Right About Missile Defense" (*Commentary*, January 1984).

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. . . the Iron Law of Peace Movements is that the nation that has one, if it carries the day, looses. For "peace" movements do not bring peace, they bring defeat.
— Andrei Sakharov

Were Harry Truman alive today he would be aghast at the flip manner in which Congress has, through curtailment of budgets, allowed the American people to be exposed to annihilation at the pleasure of aggressors. Truman had his own troubles with Congress during his Presidency (1945-1953) when America's nuclear supremacy was unquestioned. Here Dan McGraw, emergency preparedness coordinator for Truman's home town of Independence, Missouri, shows that Truman — who brought civil defense into being when the Soviets demonstrated their determination to become a nuclear power — fully intended that his fellow-Americans be provided with an effective homeland defense against nuclear attack. Thirty-odd years ago, at the dawn of the nuclear age, McGraw shows how congressional contempt for the need for civil defense even then denied a realistic program.

TRUMAN'S FIGHT FOR CIVIL DEFENSE

— Dan McGraw

May 8th of this year marks the one hundredth anniversary of the birth of Harry S. Truman, 33rd President of the United States. Mr. Truman, under whose administration nuclear weapons were used against Japan, also developed the legislative basis for civil defense.

OFFICE OF CIVIL DEFENSE

Less than three weeks after taking office in April 1945, Mr. Truman abolished the Office of Civilian Defense (OCD) and withdrew its proposed $369,000 budget. OCD had been established in May 1941 "to coordinate measures of federal, state and local governments for protection of the civilian population in war emergencies." As World War II drew to a close Truman wrote Congress: "Recent developments in the European War and the efficient operation of the volunteer forces in the communities made possible the decision that Federal supervision of civilian defense is no longer necessary."

Less than three months later Truman ordered the use of atomic weapons on Japan to end World War II.

OFFICE OF CIVIL DEFENSE PLANNING

On March 27, 1948 — with the USSR secretly working on its own atomic weapon — the Office of Civil Defense Planning (OCDP) was created under the Secretary of Defense. OCDP was charged with the preparation of a program for civil defense in the United States "including a plan for a permanent Federal Civil Defense Administration." The head of OCDP was Russell J. Hopley, an executive on leave from Northwestern Bell, and the study became known as the Hopley Report. Although Hopley returned to private industry in November 1948, the report that bore his name stirred a controversy within the Executive Branch over which government agency should have the responsibility for civil defense. The Hopley Report recommended that the agency be placed under the Secretary of Defense, but the President was encouraged by advisors to keep it separate from the military establishment. Secretary of Defense James Forrestal told Truman that civil defense in the military would "belie the essential character of this office."

1st Lt. Harry S. Truman, Battery "D" Missouri National Guard, 1917.
(Harry S. Truman Library photo)

F. J. Lawton, Assistant Director of the Bureau of the Budget, agreed with Forrestal that the National Security Resources Board (NSRB) was the proper place for civil defense.

Armed with these recommendations, Truman on March 4, 1949 issued a memorandum on civil defense planning which said in part: "Since peacetime civil defense planning is related to, and a part of, overall mobilization planning of the Nation in peacetime, I have concluded that the National Security Resources Board, which is charged with advising me concerning the coordination of such overall mobilization planning, is the appropriate agency which should also exercise leadership in civil defense planning."

THE BOMB AND KOREA

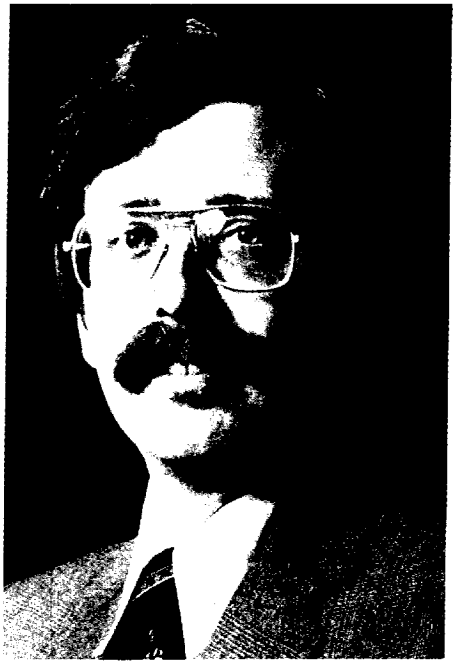
Two events occurred between

August 1949 and June 1950 that resulted in bringing civil defense out of dormancy. To the shock of most Americans, the Soviet Union exploded an atomic bomb on August 29, 1949. Intelligence reports had indicated it would be another three to four years before the Soviets had

". . . I FEEL IT HIGH TIME THAT *YOU* . . . ESTABLISH A FEDERAL CIVIL DEFENSE STATUTE . . ."

atomic capability. The American Legion took a strong stand for civil defense at its National Convention in December 1949, and Truman Library files in Independence, Missouri are stuffed full of form letters and post cards from Legion Posts across the country appealing for civil defense. The most common form of the appeal is: "As a citizen of the United States, I feel it high time that YOU, by executive order, establish a federal civil defense statute with a qualified director to provide leadership and a means of coordinating state and local civil defense measures. The danger is imminent; the time short. I urge that you take immediate action."

Then on June 24, 1950 South Korea was invaded by North Korean troops armed with Soviet equipment. By fall, United States troops were battling Chinese units. In this crisis atmosphere even the President reportedly said: "It looks like World War III is near."



Dan McGraw, Independence, MO Emergency Preparedness Coordinator since 1978. Recipient of American Society for Public Administration 1983 Crisis Management Award. (Photo by Independence Examiner.)

Harry S. Truman, 33rd President of the United States (U.S. Army Photo)

FEDERAL CIVIL DEFENSE ADMINISTRATION

On September 8, 1950 the National Security Resources Board released a comprehensive report entitled *United States Civil Defense.* Although called a rehash of the Hopley Report, the new NSRB report called for an independent federal civil defense agency.

That same month a bill was sent to Congress to establish the Federal Civil Defense Administration (FCDA). On December 1st Truman issued an Executive Order removing civil defense from the NSRB and establishing the FCDA. Congress acted quickly, and on January 12, 1951 Harry Truman signed into law the Federal Civil Defense Act of 1950, which is the basis of civil defense legislation today.

CIVIL DEFENSE CONFERENCE

On May 7, 1951 President Truman addressed a group of political leaders and influencial citizens at a civil defense conference in Washington D.C. Truman had hoped this conference would succeed in generating the political and public support civil defense would need to make it effective. He pulled no punches.

The text began: "This conference is being held to consider one of the most important tasks facing our country. The lives of many millions of our fellow-citizens may depend on the development of a strong civil defense. The threat of atomic warfare is one which we must face, no matter how much we dislike it. We can never afford to forget that the terrible destruction of cities, and of civilization as we know it, is a real possibility."

CIVIL DEFENSE FUNDING

In June of 1951 President Truman sent a letter to the Speaker of the House that contained his civil defense budget request of $535 million for fiscal year 1952. The President said in part: "The development of the Nation's preparedness is out of balance if, at the same time our armed forces are being strengthened, measures are not taken providing the means to minimize civilian casualties, to deal with emergency conditions, and to restore vital facilities in the period

immediately following attack. The Civil Defense Program will not only protect the civilian population, but will also help to maintain the industrial productivity necessary to support our military forces.

"Because of the importance of Civil Defense in the protection of our people, property, and production on the home front, I recommend immediate action on this appropriation in the interest of national security."

Despite this strong appeal, Congress appropriated only $75 million for FY 1952.

On January 12, 1952 Truman released a "Statement By The President On The First Anniversary of Civil Defense," in which he mentioned Congressional apathy and admonished Congressmen for their refusal to fund at the levels he had requested.

"LET ME WARN YOU AGAIN THAT THERE IS NO SUCH THING AS BARGAIN BASEMENT PREPAREDNESS . . ."

"Let me warn you again," he said, "that there is no such thing as bargain basement preparedness or escape from the hard realities of the time. There are no short cuts to civil defense preparedness. It is a tough, unpleasant, but grimly necessary job."

And he concluded: "But civil defense readiness throughout the nation is not something that can be done tomorrow. It must be done today — or it may be too late. To lose the sense of urgency and the need for individual action in civil defense now would be to let down our guard at a most dangerous time. You may be sure that the enemy is always waiting for just such an opening."

In writing the First Annual Report of the FCDA, Truman intensified his challenge to Congress. "In January 1951, the Congress passed the basic legislation under which our civil defense program has been set up. It is good legislation. It provides a sound framework for doing the job. But ever since this law was enacted, the program has been starved for lack of adequate appropriations.

"Last year I requested $535 million to build up our civil defense programs in the current fiscal year. Instead the Congress provided only $75 million. This year $600 million has been requested as the Federal Government's share in speeding our civil defense work for the coming fiscal year. I earnestly hope the Congress will provide the full amount this time. It is essential if we are to get the job done right.

"I want to be as clear about this as I can. We simply cannot afford a penny-wise-pound-foolish attitude about the cost of adequate civil defense. Everyone in this country — all of us — must face the fact that civil defense is, and will continue to be, just as vital to American security as our armed forces, our defense production, and our aid to allies and friends abroad. Civil defense is another indispensable part of our total security program."

Congress appropriated $43 million.

FINAL DAYS

The President's feeling came out even more clearly in private letters and memos he wrote in the closing days of his administration. Truman wrote to the heads of his Executive Branch on November 11, 1952: "I have repeatedly emphasized the need for civil defense planning and organizing on a local as well as a national level. My stand as to the urgency and need for civil defense preparation remains unchanged."

"WE SIMPLY CANNOT AFFORD A PENNY-WISE-POUND-FOOLISH ATTITUDE ABOUT THE COST OF ADEQUATE CIVIL DEFENSE.

A letter written by Truman to the acting Administrator of FCDA, J. J. Wadsworth, on January 16, 1953 (four days before leaving office) reiterates his supportive position on civil defense: "I know you are not happy about progress as a result of the lack of funds to carry out important programs. I wish to thank you personally and pray that progress in civil defense will continue to be made. I honestly feel that the future of our country may depend on it." □

CESA CONFERENCE TO FEATURE BEILENSON AND COHEN

The California Emergency Services Association (CESA) will hold its annual conference at the Grand Hotel in Anaheim, California May 9th to 11th. It will officially begin at 8:30AM on the 9th and adjourn at noon on the 11th. A dramatic program mix of panels, workshops and give-and-take talks make up the 2½-day meeting.

A special feature will be an hour-and-a-half audience-participation presentation on U.S. strategic defense problems by Sam Cohen and Laurence Beilenson. Beilenson is the author of *Survival and Peace in the Nuclear Age* and other analyses of foreign policy and war risks. Cohen is the nuclear scientist who developed the controversial "neutron bomb," and his book *The Truth About the Neutron Bomb* appeared in 1983. Both Cohen and Beilenson are contributing authors to the 1984 book *Defending a Free Society* (see page 22 for review).

CESA president Caroline Pratt reports that interest in CESA's conference is climbing fast in both private and public sectors, and that she looks for a capacity attendance. "We anticipate the biggest and best conference we've ever had," she said. "During the course of our conference we'll be outlining emergency management tasks and defining problems with the idea of participants taking home solutions. The impact that the conference has on preparedness will be the real payoff. In addition to our California people we are expecting guests from Mexico and Canada, and from all points throughout the United States. All of us in CESA are gearing up for the occasion.

Registration for the CESA conference is $75 (mail to CESA, 24104 V 24, Camarrillo, CA 93010. For further information contact CESA president Caroline Pratt at 805-987-1588 or CESA secretary-treasurer Fan Abel at 213-868-9908.

Special conference room rates at the Grand Hotel (Number One Hotelway, Anaheim, CA 92802) are $54 single and $60 double. Reservations at the Grand Hotel may be made by mail or by phoning 800-421-6662 — in California call 800-352-6686.

No article in the sixteen years of ***Journal of Civil Defense*** *publication has provoked near the controversy among reviewers as has "A New Strategic Nuclear Doctrine." Critiques pro, con and divided have been intense. One thing which reviewers have agreed upon: the article addresses the most dramatic, disturbing and delicate problem the world has ever confronted: control of weapons of mass destruction — nuclear, chemical and biological.*

A NEW STRATEGIC NUCLEAR DOCTRINE

PART I — THE PROBLEM

— Gunther Phrall and Jameson Campaigne, Jr.*

By now every American should be aware of the pro-freeze, "Day After" claims regarding the dangerous "overkill" capacity of the superpowers' nuclear arsenals. "Why", the disarmers ask "should we build more nuclear weapons when there are enough today to pulverize every target repeatedly?" Why indeed? Unfortunately, the answer to this question cannot be reduced to a simple phrase, to a bumper sticker.

It is often claimed that one U.S. submarine has enough destructive power to deter the Soviets from ever attacking America. In a narrow sense this is absolutely correct. For Soviet leaders, there is nothing in the United States worth the destruction of 150-200 Soviet cities. And the U.S. usually has *ten* or more of these missile platforms prowling the North Sea and the Pacific at any time. Moreover, this does not even count our landbased missile forces, or the Strategic Air Command.

On the surface the freezers seem to have a good case. We *do* have enough nuclear warheads to make the Soviet rubble bounce . . . repeatedly. However, this argument overlooks the grim realities of the world of strategic nuclear planning.

It is often thought that our sub commanders can fire their missiles at their own discretion, or if we are attacked. This is not true. Many think that our B52's and Minuteman missiles will "go off" if the United States is attacked — the "use 'em or lose 'em," launch-on-warning scenario from "The Day After." In fact, *all* U.S. nuclear force commanders are expressly prohibited from attacking anyone unless given specific coded instruction from the U.S. commander-in-chief. American officials do not choose to give discretion to line commanders. It's deemed too risky. Thus, it is well to begin a discussion of the threat of nuclear war by recognizing the difference between nuclear possession and nuclear utilization. Only an acting President can launch a partial or full-blown nuclear attack.

The question is not, could we rain destruction on the Soviets no matter what they do first? The question is, would this be a realistic policy for any acting U.S. President? Everything hinges on this basic question. To say that "of course the U.S. would instantly respond to any attack" is false. We would not, nor should we. Some background is in order.

Counterforce Factor

In the period up to about 1963 the U.S. had a viable deterrent force. No matter what the Soviets did, the U.S. could survive an attack and, in the words of SAC General LeMay "remove all vestiges of civilization from extended segments of the Soviet Union." Nuclear war really *was* unthinkable at this time. Neither the USSR nor the United States could launch a nuclear attack and expect to win, or inflict such sudden and debilitating destruction that an opponent would find it advantageous to capitulate. This situation was short-lived. By the mid-1960's we had entered a dangerous new phase in the nuclear strategic equation — the ICBM era.

Modern ballistic missiles were the technological breakout which profoundly altered the nuclear standoff. For the first time, entire societies were threatened with thirty-minute death sentences. It now appears that Soviet leaders were more aware of the implications of this quantum change in the superpower calculus than their American counterparts. While U.S. strategists struggled to convince themselves that nuclear war was still unthinkable, the Soviets cooly initiated an unprecedented nuclear and conventional arms buildup. The Soviets had seen the central and basic point: nuclear war was not, in fact, unthinkable. It was fast becoming both thinkable and winnable.

It all came down to one word: counterforce.

Technological trends had for the first time made nuclear weapons systems potentially vulnerable to other nuclear weapons. Modern Soviet missiles could, of course, be aimed at U.S. population centers, but why should they be? The *people* in the United States are not a threat to the Soviet leadership. The threat resided in the U.S. nuclear force. Given this fact, and the nature of Russian military realism, it was 100% predictable that a Soviet *counterforce* system would be built, and it was.

In the pre-ICBM years of the nuclear age there was simply no way to eliminate America's nuclear forces. There was no possibility of a sudden Soviet first strike followed by a Politburo ultimatum to "surrender or else." The Soviet leaders did not have the *tools* to make such an ultimatum credible. And, they realized that Curt LeMay and his B52's would be visiting them soon after choosing this insane course of action.

Counterforce was the concept that gripped the imagination of Soviet strategists in the early 1960's. It soon became more than a con-

*"Gunther Phrall" is the pen name of an American strategic analyst. Jameson Campaigne is an Illinois-based book publisher and a member of the Board of Directors of The American Civil Defense Association.

cept. Hundreds of billions of dollars were poured into Soviet counterforce hardware in the next two decades. In the West, the counterforce concept was ignored.

Today, the largest fraction of the Soviet missile systems is counterforce in nature: nuclear weapons designed to eliminate quickly other nuclear weapons. On the other hand, U.S. missiles are essentially airburst "building busters."

Under Defense Secretary Robert McNamara's "Mutual Assured Destruction" strategy, the U.S. chose to deploy warheads primarily intended to knock down buildings and kill people, but *not* destroy hardened Soviet missile sites. This being the case, it was no surprise that the bulk of Soviet strategic weapons seemed to be going into hardened silos. The Soviets logically may have concluded that there was no point in building missiles which were vulnerable. We had, on the other hand, a set of concepts at work which gradually gave the Soviets the option of destroying a large percentage of U.S. nuclear forces while granting, in effect, a secure santuary to Soviet missiles, which could then also be used to threaten our population centers.

In addition, the Soviets embarked on an equally important backup program: an extremely comprehensive civil defense plan for the bulk of the Soviet population and its leadership. We knew about these developments, but did not do anything about any of them — the age of "detente" had arrived. Intelligence reports were slanted to conform with the current policy of expanded trade and peaceful co-existence. The Soviets soon scented potential victory. Leonid Brezhnev told Eastern European leaders in the late 1970's, "Be patient comrades. By 1985 we will have the Americans right where we want them . . . we will be able to do as we please in any part of the world."

U.S. Deterrent: Gone

Yes, that is what happened. But what about that one U.S. submarine which should be enough to deter the Soviets? Doesn't even one sea platform with 200 warheads guarantee that the U.S. will never be attacked? Are not the Soviet leaders more concerned with their cities than any prize they may hope to win? The answer to these questions is, they are questions which are no longer relevant. By building a counterforce strategic system the Soviets have effectively stalemated the Western powers. The question is not whether the Soviets would endure the loss of 100-200 cities. The question is whether any U.S. President would risk extermination of most of his unprotected countrymen by responding to a Soviet counterforce attack at all! What would be gained by "busting" Soviet cities with our remaining submarines? The moral case against "busting" Soviet cities after they've destroyed our warfighting capability is as dubious as the practical case — most of *their* population will be sufficiently protected by their excellent civil defense system. Our population is not similarly protected, and would be at the mercy of Soviet weapons. The only practical course of action after a Soviet first strike against our nuclear forces would be surrender — and hope that our cities would be spared.

In other words, the one U.S. nuclear sub which is *theoretically* enough to deter the Soviets, is *not* — because *we* lack a civil defense system, an enduring command and control (communications) network, and a surviving counterforce system.

In reality, most of our nuclear sub force is today practically worthless. By themselves, they cannot be used. If they ever *are* used, it will be all over for most of us. President Carter finally realized what was coming, although his misguided MX (counterforce) missile system was not a viable solution to the problem. Our allies understand the situation. The Reagan administration has publicly hinted at the situation, but not enough is happening to *correct* the situation.

OUR NECKS ARE LITERALLY ON THE CHOPPING BLOCK . . .

Strategic Coup

It is not comfortable for an American to admit what has happened, but the simple fact is that The Kremlin leadership may have pulled off one of the greatest coups in military history. They have come from behind and, for now, put the West in stalemate. While American leadership frittered away a significant U.S. advantage, a ruthless and determined band of Soviet realists prepared for a fundamental alteration of the world's political order.

There is no escape from the present situation. Our necks are literally on the chopping block into the currently foreseeable future. *And, the vast majority of our elected leaders still do not even appear to understand the situation!* Even worse, the U.S. Government has not clearly explained the situation to the American people. When the Soviets speak of a "favorable correlation of forces" in no small way they are referring to what U.S. defense analysts call the "window of vulnerability." It is important to realize that these are not abstract speculations. The window of vulnerability is wide open.

What Does This Mean?

U.S. and Soviet leaders are well aware that any regional conflict between the superpowers could escalate into general nuclear war. For the U.S., this would be almost suicidal, due to our lack of protection for the political leadership and the population. This is not true for the Soviets.

The Soviet leadership has built over 600 elaborate führerbunkers which are stocked with everything necessary to guarantee the survival of the Communist elite. The general population has a crude but effective civil defense system which will greatly reduce casualties in a nuclear conflict.

Should the Soviet leaders ever decide to attack, they could neutralize most of our landbased missile force, much of our air and sea nuclear capabiity, and our communications networks almost instantly. And, they could do this with only a modest percentage of their first strike force.

Were this to happen, were he still alive, what would President Reagan do? What would *you* do? There is no rational choice. Unless you were insane you would surrender.

This is what President Reagan has to live with every day.

The U.S. Response

Our *real* problem is the Soviet's offensive counterforce nuclear system. To face off against an invulnerable first strike Soviet missile system, some of which can be reloaded for a second strike, is to guarantee a U.S. defeat. The U.S. is now finally building nuclear systems which will

neutralize the Soviet counterforce system. Our most important system is the deployment of enough super-accurate, small, nuclear-armed cruise missiles to "take out" all the Soviet hardened missile sites. The cruise missile nuclear warhead may be small, but the missile is so accurate (within 50-100 feet) that Soviet missile base hardening is irrelevant.

Is it any wonder that the Soviets consider the cruise program their number one project to stop, if possible? (This should be kept in mind when evaluating the programs of some of the disarmament groups.) Moreover, the cruise missiles are *not* capable of a surprise first strike. They are 600 mph, retaliatory missiles which will arrive *hours* after first being detected. *If President Carter had not put the cruise program on "hold" this system would be operational today!* As it is, we are literally down to the wire. The very first units are operational now (the program was quietly but dramatically accelerated as part of President Reagan's "quick fix").

. . . THE AMERICAN PEOPLE ARE NOT BEING TOLD . . .

The second most important U.S. anti-counterforce measure is the resurrection of the penetrating bomber — the B1. Essentially, the B1 is designed to accomplish a "mopping up" function. Any targets which our cruise missiles missed would be pinpointed for B1 attack. While it is difficult to rationalize spending $200 million each on these aircraft, they add a dimension of uncertainty to the plans of the Soviets. (Had other less expensive measures been taken years ago, the B1 would not be necessary.)

Third, and most long-range, are the changes which are taking place in the U.S. sub fleet. The huge new Trident subs will eventually be fitted with counterforce D5 missiles. This means that Soviet missile sites will, for the first time, be threatened by nearly invulnerable U.S. submarines. The day of nonmobile, land-based (sitting duck) missile systems is almost over.

These are the primary changes which are taking place in the U.S. force structure. We are moving, in a race against time, to negate the Soviet counter-force systems. What this means is that a Soviet first strike against U.S. nuclear forces would be followed by an almost automatic U.S. strike against Soviet counterforce installations rather than against Soviet cities. Without these installations it would be very difficult for Kremlin leaders to have any confidence in their *protracted* war-fighting ability.

WHAT IS YOUR OPINION?

Responses to this article are invited. Please send to:

Journal of Civil Defense
P.O. Box 910
Starke, FL 32091

Once the United States achieves a counterforce capability, our nuclear subs will regain a degree of credibility. The threat to "surrender immediately or we will destroy your population" will sound somewhat hollow if the U.S. President can say "With what? Within 30 minutes, all your missile sites will be gone . . . and I have ordered remaining U.S. nuclear forces to eliminate all Soviet targets of opportunity if U.S. cities are attacked."

Every sensible citizen dreads even the possibility of such a conversation. However, if America is to survive, our President must have the ability to speak these words . . . and mean them! The reality of our age (and our political system) is that it's not possible for us to *win* a nuclear conflict. Our only hope is to arrange things so that we can *prevent* one. For Soviet leaders a homeland without cities, without a secure missile force, without an industrial base, with a terrified population, without a credible navy, with a shattered economy . . . this is simply too high a price to pay.

There are now 135 major military-industrial complexes operating at peak output in the Soviet Union. Missiles, warheads, planes, tanks and military equipment of every type are pouring out of the Soviet arms machine. For what? Not to defend the homeland. Most of this equipment is designed for offensive conflict, for conquest. What does this tell us about Soviet motives?

Imagine the state of mind of the Soviet military elite (the true power center of the Communist system) which has made a stupendous effort to put the West in a no-win military position. Imagine what these generals think when they look at an invincible Red army, which can now do what Napolean could not do — create one vast Eurasian empire from the Atlantic to the Pacific.

Now, imagine what they will think when their defense analysts tell them that "emerging U.S. counterforce systems will soon neutralize most of our gains." If you were a Soviet military leader, what would you do?

This emerging and unstable environment is further complicated by the new space-based weapons systems which will impact the strategic balance in a profound manner. It is entirely possible that space "battle stations" will be operational late in the decade. In addition, new conventional defensive systems promise to make large land assaults increasingly costly to any aggressor within a decade or less. The day will come (soon) when a two-man NATO team with four short-range missiles (costing less than $40,000) will be able to neutralize $4 million in Soviet attack vehicles and inflict nearly-unacceptable losses to Soviet assault forces.

If you were an aggressive Soviet Marshall how would you feel about your costly mechanized forces which are poised to rush to the Atlantic? Could this be the reason for the extensive chemical warfare units (over 100,000 men) which are integrated into each Soviet assault division? The obvious conclusion is that the Soviets plan to eliminate our soldiers first, hoping that NATO *equipment* will never be used.

Add to all of this the American decision to deploy a devastating counterforce system (the Pershing II) in Western Europe. This is a system which, to Soviet analysts, is clearly intended to "decapitate" the Soviet military in an instantaneous five-minute attack. For the first time, missiles deployed in Germany will be able to destroy the Soviet leadership. Is it any wonder that Soviet forces are steadily moving towards a state of readiness (that was the primary reason for the 1982 secret Senate military briefing.) In reality, we are now faced with the most dangerous tension since the nuclear age began. Yet the American people are not being told what's happening! □

(Part II — "Options" — will appear in the Journal's June issue and will outline the harsh remedies for the situation described in Part I.)

This installment of Dr. Max Klinghoffer's TRIAGE — EMERGENCY CARE series (with the accompanying medical supplies list) is the last of eighteen articles dealing with medical management of disaster operations. During the publication of this series numerous recommendations that it be published in book form have been received. The Journal is happy to announce that, with the addition of two new chapters (one on identification of casualties and rescue personnel and one on special emergency problems and procedures). The series will appear as a book later this year. Publication date will be given as soon as known.

TRIAGE — EMERGENCY CARE

XVIII — IMPROVISED HOSPITALS — PART II

(18th of 18 installments)

(including a list of medical supplies, which was originally intended to be Installment 19. This 18th installment is therefore the last of Dr. Klinghoffer's series.)

— Max Klinghoffer, M.D.

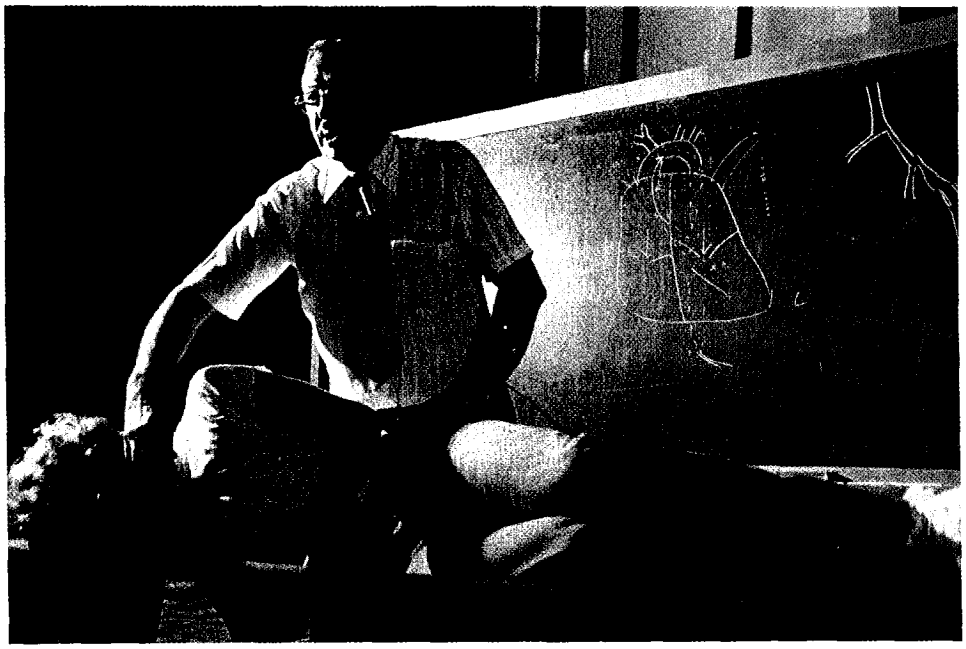
In consideration of any disaster, and particularly in consideration of a possible act of war, the problem of immediate and continuing supplies will be of major concern. With many warehouses destroyed or inaccessible, and with transportation facilities greatly reduced, planning for disaster must include plans for local or nearby depots of supply. This does not necessarily mean that each community must store enough of each item to last for weeks or months. Rather, it becomes a study in improvisation. In the Great Depression of the 1930 era, a common axiom among our citizens was "make do with what you've got." This principle will apply in any disaster situation.

"MAKE DO WITH WHAT YOU'VE GOT"

Every hospital should consider its needs in case the usual supplies are cut off for a protracted period of time. In the 1960s and 1970s, there was a Federal program known as HRDI, or Hospital Reserve Disaster Index (or Inventory). Commonly used medical supplies which had been stored in various surplus depots throughout the country were used as a basis for HRDI. With the cooperation of those hospitals which agreed to participate, stocks of supplies from government depots were given to these hospitals, with only two major stipulations: 1. A definite entity within the hospital would be responsible for the safe storage of these supplies. 2. The supplies would be used as needed, and would be rotated through purchase of identical or similar items by the hospital. In this manner, each hospital had a large reserve inventory of critical items, and at no cost to the hospital. It simply increased the inventory.

HRDI was deleted by the Federal Government in the 1970s. But where hospitals have active disaster committees, a program much like HRDI may easily be continued. The only cost is for an additional reserve inventory.

But the hospital must look further than its own boundaries for supplies. Here the surrounding communities become an integral part of the hospital disaster plan, whether we are considering fixed hospitals or improvised units. For example, if appropriate advance planning is done, automobile service stations may be enlisted as supply depots, to furnish gasoline and diesel fuel, storage batteries, and "trouble lights." The latter, operated on twelve volts, make excellent



Dr. Max Klinghoffer giving a class on emergency medical techniques.

emergency lights for every area of the hospital. Auto supply houses can also furnish these items, and in some cases may also furnish tools, camp stoves, "canned heat," and such items. Hardware stores and building supply houses can furnish materials for covering windows, and may also be a source of tools and electrical equipment, as well as repair parts.

The local pharmacies are able to supply not only pharmaceutical items and dressings, but also many other articles useful in emergency: batteries, flashlights, transistor radios, "canned heat," paper plates and cups, picnic items, etc. Stores and shops as well as warehouses which supply electrical items will be essential in improvising temporary wiring for lights and power. Grocery stores and warehouses may furnish not only food items, but also disposable plates, cups and eating utensils.

Nearby private laboratories will augment the hospital laboratory, not only in routine medical work, but also in assuring a safe water supply. Many contractors and owners of heavy construction equipment will be able to help in debris clearance, and may also furnish standby generators for power supply.

In the case of communities which are rural centers, extra supplies of food may be obtained from local farmers. Where the community is in close proximity to bodies of water, owners of marinas and local boatmen may be able to assist with transportation.

Many medical items may be obtained from dental offices, as well as from veterinary clinics. And medical supply houses will of course be able to furnish a variety of instruments and other equipment. Again, planners must establish agreements in advance for priority in acquisition of such supplies, and financial arrangements must be made. Local veterinarians will be able to supply instruments, dressings, and medications, as will dentists. Marinas carry supplies of hardware, and they are an especially good source for batteries, lights, and radios. In some areas, boats may be a major factor in transport of supplies and personnel. Suppliers of materials for swimming pools will be able to furnish Chlorine products which may be used for water purification, as well as for antiseptic purposes and for deodorizing — and often can supply colorimetric devices for determining Chlorine level in water. (Caution — Chlorine products are to be used with great care in enclosed areas because of toxicity!) Lumber yards often carry supplies of tools, and also heavy machinery. These may be the major source of plywood and plastics for covering door and window openings which have been damaged. In order to close such areas, there should be available hammers and nails; stapling guns with staples; and wide tape such as packaging tape or duct tape.

Typical shock area of an improvised hospital.

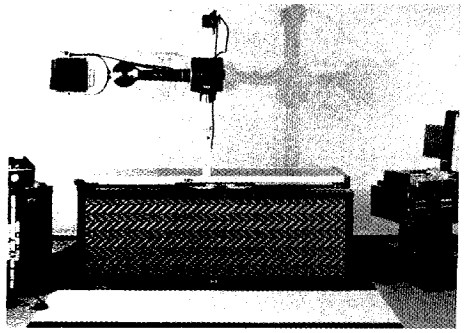
Transportation of patients, personnel, and supplies will be a major problem after disaster — not only because some of the drivers may be casualties, but also because there may be extensive damage to roads and to vehicles. A motor pool for each area should be designated and MUST be kept current. This applies not only to medical vehicles, but to transportation of all types. In some areas, this will include boats, and snow buggies. Private cars are of importance, and especially pick-up trucks and station wagons.

Aircraft of all types must be included in plans for transportation. Planning should definitely include such groups as the Flying Physicians Association.

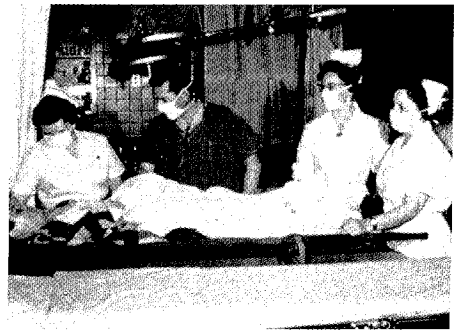
The improvised hospital should be divided into functional sections, in a manner similar to the organization of the Packaged Disaster Hospitals. However, this subdivision should be carried out in more detail than in the PDH. Recommended sections are:

- Admitting and Triage (subdivisions are radiation detection and decontamination)
- Shock area (this may later become intensive care and/or surgical recovery)
- Surgery
- Laboratory
- Xray (in close cooperation with detection-decontamination)
- Pharmacy
- Dietary
- Maintenance and engineering
- Wards (subdivided into general; fracture; burns; obstetrical; pediatric; radiation injury; and infectious)
- Central Supply (divided into three sections: receiving, which receives the used materials and contaminated items; preparation, which cleans, sterilizes and re-packages the supplies; and distribution). If preferred, the cleaning and/or sterilization may be done in the receiving area.
- Communications (radio, telephone, and runner)
- Morgue

The training which may be routine in the fixed hospital or in the community is not at all adequate for the improvised hospital. Under the latter, all procedures will be austere, and there will be much improvisation of equipment and techniques. The luxury of the daily practice of medicine will no longer be available.



Portable X-Ray equipment



An emergency room being used as a surgical suite.

Training must include both medical and non-medical personnel. Medical personnel must be trained to work under adverse conditions and perhaps under conditions which may seem outdated by a generation. It will be much like field medicine at about the level of the battalion aid station, or the field hospital.

Non-medical personnel must be trained to function in activities which may not be closely related to daily occupations. And those who have the potential for such work should be trained to assist in medical procedures. □

A LIST OF ITEMS FOR TRIAGE — EMERGENCY CARE, AND SHELTER MEDICAL SUPPLIES

This list is a general one. It should be modified and individualized according to the advice of on-the-scene physicians.

First aid manual
METTAGS
Pencils, pens
Clipboards
2 inch x 2 inch sterile gauze pads
4 inch x 4 inch sterile gauze pads
Large gauze pads ("battle dressings")
Sanitary napkins (large)
2 inch roller bandage
4 inch roller bandage
Conforming bandage — 4 inch
Cotton tipped applicators
First aid strips
2 inch elastic bandage
4 inch elastic bandage
Large safety pins
¼ inch adhesive tape
One inch adhesive tape
Materials for tourniquet
Skin antiseptics (not Iodine)*
Soap
Bed-sheets
Blankets
Pillows
Litter or supplies for improvising
Table salt
Baking soda
Drinking glasses (plastic)
Pneumatic splints (set of four)
Basswood splints
Padding material for splints
Bath towels
Cervical collars with Velcro closure
Triangular bandages
Vaseline gauze
Teaspoons
Clean newspapers
Shoelaces
Razor blades, knives
Bandage scissors
2 inch adhesive tape (non-allergenic)
Diapers
Eye patches
Styrofoam drinking cups
Cleansing tissues
Anesthetic ear drops
Eye drops (non-antibiotic)
Finger splints (aluminum or plastic)
Granulated sugar

ADDITIONAL ITEMS

Axe with wood handle
Dacron, orlon or nylon rope
Hot water bottles
Radiation detection instruments
Gloves, boots, caps, masks, goggles, coveralls
Toilet tissue
Portable toilets
Chlorinated lime (in sealed container)
Chlorine test kit (Orthotoluidine)
Dehydrated foods
Water
Transistor radio, batteries
Flashlights, batteries
Tools
Fire extinguishers (dry type)
Candles, matches
Canned heat, with stove

For prolonged emergency situations, always remember supplies for those who require special medications or equipment:

Heart medications
Medications for those with lung disorders
Gout medication
Diuretics
Anti-hypertensive medications
Antibiotics
Glasses
Hearing aids, batteries
Medications for diabetics
Medications for epileptics

*Iodine is an excellent antiseptic. But it does have two major disadvantages: First — quite a few people are sensitive to Iodine, and get severe skin reactions when exposed. Second — If Iodine is stored for a great length of time, the solvent may evaporate, thus making the solution too concentrated.

IN FRANCE: A REAWAKENING

For the past 30 years fifty million Frenchmen haven't done much in civil defense. Practically nothing. But all that is changed now. With new missile accuracy and the possibility of "surgical" strikes the "all fall dead" scenario (as the British NCCD *Civil Defense Newsletter* puts it) is out the window.

According to it the French Civil Defense Committee, now headed by prominent politico Maurice Schumann, is concentrating on six points:

(1) A shelter survey, and shelter in all new construction in towns of 50,000 and more;
(2) Crisis relocation planning;
(3) Highway control for troop and evacuee movements;
(4) Updated warning, communications;
(5) Local emergency planning; and
(6) Emergency medical services.

IN GREAT BRITAIN: A CD BIND

At a time when it is needed most the British civil defense magazine *Practical Civil Defence* (PCD) is in trouble. "This publication," says the dedicated editor, C. Bruce Sibley, "has cost more than 10,000 British pounds in excess of paid subscriptions! And that's with me working for nothing."

Sibley is frankly fighting for survival. As a scientist, a writer and a recognized nuclear strategist Sibley ranks as top British civil defense authority. Matching his dedication and determination is his uncanny talent for PCD issues that are without fail informative and inspiring.

A subscription to the bimonthly PCD is a real investment in security — and a lot more. (Address: Maidenwell House, Maidenwell Lane, Navenby, Lincolnshire LN5 OED, United Kingdom — $38 U.S. per year.)

IN NEW YORK: A LETTER

The New York Times on January 18 published a letter from Washington DC TACDA Chapter president Richard E. Sincere, Jr. It read in part:

. . . Why is there controversy over the value of protecting innocent civilians in the event of war? The preservation of human life is an intrinsic good, yet civil defense in this country has deteriorated to the point where this year the Federal Government will spend less than a dollar per person on this basic service . . .

A national defense based solely on the deployment of more numerous and more destructive offensive weapons is morally reprehensible. Our Government has a moral and legal obligation to protect us against enemy weapons. Fundamentally, the provision of civil defense is a matter of human rights; withholding such protection is a crime against humanity itself."

REVIEWS

DEFENDING A FREE SOCIETY, edited by Robert W. Poole, Jr. A Reason Foundation book. Published by Lexington Books, D.C. Heath and Company, Lexington, MA. 345 pages. 184. $20.

— Reviewed by Kevin Kilpatrick

Texas Congressman Ron Paul says this about DEFENDING A FREE SOCIETY:

"At long last, a book that challenges the very assumptions on which our interventionist foreign policy is based! Chock full of provocative recommendations. DEFENDING A FREE SOCIETY raises all the right questions . . ."

The book is all of that and more. Eleven chapters by nine free-swinging American iconoclasts take aim at what's wrong with lachrymose leadership and a pie-in-the-sky public. It counsels that we dump bleeding-heart philosophies, face up to our logjam of agonizing problems and apply deliberate and effective corrective actions.

Needless to say the subjects of strategic defense and civil defense come into prominent play.

Laurence Beilenson (no stranger to the *Journal of Civil Defense*) proposes that we take a page from the successes of Leninite strategy and exploit sound propaganda and subversion against those governments wanting to do us in. Propaganda based on truth, according to Beilenson, is unbeatable. And he adds: "External subversion to aid freedom fighters is a good deed, and as American as the Fourth of July." He outlines what has been wrong with the CIA approach. What about subversion against the USSR itself? "The main objective," says Beilenson.

Treaties are not to be relied upon, he concludes. And maintaining huge American forces (500,000) overseas in time of peace translates into sacking American homeland defense.

Chapter 4, "Rethinking Strategic Defense" by Sam Cohen (developer of the Neutron Bomb concept) is a dramatic update on nuclear weapons and defenses against them.

"Rethinking" leads Cohen into new homeland defense ideas. "One multilayered system" he writes, "is the proposed High Frontier project. This system would provide for a three-layer defense, with the first two located outside the atmosphere based on satellites and the terminal layer consisting (at least initially) of Swarmjet projectiles. The other two layers would seek to intercept ICBMs in, respectively, the boost and midcourse phases of flight . . .

"A second-generation orbiting system could make use of some form of directed-energy weapon. High-energy lasers or beams of subatomic particles could function literally as death rays, vaporizing a portion of the ICBM booster or reentry vehicles and thereby destroying it. . . . It is not yet clear whether space basing will be optimal for directed-energy weapons . . .

"All that prevents us from having such a defense is the political will to do so."

Insofar as civil defense is concerned Cohen sees the current crisis relocation as the wrong way to go. He points to the necessity for drills if such a plan is to be seriously undertaken — and resentment and non-cooperation on the part of the public.

"Even if cooperation in these evacuation drills were forthcoming," he pionts out, "it is unlikely that a nuclear war would develop out of a major crisis, providing the necessary time for evacuation. Instead it is more likely that a nuclear war would commence with a surprise attack."

In an intriguing opening chapter "The Moral Basis of National Defense" Eric Mack touches on civil defense: "Another possible element within a purely protective structure," he says, "would be a revitalized civil defense. If the active portions of a protective system work reasonably well, but not perfectly, then a system of shelters and stored supplies may further secure people's rights."

In the final chapter, "A Grand Moral Strategy" by Jack D. Douglas, these lines appear: "We must rearm and build a civil defense system to forestall a preemptive strike, but this strains our economy. That strain can be reduced by curtailing our military commitments . . ."

Editor Robert Poole has brought together nine inspiring essays that comprise a gold mine for the serious student of strategic defense. The reader may not agree with everything the authors conclude or propose, but they certainly must acknowledge that with today's high-technology stakes nothing less than the fate of the United States and the prospect of peace for the Western World is involved.

As Mr. Poole observes at the end of his introduction: "It is high time we returned to our roots in defense and foreign policy as well. With this book, we hope to point the way to doing so."

That, for sure, the book does.

The breathtaking technological horizons brought into focus by *DEFENDING A FREE SOCIETY* appear to place the prospect of world stability, world peace and world prosperity within reach.

FALLOUT SURVIVAL, A GUIDE TO RADIOLOGICAL DEFENSE, by Dr. Bruce Clayton. Published by Paladin Press, January 1984, 171 pp, with photos and illustrations. $12 + $2 postage and handling. Available from Clayton Survival Services, P.O. Box 1411, Mariposa, CA 95338.

— Reviewed by Dan McGraw

Bruce Clayton's latest work is, in his words, "a complete home-study course in radiological defense." In a concise and easily understood format Dr. Clayton takes us through the essentials of realistic RADEF, from equipment selection to two computer programs for RADEF calculations. To insure the lessons are learned, a final exam is included, as well as a sample logbook and other useful information in the appendices.

In the tradition of the do-it-yourself survivalist many of the techniques do, as Dr. Clayton suggests, go "far beyond the routine training of professional civil-defense workers." And he should know, having taken five RADEF courses offered by the State of California.

Dr. Clayton's book, however, is not at the expense of the local director. His stated purpose of bridging the gap between survivalists and civil defense officials is a noble one. There is a lot of common ground between the two, and this manual should be considered recommended reading for both.

A DEFENSE THAT DEFENDS GETS HIGH MARKS, THEN SOME

Writing a review of *A Defense That Defends* in "The Wanderer Review of Literature, Culture, the Arts" Senator Jesse Helms (N.C.) persuasively argues for new space techniques and criticizes the foot-dragging that has put the brakes to a quick realization of President Reagan's call for the timely development of space defense weapons.

A Defense That Defends is written by General Daniel O. Graham of High Frontier fame and writer Gregory A. Fossedal. It is the latest effort of the Graham team to underline the necessity of a credible, prompt homeland defense for the United States and its allies.

Helms calls the deterrence doctrine "morally questionable" because it relies on an offensive capability to kill innocent people. Not only is this morally wrong, but with new weapons concepts it is outdated.

He quotes the Graham-Fossedal conclusion:

> "There is a beyond beyond the nuclear age. To reach it, we must build a defense that truly defends."

And concluding his own *Wanderer* review Helms says:

"How true! I do not care if a U.S. space-based ABM defense uses conventional, non-nuclear technology, such as Graham's High Frontier envisions, or laser or particle beam technology as others are advocating. I do not pretend to be an expert on military technology, but isn't it obvious that we should proceed to deploy space-based ABM defenses of several kinds, in a layered fashion? In order to do this, we need to abrogate the ABM Treaty."

A Defense That Defends is published by Devin-Adair, P.O. Box A, Old Greenwich, CT 06870 — 172 pp, 1984, cloth, $17.50.

NOTE: *Soviet Crisis Relocation Program — Final Report* by Leon Goure (reviewed in the Journal's February 1984 issue) may be obtained by writing: U.S. Department of Commerce, National Technical Information Service, Springfield, VA 22161, ATTN: Sales Department. (Cost $22.00) The report number is ADA-128795. For more information call NTIS at 703-787-4650.

LETTER

Stanford, CA

Editor, *Journal of Civil Defense*

At a time when so much of the media actively opposes civil defense, your publication provides me with a valuable alternative viewpoint. You also supply me with useful and practical information in the field.

However, I do wish to disagree with the statement on page 5 of the December '83 issue of the *Journal of Civil Defense* that "No firestorm occurred at either Hiroshima or Nagasaki . . ." My understanding is that a very significant firestorm did indeed occur at Hiroshima; references are cited below. I call attention to this point in the spirit of constructive criticism, since even isolated factual errors damage the credibility of the *Journal.*

Michael Kenniston

References:

Glasstone, Samuel & Dolan, Philip J., *The Effects of Nuclear Weapons,* DOD & ERDA, 1977. p. 304 par. 7.71: "About 20 minutes after the detonation of the nuclear bomb at Hiroshima, a mass fire developed showing many characteristics usually associated with fire storms."

Office of Technology Assessment, U.S. Congress, *The Effects of Nuclear War,* U.S. Govt. Printing Office, 1979. p. 21: "Hamburg, Tokyo, and Hiroshima experienced firestorms in World War II"

Kearny, Cresson H., *Nuclear War Survival Skills,* NWS Research Burea, 1982. p. 50: "In the blast area of Hiroshima, a terrifying fire storm that burned almost all buildings within an area of about 4.4 square miles resulted from many fires being ignited almost simultaneously."

REPLY

Dear Mr. Kenniston:

. . . your letter of February 4, 1984 . . . takes issue with my statement in the December issue [of the *Journal of Civil Defense*] that no firestorm occurred at either Hiroshima or Nagasaki. Of the references you quote, only the cautious wording from *The Effects of Nuclear Weapons* approaches what can be substantiated from the primary data sources, which are the American and British Strategic Bombing Surveys made immediately following the cessation of hostilities. The ENW calls the fire at Hiroshima a "mass fire" with "many" characteristics "usually" associated with firestorms. Of the central characteristics that have been associated with firestorms (which are not "many"), Hiroshima clearly had a sufficient area in which ignitions occurred. It also appears that conditions were sufficiently stable so that the mass fire induced in rushing winds around its periphery, although it is not entirely clear from the evidence whether these winds were local or general.

The key characteristics that Hiroshima lacked were a high energy release rate and a high casualty rate. Indeed, there are few fatalities in the fire area that can be attributed to the fire rather than blast, initial radiation and flash burns to people in the streets at the time. The only scientific comparison of World War II mass fires of which I am aware is Lommasson and Keller (1966). [A] graph, taken from their report, shows that the fires at Hiroshima and Nagasaki were among the least severe of the war. The British experts who designed the fire bombings on Germany were convinced that nuclear weapons could not start fire storms; they mashed the structures too badly. I don't think that can be proved either but it didn't happen at Hiroshima or Nagasaki. Or, if one believes your quotes, that "firestorm" was not the killer that occurred in Germany.

Walmer E. Strope

DO-IT-YOURSELF SHELTERS — PART II: BLAST SHELTERS

— Richard E. Oster, Sr.

In Part I we discussed the fallout threat and fallout shelters, and we offered some basic information on protection and shelter requirements. It would be a good idea to review Part I before reading Part II.

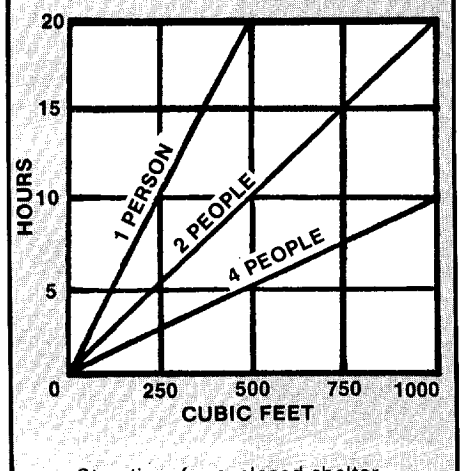
It was pointed out in Part I that the blast area called the "Red Zone" is the most dangerous for people and property due to the initial effects of a nuclear detonation (NUDET). Some of these initial effects are listed below:

1. A tremendous blast and wind proceeds in all directions from ground zero (GZ). The blast raises the normal atmospheric pressure of 14.7 pounds per square inch (psi) (due to the weight of air) to hundreds of psi. This pressure is greater than (or "over") the normal pressure and is therefore known as the "overpressure." It is used as an indication of how much damage to expect. Five psi of overpressure can injure people's ears, and can knock down a standard wood or brick veneer house. The blast wind can reach 2,000 mph. To keep this blast pressure from entering a shelter, it is necessary to seal all openings, including the ventilation ducts. A device to do this is called a "blast valve" — and one is labelled a "pipe cap" on the inside end of the exhaust pipe in Fig. 2. As you can probably imagine, it takes a very strong structure to withstand the blast and wind created by a nuclear weapon detonation.
2. A very bright, hot blast of heat also proceeds in all directions from GZ, and it can ignite many materials. One method of limiting the damage from this thermal pulse is the use of a reflecting material such as whitewash applied to the exposed surface of buildings.
3. Extremely high nuclear radiation (millions of roentgens) is generated (recall our illness and death criteria in Part I). This radiation includes not only the "normal" gamma rays but, near GZ, also includes the highly penetrating neutrons and the nitrogen capture of neutrons resulting in gammas that are much more penetrating than the normal gammas. The neutrons require special shielding (hydrogen is good and a low cost source is water) as well as thicker shielding (concrete, dirt, etc.) than for normal gammas.
4. Near GZ ground shock can result from a nuclear detonation, and it can create movements similar to those in an earthquake.
5. At GZ, a huge crater will be made if the weapon is ground burst, causing large amounts of radioactive debris to be drawn into the stem and cloud.
6. An electromagnetic pulse (EMP) is generated (distance of travel depends upon bomb size and altitude of detonation). A 1-megaton nuclear weapon detonated a couple of hundred miles over Omaha would cover the entire USA with some amount of EMP. Damage to both electrical and electronic equipment should be expected, but to date there is no evidence that EMP in the air is harmful to people. However, should EMP induce a high voltage in a conductor (wire, railroad rail, antenna) you could receive an electrical shock if you touched it.
7. Radio (and radar) waves undergo abnormalities, and this could affect portable AM radio reception.
8. Fallout and radiation induced in some of the materials around GZ could also add to your miseries.

Considering these threats would seem to make the proposed Crisis Relocation Plan (CRP) very desirable (i.e., it would permit people to escape most of the initial effects). However, if proper planning and facilities are not provided, Crisis Relocation may only relocate the crisis. I suggest that all of you urge your government representatives to fund civil defense properly.

As if these initial effects mentioned above were not enough, you also may have to contend with fires around GZ. These fires can consume a lot of oxygen and generate carbon monoxide. The solution in this event is to provide internal air in the shelter until the fires subside. The heat may be so intense that it will burn everything above ground level. This calls for shelters with "button-up" capability. You can close off the entry-exit ways (and retract the antenna, etc.) but if you do not have enough internal air you will have to continue to draw it in via the air vents. Of course, you can close the vents and live on the air in the sealed shelter. How long can you last? It is easy to calculate. Just find the volume of the shelter (width x length x height in feet), divide this volume by the number of folks in the shelter and multiply by *0.04* which will result in the number of hours you can remain in the sealed shelter. The plot in Fig. 1 shows that a 1,000-cubic-foot shelter will support two people for 20 hours.

Figure 1



Stay-time for a closed shelter.

One way to keep the blast and hot wind out of the ventilation system is to use blast valves to close the vents. These can be manual (such as a hand-operated gate valve and pipe caps to screw onto pipe ends), or they can be automatic (closing before the overpressure can build up to a dangerous level). If you have manual blast valves you must then play Russian roulette. Open the valve, pump some air, close the valve and then repeat as the air is used up. The object of the game is to be sure you are in the closed position when the nuclear detonation takes place! As you can see, if you are close to GZ, the bomb is large, and you wish to remain in place, you must have a strong, deeply buried shelter with internal air provisions. A last problem might still jolt you should you try to pump air and find the air intakes covered with burning debris or try to come out and discover that the exits are blocked by debris.

We cannot cover all aspects of shelter design here so let's look at a few cases ranging from minimum

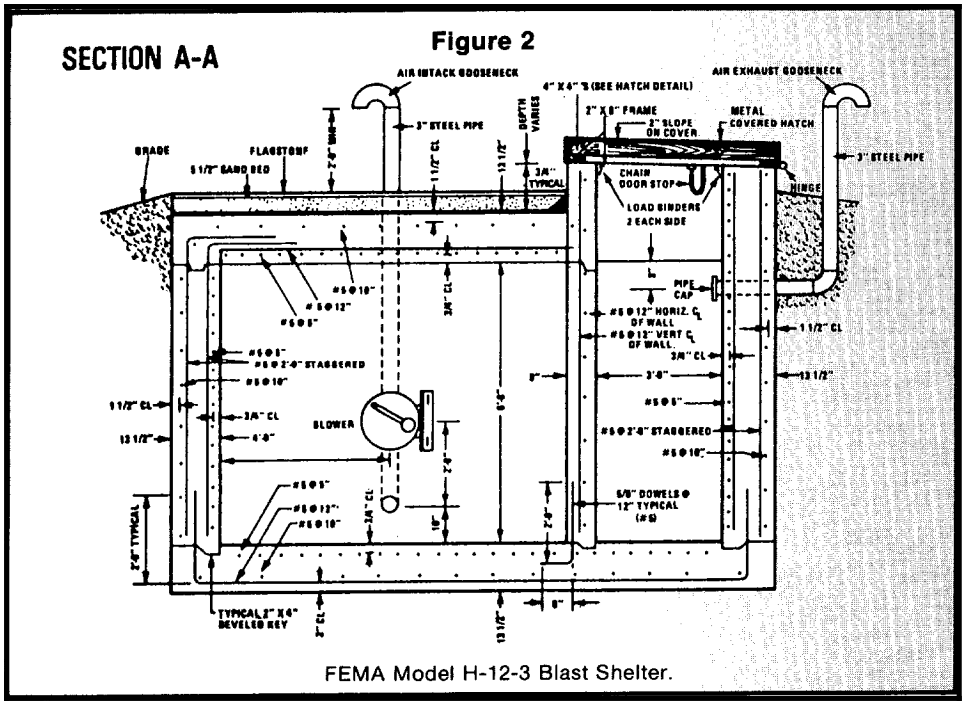


Figure 2

FEMA Model H-12-3 Blast Shelter.

protection (say 15 psi) at one end of the spectrum up to a new idea that may defend us against hundreds of psi overpressure and millions of roentgens of radiation. Fig. 2 shows the design of a 15 psi shelter (the FEMA H-12-3 model).

The construction is concrete and steel. Based on 10 square feet per person, it could hold 6 people. I prefer more room. The overpressure protection is given as 15 psi. The FPF is not stated, but I calculate it to be around 400. A hand-cranked blower is used but air flow is not stated (a forge type, hand-cranked blower requires more than 88 revolutions per minute to get 200 CFM of air). That is a lot of fast cranking! My preference is a shelter with two large entry-exit ways and the use of a hand-operated air pump of the KAP type (construction diagrams appear in reference 1). The ORNL small-pole, expedient fallout shelter (discussed in Part I) can also be upgraded to a blast shelter that will afford protection from overpressure of about 50 psi. The lack of a good, low-cost, high-protection blast shelter has been apparent for many years. There are no American public blast shelters, and one of the reasons given by the government is the cost. (Are you worth less than a Russian, Swede or Swiss?) The *Crisis Relocation Plan* requirement for essential workers has highlighted this deficiency. These people, who will be needed in the pre-attack periods, must have some sort of blast protection (hopefully the rest of us can be evacuated). There will be little time for them to seek and take shelter.

The Oak Ridge National Laboratory has been doing some excellent research on how to provide blast protection at prices we can afford.

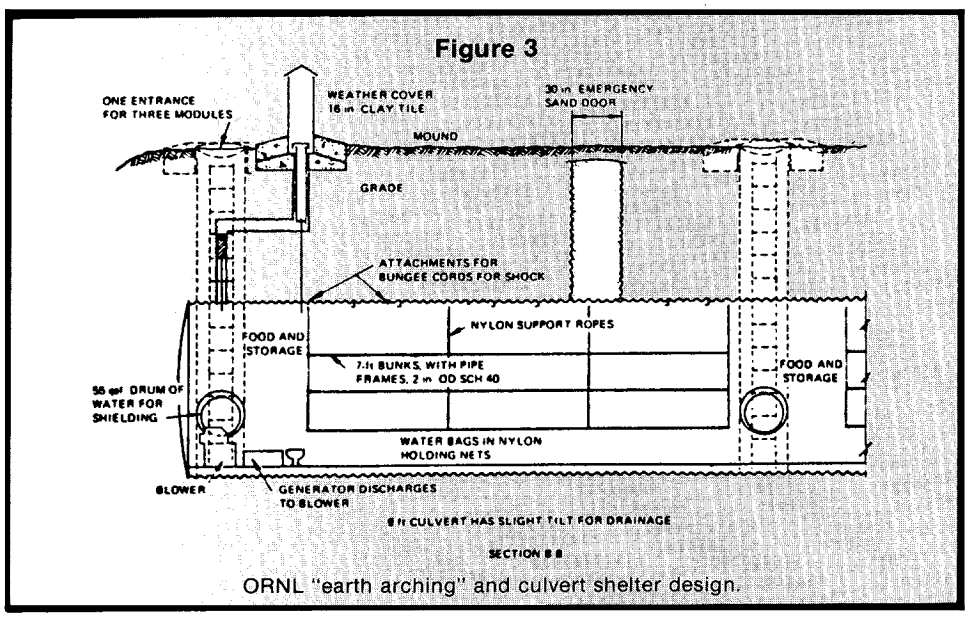


Figure 3

ORNL "earth arching" and culvert shelter design.

The key is not to build a superfortress but rather to take advantage of some long-known but little-used physical laws that have already been tested. The principle is known as "earth arching," and it states that if the shelter and its entrance closure are capable of "bending but not breaking" and earth fill above is coarse (like sand or the right kind of gravel), then a major portion of the downward load (weight of sand plus the blast) will divert to the side and travel into the dirt surrounding the shelter. Although the ORNL testing is not complete, what has been done is promising. The design uses either a circular or oval corrugated, sheet metal culvert tube as shown in Fig. 3. When this design is released it will also be useful for people who are far enough from GZ that they would rather remain than evacuate.

The literature does not contain as many different blast shelter designs as it does fallout shelters. The best I have seen are found in:

1. *Nuclear War Survival Skills,* by Cresson H. Kearny (Available from: Citizens Preparedness Group of Greater Kansas City, Inc., P.O. Box 23209, Kansas City, MO 64141 — $10.50 incl. postage; (2) Caroline House, 5 S 250 Frontenac Road, Naperville, IL 60540 — $11.45 incl. postage; (3) New Book, P.O. Box 1144, Coos Bay, OR 97420 — $6.00 incl. postage (slightly reduced size).

2. FEMA Blast shelter series H-12-1 and H-12-3 available from local civil defense offices or U.S. Army Publications Center, 2800 Eastern Blvd., Baltimore, MD 21220.

3. Family Blast Shelters (10 and 30 psi models) from: Emergency Planning; Canada, Ottawa, Ontario K1A 0W6, Canada.

4. *Foresight Newsletter* (12 issues) from: Richard E. Oster, Sr., 914 Pinehurst Dr., Arlington, TX 76012.

5. *Journal of Civil Defense,* P.O. Box 910, Starke, FL 32091 (Ask for Index, which includes articles on shelter).

6. *Practical Civil Defense* and the former *Protect and Survive Monthly,* also the book *Surviving Doomsday* — all from Maidenwell House, Maidenwell Lane, Navenby, Lincolnshire LN5 OED, United Kingdom. □

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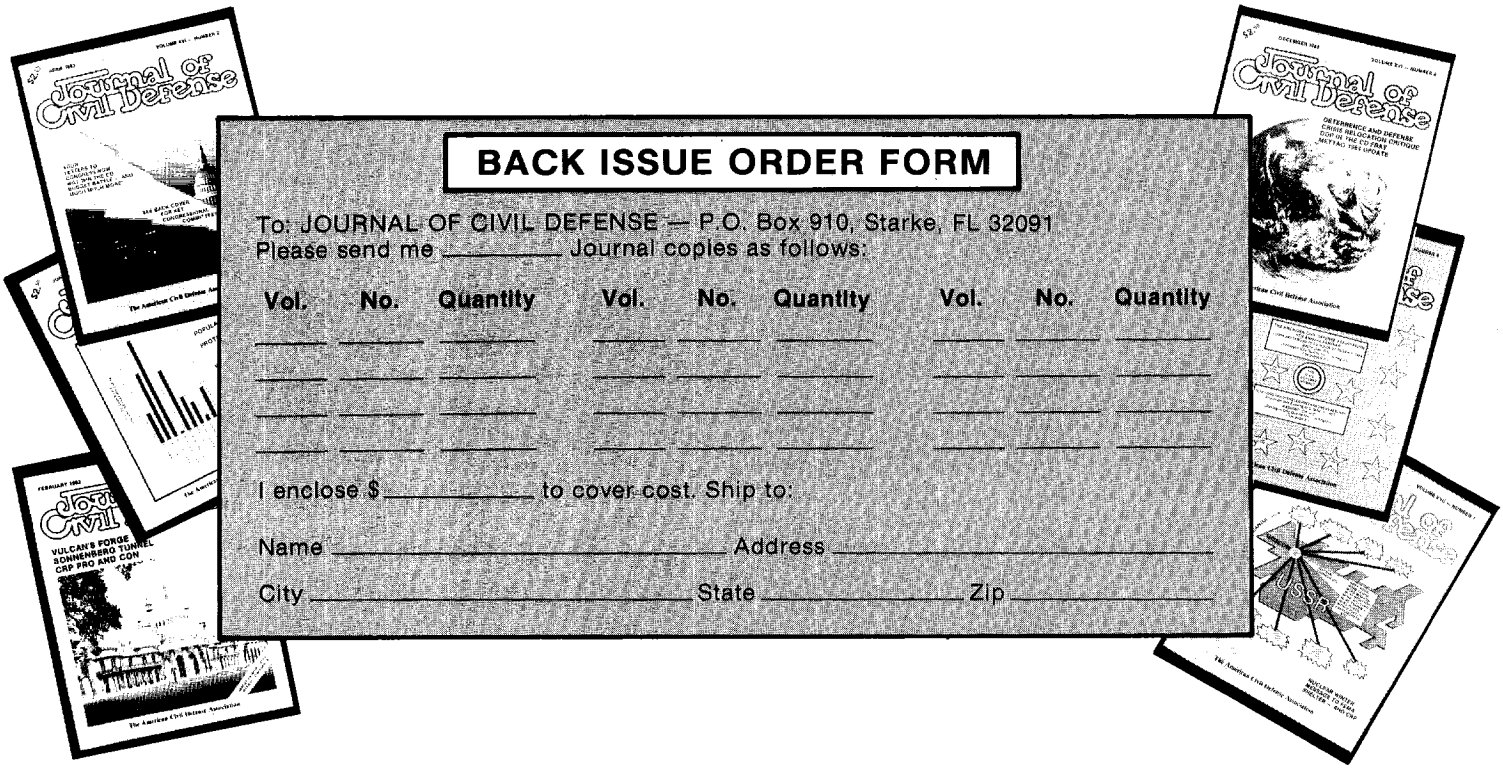

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As certainly as any kind of war is immoral, it is also immoral to comfort our enemies by advocating a no-shelter policy.

— Clive Baldwin in the *Miami Herald*

UPCOMING

Apr 12-13	18th Annual Governor's Conf. on Dist. Prep., Concourse Hotel downtown Madison, WI. Contact: Div. Emerg. Mgmt., PO Box 7865, Madison, WI 53707. (608/266-3232).
May 6-9	ANS Exec. Conf.: Nuclear Waste Update-Implementation of Law, Regulations & Programs. Inn of Mt. Gods, Mescalero, NM. Contact: Dennis Bitz, Bechtel Power Corp., 50 Beale St., San Francisco, CA 94105. (415/768-3486).
May 10-13	Seventh Annual National Educational Conference of the National Association of EMT's-Dearborn '84. Hyatt Regency Dearborn, Dearborn, MI. Contact: Brenda L. McLean, NAEMT, PO Box 380, Newton Highlands, MA 02161. (617/894-7179).
May 15-18	1984 Convention, National Association of Freestanding Emergency Centers, Chicago Marriott, Chicago, IL. Contact: Slack Incorporated, 6900 Grove Road, Thorofare, NJ 08086. (609/848-1000).
Jun 3-7	American Nuclear Society, Annual Meeting, New Orleans, LA-Hilton. Contact: Thomas H. Row, ORNL/ND-Union Carbide Bldg., 4500 SN MS/S/178, Oak Ridge, TN 37830. (615/547-5974).
Jul 16-27	2-Week 1984 Multiprotection Design Summer Inst., for Architectural & Engineering Faculty, Nat. Emerg. Train. Ctr., Emmitsburg, MD. 5 Courses offered: Wind Engineering, Protective Const., Earthquake Protec. Designs, Designing Bldg. Firesafety, & Fallout Shelter Analysis. Contact: Shelter-Rad Tech. Inc., 2000 Century Plaza, Columbia, MD 21044. (301/596-6777). Spons. FEMA, NSF, USGS.
Oct 2-5	Emergency 84, Second International Congress on Disaster Preparedness and Relief, Palais des Expositions et des Congres of Geneva. Contact: Congress Secretariat, ICDO, 10-12 chemin de Surville, 1213 Petit-Lancy/Geneva, Switzerland.
Oct 7-12	NCCEM Annual Conf., El Paso, TX. Contact: John Parks, El Paso City Hall, No. 2 Civic Ctr. Plaza B-17, El Paso, TX 79999. (915/541-4449).
Nov 14-16	The American Civil Defense Association 7th Annual Seminar/Conference, Daytona Hilton, Daytona Beach, FL. Contact: TACDA, PO Box 1057, Starke, FL 32091. (904/964-5397).
Nov 17	Doctors for Disaster Preparedness 2nd Annual Seminar/Conference, Daytona Hilton, Daytona Beach, FL. Contact: DDP, PO Box 1057, Starke, FL 32091. (904/964-5397).

MARKETPLACE

LATELINE ....

"MUTUAL SUICIDE" DELUSION

WHAT AMERICANS WOULD LIKE TO BELIEVE about Soviet civil defense is coincidentally just what the Soviets would like them to believe about it: that it is largely a confused paper program and that the blast shelters people talk about are not all that extensive — maybe for 10% of the urban population. And really, the story goes, Soviet shelter building cannot even keep up with population increases.

Comforting? Yes. Purposely so. A disarming use of reverse hyperbole.

What needs to be cranked in is the Soviet uncanny talent for and total dedication to deception and surprise. The "mutual suicide" line, cultivated only in the West, serves Soviet interests. Oak Ridge National Laboratory scientist Carsten M. Haaland (author of "Nuclear Winter and National Security" in the February issue of the Journal of Civil Defense) writes in a letter to Time:

> "The Soviet's preparation of 45 million blast-shelter spaces, a cadre of 16 million for post-strike recuperation, at least a year's supply of stored grain, and dozens of very hard, buried command-and-control structures sprouting throughout the country hardly appears to be acceptance of 'mutual suicide' as a result of strategic nuclear war."

IF WE VALUE OUR SKINS AND OUR FREEDOM we must wake up to the threat now. We need to act. One effective way each one of us can act is to deluge Congress with letters, telegrams, phone calls and visits calling for the kind of homeland defense our Constitution guarantees. Right now — while the Dellums Subcommittee is debating the CD budget (for details see Capital Commentary, page 5 — last item).

EDITORIAL . . .

WHAT CAN WE DO?

In Jerome Wiesner's Foreword to the 1984 book, *The Counterfeit Ark* (reviewed in our February issue) he states:

The book constitutes an effort to nail the lid on the coffin of civil defense . . .

What the book has really done, however — along with "The Day After" film and the "Nuclear Winter" fantasy, etc. — has been to help *open* the lid on the civil defense coffin and give civil defense a chance to rise up and to do, at long last, a job that, with the lead of new and promising *active* defense, could put muscle into Weisner's further prating on the "total unacceptability" of nuclear war.

All the recent attacks on civil defense, the orchestrated pounding on its coffin, have backfired — have served really to stimulate interest in it. People are asking: "What can we do?"

What can we do indeed? It puts a new challenge on government to come up with a credible plan, a credible program, credible odds for peace. It gives civil defense organizations and publications a new chance to plug for a realistic homeland defense — even at this late date.

"The Home As a Haven," by Conrad Chester et al. (page 6) reopens attractive possibilities for combining functional living space and shelter in a thoroughly practical manner. Obviously, it is an individual's choice and requires substantial investment. But one tremendous dividend is that in the event of crisis it becomes a home survival center almost automatically and avoids any family treck to far-off reception areas. (Full construction plans are offered at a nominal price.)

For those who find the investment in a new home too heavy an expenditure Dick Oster's "Family Forum" article on page 24 provides a small and less expensive shelter. Luxuries are absent, but it would serve family members well in crisis, keep them together and at home.

Both types of shelter could contend with a surprise attack scenario — the one scenario which "does in" CRP.

And shelter building is now miraculously on the move. A news item on page 10 ("Oklahomans Eye Mother Earth for Safety, Security, Savings") describes widespread underground home and school building activities in Oklahoma that could inspire people everywhere to check into the practicality of underground living.

On page 11 appears a report on Swiss reaction to "The Day After." Brigadier Walter Winkler of the University of Bern was "shocked" at the obvious lack of shelters, and he says: "The impression given by the film is that the American authorities have largely neglected the construction of adequate installations . . ."

Of course they have (except for certain leadership elements). If the public continues to ask "What can we do?" until it becomes a chorus across our land it may well be that government will *have* to become interested.

After all, President Reagan proposed a meaningful civil defense program in the 1980 Republican Party Platform. Along with a credible space defense — which through the remarkable efforts of General Daniel Graham and a few others is finally getting official attention and action — Americans need badly the shield of civil defense. Reagan's "quick fix" must spill over into this vital complementary area of dispersion and shelter for the average American.

We're betting it will.

Walter Murphy

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