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DECEMBER 1984

VOLUME XVII — NUMBER 6

# Journal of Civil Defense

## STRATEGY FOR SURVIVAL — REPORT FROM DAYTONA

11/16/84  
TWX WHITEHOUSE WSH DLY PD  
AMERICAN CIVIL DEFENSE ASSOCIATION

IT IS A PLEASURE TO SEND MY WARMEST GREETINGS TO THE MEMBERS OF THE AMERICAN CIVIL DEFENSE ASSOCIATION AS YOU GATHER FOR YOUR 7TH ANNUAL SEMINAR.

MY ADMINISTRATION FIRMLY BELIEVES THAT THE PURPOSE OF OUR COUNTRY'S DEFENSE CAPABILITY SHOULD BE TO PROTECT THE LIVES AND PROPERTY OF THE AMERICAN PEOPLE. THUS, I AM DELIGHTED TO HAVE THIS OPPORTUNITY TO COMMEND YOU FOR YOUR STEADFAST COMMITMENT TO STRENGTHENING OUR NATIONAL CIVIL DEFENSE AND PROMOTING CONTINUED COOPERATION AMONG FEDERAL, STATE AND LOCAL GOVERNMENTS AND THE PRIVATE SECTOR.

ALTHOUGH A GREAT DEAL REMAINS TO BE DONE TO ENHANCE THE ADEQUACY OF OUR CIVIL DEFENSE POSTURE, YOUR CONTRIBUTIONS TO THIS CAUSE GIVE ME CONFIDENCE THAT BY PURSUING A COORDINATED APPROACH TO EMERGENCY MANAGEMENT, WE CAN SAFELY PREPARE OURSELVES FOR ANY CRISIS WE MAY FACE IN EITHER WAR OR PEACE.

NANCY JOINS ME IN APPLAUDING YOU FOR YOUR DEVOTED SERVICE TO YOUR COUNTRY AND YOUR FELLOW CITIZENS, AND WE SEND YOU OUR BEST WISHES FOR CONTINUED SUCCESS IN YOUR PRAISEWORTHY ENDEAVORS.

RONALD REAGAN



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The Honorable Ronald Reagan  
President of the United States

20 November 1984

Dear Mr. President:

Your greetings to The American Civil Defense Association's 1984 seminar and your Administration's accent on strengthening America gave heart to our seminar and did much to help counterbalance resurgent pessimism.

This accent ties in closely with your 1980 platform pledge "To create a strategic and civil defense which would protect the American people against nuclear war at least as well as the Soviet population is protected."

With the momentum provided by your Strategic Defense Initiative -- and with the background of your 1980 pledge -- we see a new and perhaps a final opportunity to give the American people meaningful protective measures. We hope that at long last these measures will be comparable to those of the Soviet Union and certain other nations where human life is held in proper esteem vis-a-vis nuclear war -- that the survival focus will play on our people in somewhat the way it now plays on our key leaders.

The "great deal that remains to be done" must now be done if we are to cultivate a Strategy for Survival in lieu of the Strategy for Suicide that "MAD" has bequeathed us.

The American Civil Defense Association and its affiliate, Doctors for Disaster Preparedness, renew their promise of fullest possible support for your Strategic Defense Initiative to include, as emphasized in your pledge, a civil defense that is meaningful in terms of protecting "the lives and property of the American people."

Thank you, Mr. President.

Charles L. Badley  
President

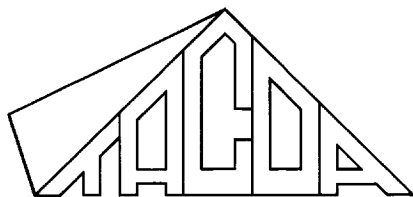
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## ANALYSIS: BIOLOGICAL WARFARE

The American Civil Defense Association



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# Journal of Civil Defense

## The American Civil Defense Association

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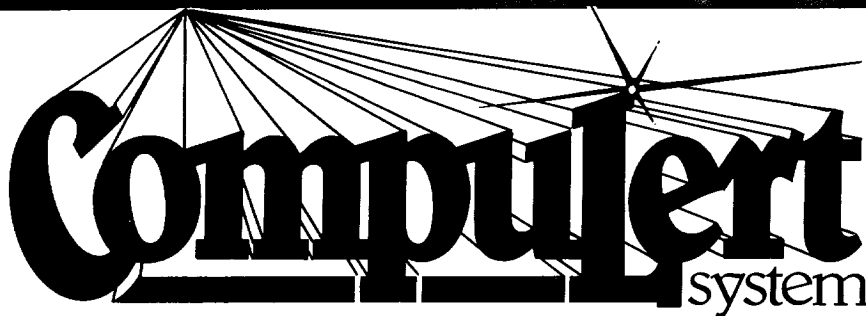
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## WHAT WILL REAGAN DO FOR CIVIL DEFENSE?

In the wake of his landslide victory over Democrat Walter Mondale, President Reagan is assembling his priorities for accomplishments during his second term. Despite the lopsided election victory, he faces strong opposition in the Congress. In the Senate, the Republican majority has been whittled down by two seats. In the House, the Republican gain of 15 seats is far short of restoring the conservative majority that the President enjoyed at the beginning of his first term. Thus, Reagan and his advisors must choose quickly but carefully what initiatives to push during what promises to be a fairly short "honeymoon" with the next Congress.

On the whole, it appears that domestic issues will top the priority list. A new tax reform package and spending restraints to reduce the budget deficit without hampering economic growth are likely to be featured in the January State of the Union and Budget messages to the Congress. Although Secretary of Defense Caspar Weinberger still is pushing for 13 percent real growth in the defense budget, the President is likely to settle for far less: perhaps 5 percent, but nevertheless a real increase. Further, much of that increase is likely to be tagged for the Strategic Defense Initiative, called the "Star Wars" program by its liberal critics. Both Mondale and his running mate, Geraldine Ferraro, strongly opposed the President's emphasis on nuclear defense on classical antidefense grounds.

One remarkable Mondale objection was "The most dangerous aspect of this proposal is for the first time we would delegate to computers the decision as to whether to start a war." As a few letters to newspapers pointed out later, it is incredible that a computerized interception of an incoming nuclear warhead or even the destruction of an ICBM during its boost phase would be regarded as starting a war. One would think that the launching of the ICBMs in the first place would be the beginning of the war. Ferraro's condemnation of the Strategic Defense Initiative also was wierd: "Even if the proposed defense against Soviet missiles is 99.7 percent effective, 25 nuclear warheads still would leak through to devastate American cities. In my book, that's not much of a defense." Most civil defenders would much rather contemplate dealing with 25 nuclear detonations, probably



mostly aimed at silos, than with the 7500 warheads that Ferraro's numbers assumed would be coming in.

Although the Reagan landslide would appear to repudiate that sort of thinking, the makeup of the Congress did not change that much. Most of the legislators who oppose defensive measures and favor the nuclear freeze were returned to the House. For example, of the 87 representatives who voted last May to deny funds for wartime civil defense preparedness (the so-called Ottinger amendment), 82 will remain in the new Congress. Further, one of the five who will not be returning, Paul Harkin of Iowa, will be the new Senator from that State, which, incidently, can claim the distinction of a delegation that unanimously voted against civil defense in that May vote.

Add to all that the ongoing investigation of management practices at the Federal Emergency Management Agency and the prospects for any improvement in the civil defense budget look dim unless President Reagan decides to take a personal interest in the matter. Given the President's well-known hands-off style of management, in which he sketches out what he wants to accomplish and leaves it to his staff to get things done, that means that things won't get better soon since Ed Meese is slated to become Attorney General. He has been FEMA's protector in the past.

It is difficult at this time to anticipate where the various investigations at FEMA will lead. Soon-to-be-Senator Albert Gore, Jr. has planned another hearing on December 12, just beyond the deadline for this column. Undoubtedly it will be based on the materials released by Gore in October that focused on contracts let without competition at the National Emergency Training Center, which had been headed by the departed Fred J. Villella. Other investigations are being conducted by Representative Patricia Schroeder (D-CO) of the Civil Service Committee and Representative Edward Boland (D-MA), chairman of the Committee on Intelligence as well as the subcommittee of the Appropriations Committee, that controls FEMA funding. It is known that internal audits by FEMA's Inspector General have criticized the lack of controls over expenditure of civil defense funds at State and local levels and lax policies that have encouraged some States to abandon any pretense of nuclear attack preparedness. In general, FEMA appears to be in for a rough time over the next few months but it just seems possible that the inevitable housecleaning will result in more civil defense funds being spent on civil defense. □



*Books and articles highlighting the threat of biological warfare have awakened public interest to new dangers that can be poorly understood. In this article Oak Ridge National Laboratory (ORNL) scientists Greg Zimmerman and Conrad V. Chester (who wrote "Primer of Biological Weapons" for the October 1969 Journal) put biological attack possibilities in perspective and outline known defenses. Dr. Chester is Chief of ORNL's Emergency Planning Group, and Greg Zimmerman has specialized principally in shelter research and design.*

Emergency Technology Program  
Energy Division  
Oak Ridge National Laboratory

# CIVIL DEFENSE IMPLICATIONS OF BIOLOGICAL WEAPONS — 1984

— C. V. Chester  
— G. P. Zimmerman

Very little thought has been given to the biological warfare threat in U.S. civil defense circles since President Nixon unilaterally discontinued efforts in research, development, production, and stockpiling of biological weapons in 1969. In recent years, there have been reports on the use of mycotoxins known as "yellow rain" by Soviet-supported communist forces against Hmong tribesmen in Laos. There have been numerous reports of the use of outlawed chemical weapons directly by Soviet forces in Afghanistan. In April, 1979, there was apparently an explosion at a Soviet biological warfare laboratory in Sverdlovsk followed by 200 to 1000 cases of pulmonary anthrax among people who were downwind of the installation.

These incidents, and reports of Soviet research directed to producing new lethal organisms by recombinant DNA techniques have been reviewed in a series of articles by William Kucewicz (Kucewicz, 1984) in *The Wall Street Journal* in April and May of 1984. According to the articles, the Soviet researchers in a biochemical research laboratory near Novosibirsk, the Institute of Molecular Biology, are attempting to splice the genes for synthesizing cobra venom into certain strains of influenza virus. If successful, they could produce a highly contagious, highly infective, and highly lethal new strain of virus for which there are no vaccines or antibiotics.

Ongoing Soviet efforts to develop a cruise missile could result in the

ideal delivery system for biological agents. Cruise missiles can fly at very low altitude and can place a toxic cloud close to the ground. Present models of cruise missiles are subsonic, which avoids some of the problems of heating of the agent when it is ejected into the wind stream. The computational capability of present cruise missiles would presumably permit them to lay down a toxic cloud upwind of a series of separate targets; cities or population concentrations in reception areas. The combination of the cruise missile and even existing lethal organisms could produce a highly effective anti-population weapon that would be vastly superior in cost-effectiveness to the blast effect of nuclear weapons and would rival nuclear weapon fallout in terms of area coverage per ton of payload.

The other factor in the renewed concern over biological weapons is the growth of terrorism in the last decade and a half. (Kupperman, 1979; Sterling, 1981). Terrorists are becoming more sophisticated in the use of technology. Some terrorist groups are supported by national governments to carry out their foreign policy aims and, hence, have access to technology available to these governments. Recently, sophisticated explosives technology has been used by fanatical terrorists who were quite willing to sacrifice their lives to achieve an objective. The acquisition of biological warfare technology by such groups is, in some respects, more worrisome

than their acquisition of nuclear weapons.

However, biological weapons like all weapons have their own vulnerabilities and limitations. Very effective defenses are possible against them.

## Review of Biological Warfare Fundamentals

A biological weapon consists of a delivery system and an agent or fill. The delivery system can be artillery, aircraft or cruise missiles equipped with spray tanks or cluster bombs, or a truck or boat equipped with an aerosol generator. The agent can be a dry powder or liquid suspension of the disease-producing micro-organisms (viruses, bacteria, rickettsia, fungi or their spores) or, by U.S. definition, toxin derived from living organisms. (See Rothschild, 1964 for discussion of possible agents.) By far the most efficient means of getting the agent to the target population is to produce an airborne cloud of the agent over or just upwind of the target area, causing the agent to be inhaled. This requirement that the agent be inhaled, and retained in the lungs, imposes the additional requirement that the agent cloud consist of particles in the size range of from 1 micron (one one-thousandth of a millimeter) to 5 microns in diameter. In contrast to chemical agents (which can be solids, liquids, or gasses), biological agents are non-volatile solids, of particle size usually one micron or larger, and can be removed very

effectively from the air by relatively inexpensive filters, discussed later.

From a few to several thousand of these particles may be required for an infective dose. Typically a few thousand bacteria or bacterial spores might have to be inhaled to have reasonable probability of causing the disease. The mass required may be in the range from .01 to .001 microgram. It should be noted that

by the entire population at the same time. Any contaminated source of food or medicine source would be quickly detected by state and federal public health organizations, the Food and Drug Administration, or the Department of Agriculture, and taken off the market. Individual psychopaths may attempt random poisoning through the food or medicine supply to society. This was

## THE MOST STABLE ATMOSPHERIC CONDITIONS ARE OFTEN ACHIEVED ON COLD, CLEAR NIGHTS . . .

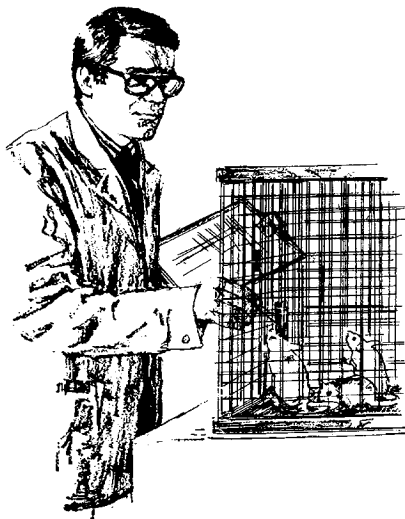
the effective dose for the best chemical agents, the "nerve gases", are in the neighborhood of a milligram, which is 100,000 to 1,000,000 times greater. To attack a square-mile area with chemical agents under good meteorological conditions might require a ton of nerve agent. Under the same conditions, 10 gms of anthrax spores might be required. This ratio,  $10^5 - 10^6$ , is the same ratio of the weight of chemical to nuclear explosives for the same yield. It is also the reason why large-scale intercontinental attacks against civilians with chemical weapons is unlikely, but attacks using biological weapons have to be taken seriously. This discussion will be largely confined to biological weapons.

Biological weapons which employ living organisms are said to "decay" or die over time when exposed to a hostile environment. Most organisms die fairly quickly in air when exposed to sunlight. Municipal water treatment systems employing chlorine are designed specifically to kill pathogenic organisms in the water and will kill most biological agents. (Attacks on water supplies are also unlikely because the quantity of agent required to attack a given size population is excessively large due to the dilution of organism in the reservoir and water system, in addition to the losses through municipal water purification systems.)

The use of biological agents to attack a population through the food chain is also inefficient because of the natural decay of the organism during the time food is shipped or stored on shelves. In addition, no single source of food is consumed

done in the Tylenol poisonings in Chicago. While such an attack can attract a lot of publicity and cause political turmoil, it is not capable of producing militarily significant numbers of casualties at a national level.

If the biological agent is used in the form of an aerosol, the area which can be effectively covered with a given amount of agent will depend very strongly on the meteorology at the time of release. The dis-



tance downwind that casualties will be produced depends upon the amount of agent released, the wind speed, and atmospheric stability. The more agent released at a point or in a line upwind of the target, the further downwind will casualties be produced. Low wind speeds will cause more casualties than high wind speeds because the victims are in the passing cloud longer and have a chance to inhale more organisms. A stable atmosphere will pre-

vent vertical mixing of the cloud, keeping the organisms close to the ground where they can be inhaled. The most stable atmospheric conditions are often achieved on cold, clear nights when the ground is chilled by radiation to the night sky and the air close to the ground is cooled by the ground. This condition is called an inversion and is ideal for the use of chemical or biological weapons. Bright, sunshiny days (when the ground and the air next to it are heated by the sun, causing the air to rise) produce very unstable conditions. Toxic clouds close to the ground are very rapidly diluted and carried up where they cannot be breathed. In addition, many biological organisms are killed by direct sunlight. One would, therefore, expect large-area biological attacks to occur at night.

Figure 1 demonstrates the calculated effect of wind and atmospheric stability on an aerosol of anthrax spores with a 50% effective dose ( $ED_{50}$ ) of 10,000 spores (U.S. Army Chemical Corps, 1963). The grams of dry agent required per kilometer of a line source cloud upwind of the target is plotted against the distance downwind that the cloud will still produce 50% casualties in the target population. Neutral stability is the atmospheric condition often found on a cloudy day where there is neither a strong inversion nor strong turbulence in the atmosphere. Note that 100 grams of dry agent/kilometer of line source will be effective from 10 to nearly 100 kilometers downwind depending on wind speed and stability. This demonstrates the extreme dependence on meteorology and the potentially large area covered by relatively small amounts of agent. Under the less favorable condition, requiring 25 grams/square mile, approximately 250 cruise missiles carrying 200 lbs. of agent each could cover the most densely populated third of the U.S. land area, (approximately one million square miles), containing over 80 percent of the population.

### Countermeasures

Technically, biological agents are much easier to defend against than nuclear weapons. Great protection can be obtained if people remain at night in spaces that are pressurized by air that has been blown through a high-efficiency particulate air (HEPA) or "absolute"



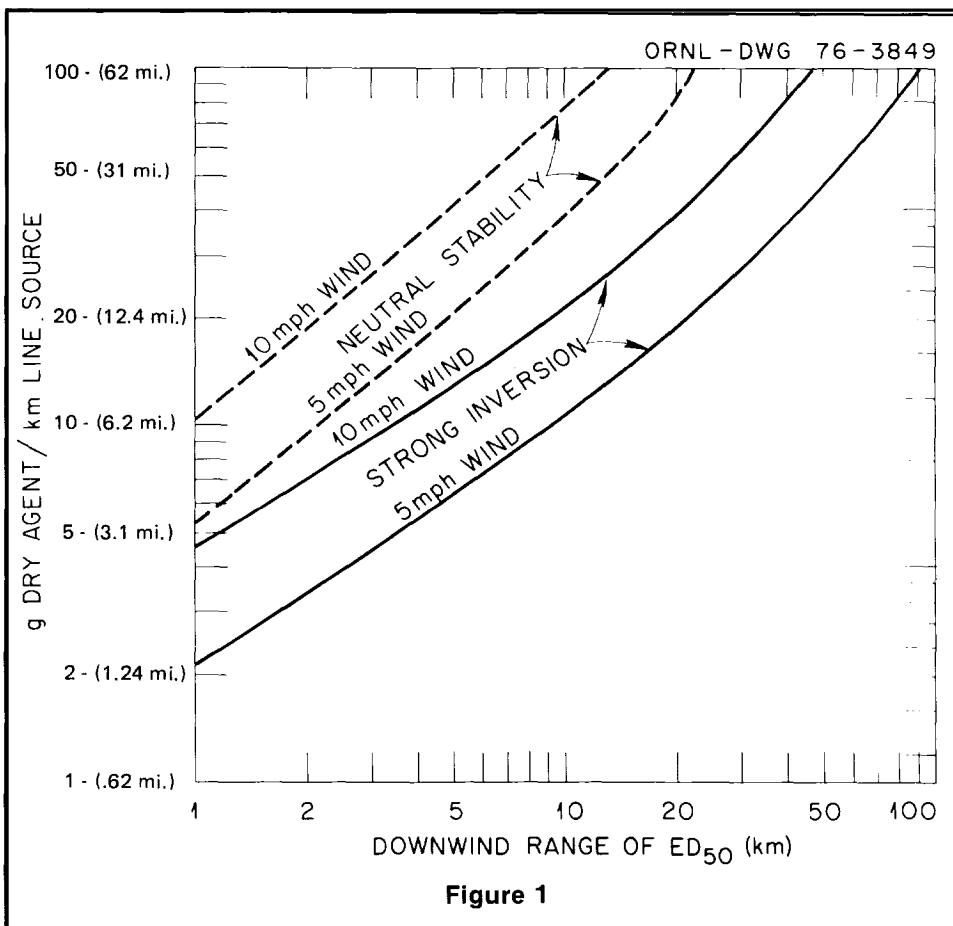


Figure 1

filter (Fig. 2). Anyone whose duties require them to go out of doors at night can be very effectively protected by wearing a modern military gas mask. Care would have to be taken to ensure that organisms on the ground or other surfaces were not re-suspended and breathed or accidentally gotten on food or into the body from contaminated hands or gloves. Sunlight and rain would get rid of the vast majority of land contamination, but some casualties would still be possible for several days, particularly near the original position where the cloud was first generated. Decontamination of the

tion at risk.

A very serious lack in tactical methods of dealing with biological weapons is that of a detector of the airborne aerosol. At the present time, there are only development models of detectors, and none of these is satisfactory (National Research Council, 1984). The development of effective biological agent detectors should be a high national priority.

There are international treaties that ban the use of chemical and biological weapons. However, these treaties did not deter the Japanese from using chemical and possibly

Iran in the Persian Gulf War. The common denominator in the use of toxic weapons seems to be the ability, or lack thereof, of the potential target nation to retaliate in kind. All uses since World War I have been against opponents who did not have the capability of responding with similar weapons. Deterrence through the threat of retaliation in kind appears to have been successful over the last several decades in minimizing the use of toxic weapons.

Covert use or announced use of toxic weapons by terrorist groups would be very difficult to deter. Terrorist groups frequently have no home territory and very little else to lose. The Centers for Disease Control of the U.S. Public Health Service in Atlanta have federal responsibility for determining if an attack has occurred. However, without an announcement from the terrorists claiming responsibility for the attack, it may take days or weeks to recognize that an attack has occurred and to identify the organism that was used, particularly if it is obscure or genetically engineered.

In principle, a vaccine can be prepared against any organism that can be mass-produced for use as a biological weapon. The difficult step in preparing a vaccine for a new disease is isolation of the organism and finding a means to culture it. These problems have been solved for a biological weapon by the country developing the weapon.

Vaccination would be particularly valuable against anthrax. This organism with its extremely rugged spore, ease of production, and high lethality of virulent strains is in a class by itself as a nearly perfect biological agent. It should be the overwhelming choice of terrorists with limited resources of money and technical sophistication. If widespread vaccination of the population were accomplished, terrorists would be forced to use a much less hardy organism, with much less ability to travel downwind. A more complicated and hence expensive delivery system or smaller area targets would then be required, assuming the terrorists could manage at all with a less stable organism.

Standby plans for a national immunization program against anthrax would be a very useful tool against the discovery of a terrorist plot to use anthrax (or actual use.) While an immunization program

## THE COMMON DENOMINATOR IN THE USE OF TOXIC WEAPONS SEEMS TO BE THE ABILITY, OR LACK THEREOF OF THE TARGET NATION TO RETALIATE IN KIND.

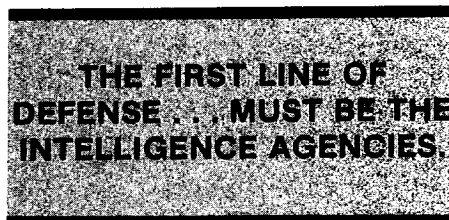
hands and feet with dilute household bleach after venturing in such an area would be prudent. The same would be true of any articles or equipment exposed to the aerosol.

Environmental contamination by very persistent organisms, such as anthrax, is most economically countered by vaccination of the popula-

biological weapons in World War II, the Italians from using chemical weapons in Ethiopia, the Egyptians (under Nasser) from using chemical weapons in Yemen in the 1960's, recently the Soviet Union or its proxies from using chemical weapons in Laos and Afghanistan, nor the use of chemical weapons by Iraq against

would not provide much protection if implemented after an attack was discovered, it would be effective against future or repetitive attacks, or "biological blackmail". There is ample precedent for government-sponsored immunization: polio, flu, and smallpox. The possibility of side reactions to the vaccine may make immunization inadvisable until there is clear evidence of a threat.

Antibiotics can be expected to be of limited effectiveness against biological weapons in the future. Most antibiotics have no effect against viruses. Bacteria can be and have



been developed to be resistant to common antibiotics. While penicillin is effective against anthrax infection, it must be administered before the onset of visible symptoms in order to prevent death of the patient from toxins produced by the bacteria.

The first line of defense of the nation against clandestine or overt surprise attack must be the intelligence agencies. For attacks to be deterred or prevented, their prospective perpetrators must be identified. If the perpetrator is a foreign power, that nation can be confronted with the information and informed of possible retaliatory measures. Domestic groups plotting such an activity are the responsibility of law enforcement agencies. Sub-national foreign groups could be the subject of preemptive military or paramilitary action.

#### Steps the Individual Can Take

High-efficiency particulate air (HEPA) filters are available which are guaranteed to remove 99.97% (or more) of 0.3-micron particles from air. These filters are even more efficient for particles which are either larger or, paradoxically, smaller than 0.3 micron. Table 1 is a partial list of vendors of HEPA filters with approximate 1984 prices to the individual purchaser of their nominal 1000-cfm nuclear-grade filter. Other vendors may be found in the Thomas Register of Products and Services (available in large

libraries) and sometimes in the yellow pages in telephone directories. Also listed in Table 1 is the range of costs of filtration systems consisting of a HEPA filter, a prefilter and roughing filter, and a frame. These filters will remove virtually all of the 1-to-5-micron particles of a biological aerosol. If a residence or a shelter is pressurized with air which has first been drawn through one of these filters, the occupants will be completely protected against any biological aerosol cloud passing over the shelter or residence. A tight residence can be pressurized against light winds by a blower delivering 300 cubic feet/minute through a filter.

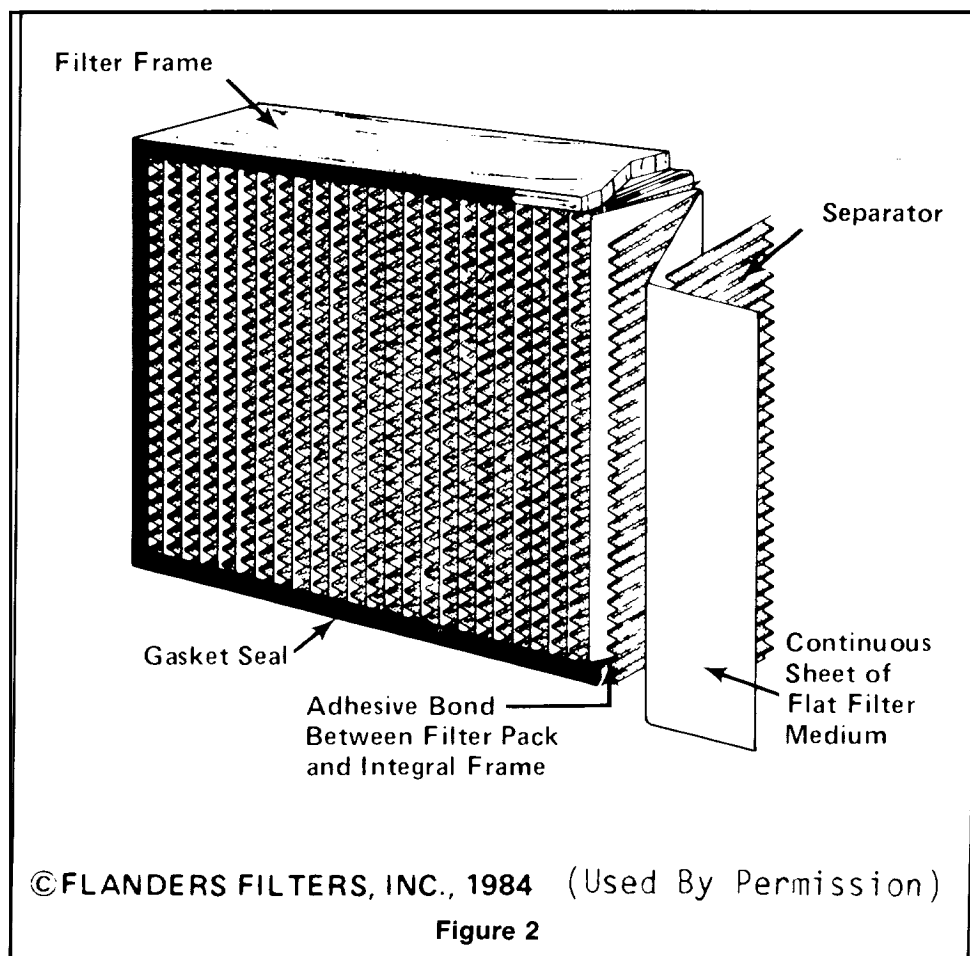
Table 2 is a sample list of vendors of typical ventilation blowers capable of delivering 300 cfm of air at a nominal pressure equal to a 3/8-inch column of water. Model numbers and prices are given. Other vendors are listed in the Thomas Register of Products and Services and under heating and air conditioning in the telephone book's yellow pages.

Figure 3 illustrates the use of a HEPA filtration system and blower

to pressurize a house with filtered air. Outdoor air is drawn through the filters and then discharged into the house by the blower.

The filter size recommended (24 x 24 x 12 inches) is rated at 1000 cfm at a pressure drop of one inch of water. By pushing less air through the filter, the required fan pressure is reduced, and hence the purchase price and operating cost (electricity) of the required fan. The lifetime of the filters (before they have to be changed) is correspondingly *increased*. The lower airflow, which consists of outside air blown into the residence, reduces heating costs in winter and air-conditioning costs in summer.

Pressurizing a residence with HEPA-filtered air can provide benefits other than protection against clandestine (or overt) biological attack. Plant pollen and outside fungal spores can be completely excluded from the building by the filters. This elimination should alleviate allergies caused by these agents. The filters provide complete protection against inhalation for all radiological aerosols (but not radioiodine vapor) which might be pro-



duced in a radiological accident or incident. Toxic dusts or smokes (but not vapors) from chemical accidents are removed by the filters.

If the residence is not very tight or is directly impacted by winds of more than 25 mph, some air that has not gone through the filters may penetrate the building. Protection against toxic aerosols can still be obtained by using the filtered air to pressurize a single room on the downwind side of the building and, in an emergency, by sealing that room (especially the windows) with plastic film and tape. Also, a more powerful blower that delivers more air at higher pressure can be used. The most cost-effective method of reducing infiltration is to plant or construct windbreaks where needed, and then methodically to find and seal the air leaks in the building. A well-developed technology for doing this evolved from the energy conservation program (see Blandy & Lamoureaux, 1980, in References). Reducing the natural infiltration rate to one air change in 2 hours will also pay dividends in reduced heating and air conditioning costs.

Belowground shelters have no air infiltration through the walls, floor, or ceiling. A filtered atmosphere can be maintained in these structures with very low flow rates, providing the ventilation exhaust and doors are not facing directly into a strong wind.

Toxic vapors, including nerve gases and other chemical warfare agents, can be removed by special charcoal filters designed for the purpose. At the present time, we consider the possible threats to the civilian population in the United States from these materials to be too limited to be worth the order-of-magnitude increase in the cost of a filtration system to deal with them.

In addition to absorbing chemical warfare agents modern military gas masks also have high-efficiency filters in them to remove particulate matter including biological aerosols. Gas masks would permit individuals and officials to move about out-of-doors and in unprotected spaces during periods when a biological attack is expected. Before re-entering protected spaces such individuals would have to carry out biological decontamination procedures.

If there is a threat or warning of biological attack from a terrorist group or other agency, (not in con-

**TABLE 1**  
**Sources and Approximate Costs for HEPA Filters and Filtration Systems**

Vendor	Address and Phone	Approximate Cost for	
		HEPA Filter Only <sup>(a)</sup>	Filtration System <sup>(b)</sup>
American Air Filter (AAF)	POB 35260 Louisville, KY 40232 Phone: (502) 637-0011	\$ 80	\$125-\$200
Cambridge Filter Corp.	7645 Henry Clay Blvd. Syracuse, NY 13221 Phone: (315) 457-1000	\$120	\$250-\$300
Flanders Filters, Inc.	POB 1708 Washington, NC 27889 Phone: (919) 946-8081	\$170	\$250-\$300
HEPA Corp.	3071 E. Coronado St. Anaheim, CA 92800 Phone: (714) 630-5700	\$125	(c)
Mine Safety Appliances (MSA) Co.	600 Penn Center Blvd. Pittsburgh, PA 15235 Phone: (412) 538-3510	\$140	\$200-\$300
Tri-Dim Filter Corp.	104 Wagaraw Road Hawthorne, NJ 07506 Phone: (201) 423-0045	\$125	\$350-\$550

**FOOTNOTES:**

(a) "Nuclear Grade," 99.97% efficient on 0.3 micron particles;

(b) 1000-cfm airflow at 1 inch water pressure drop (clean); 24 x 24 x 12 inch size.

(c) No frames or prefilters available from this vendor.

junction with a nuclear attack) and people do not have their residences protected with absolute filters, protection can be improvised using an ordinary household vacuum cleaner. Experiments have shown that an ordinary tank-type vacuum cleaner that is half full of household lint will remove approximately 99.9% of two-micron particles from air drawn through the vacuum cleaner. When the vacuum cleaner hose or intake is placed outdoors and the tank is arranged to discharge into a room sealed with plastic film and masking tape, a protection factor\* of 74 was observed in light winds against spores of the bacterium *Bacillus globigii* (Cristy & Chester, 1981). These spores are very similar to anthrax spores in physical properties.

While this method does not offer absolute protection, it does increase one's chances of survival. A protection factor of 74 effectively reduces the strength of a line source by an equal numerical value, and hence the downwind distance over which casualties are produced. For example a 100 gm/ $\kappa$ m line source is effectively reduced to 1.35 gm/ $\kappa$ m. By

extrapolation of Fig. 1, it can be seen that the downwind distance of the ED<sub>50</sub> from a 100 gm/ $\kappa$ m line source in an inversion with a 5 mph wind is reduced by this protection factor from 90 mi to 0.5 mi.

A last-resort protection is a man's handkerchief folded to produce eight layers and held over the nose and mouth. Experiments at Ft. Detrick indicated that this expedient measure can reduce inhaled dose by about a factor of 6 (Guyton, et al., 1959). However, it is not very practical if protection is required for long periods of time.

### The Biological Threat Spectrum

The biological threat to the civilian population is really a spectrum of threats. At the high end are genetically engineered, deadly new organisms delivered over the entire country in conjunction with a nuclear attack. At the low end is a terrorist attack with anthrax spores of variable

\*Protection factor in this instance is the ratio of the number of spores that would have been inhaled outside the protected room to the number that would have been inhaled inside over the duration of the experiment.



virulence delivered with crude aerosol equipment against a few thousand people. An overt attack or large-scale attack against the U.S. by a foreign government is unlikely if that nation has rational leadership. Such an attack would be likely to provoke an overwhelming military response from the United States.

The capability for a cruise-missile-delivered attack in conjunction with nuclear attack by the Soviet Union is probably still a few years in the future, and one employing genetically altered organisms is several more years in the future. Should these threats become likely and should the United States decide to deploy an effective defense against nuclear weapons, then any shelters that are a part of that defense will have to incorporate absolute filter and either hand-cranked or motor generator driven-blowers. The addition of biological threat to a nuclear threat complicates civil defense planning, but it doesn't make effective civil defense impossible. Absolute filters work just as well against genetically engineered organisms as against anthrax spores. The installation of proper filters would

increase the cost of a blast or fallout shelter by only a few dollars per occupant.

A biological attack unaccompanied by a nuclear attack is much easier to defeat. Electric power would be available for fans and blowers. Existing buildings can make adequate shelters with minor changes in the ventilation system and the addition of high-efficiency filters.

The use of a very hardy organism which can remain infective for days on surfaces may, depending on the organism, impose the additional requirement that areas not protected by filters be decontaminated before being reoccupied. Outdoor areas are eventually decontaminated by sun and rain.

Development of a new, very lethal, and very contagious organism could present a difficult threat to deal with. A fraction of the population could be attacked with this agent by covert means (with spray cans) at many places (e.g., inside airport terminals) nearly simultaneously with the intent of producing most of the casualties by contagion. Pressurizing buildings with filtered air would not provide any protection. About

the only physical protection possible against this threat is the wearing of gas masks in areas accessible to the general public, an unreasonable requirement. The only countermeasure available after the fact would be a nationwide quarantine to identify and isolate infected people.

There is little the individual can do against this threat except stay out of possible target areas. National protection from this threat is again in the hands of the intelligence agencies. They must determine if any nation or group is developing highly contagious lethal organisms, and has an incentive to use them against the U.S. The nation or group must then be presented with an incentive to abandon plans for such an attack.

An outdoor attack using non-contagious agents launched without warning could be devastating in the area affected. Should there be a warning, improvised protection (the vacuum cleaner) could reduce casualties. Because of U.S. capacity for military and economic retaliation against nation states, by far the most likely attack is that by either domestic or foreign terrorists, probably using anthrax against a fairly limited

**TABLE 2**  
**Sources and Approximate Costs for 300 CFM Blowers**

Vendor	Address and Phone	Blowers <sup>(a)</sup>		
		Model N	App. Cost	Description
Fasco Industries Incorporated	1301 W. Cermak Road Oak Brook, IL 60521 Phone: (312) 325-6030	B45267	\$ 50	Standard centrifugal, squirrel-cage blower; 4 x 8 inch duct
W. W. Grainger Company	5959 W. Howard St. Chicago, IL 60648 Phone: (312) 649-8900	2C841	55	Standard centrifugal, squirrel-cage blower; 4½ x 4 inch duct
Industrial Safety and Security Co.	1384 Neubrecht Lima, OH 45801 Phone: (419) 227-6030	003751	300	Complete exhaust system with 10 ft. hose and 8 x 4 inch nozzle
Penn Ventilator Company, Inc.	Gantry at Red Lion Roads Philadelphia, PA 19115 Phone: (215) 464-8900	CENTREX® REX10V	165	Round, 17½ in. dia. fan; aluminum housing; super-quiet
		ZEPHYR® Z-10	180	Ceiling/wall mount with housing, hardware and grill, 8 x 6 inch duct
Centaur Forge, Ltd.	117 N. Spring St. Burlington, WI 53105 Phone: (414) 763-9175	—	500	New hand-cranked unit; rebuilt units sometimes available

(a) These blowers operate with approximately 300 cubic feet per minute at 3/8 inch water pressure head; all (except the last entry, which is hand-cranked) use 115V AC current.

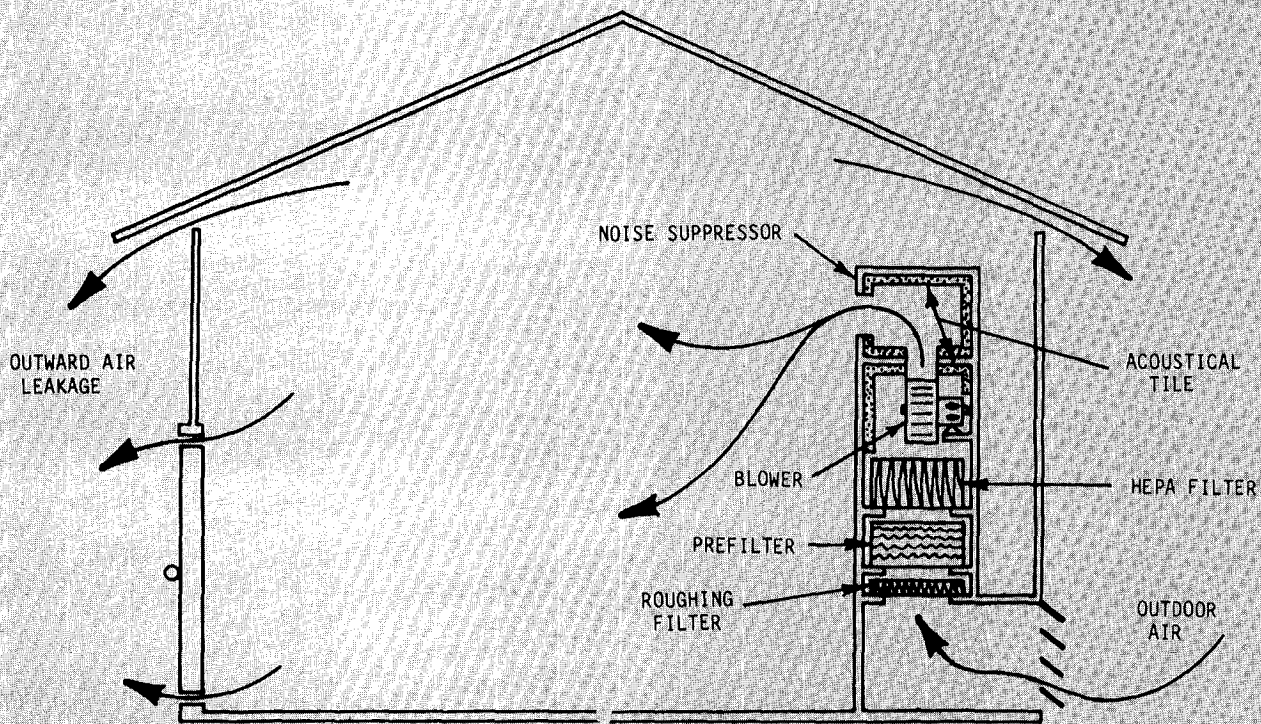
SCHEMATIC DIAGRAM OF HIGH EFFICIENCY PARTICULATE  
AIR (HEPA) FILTRATION SYSTEM

Figure 3

area. The only countermeasure an individual can take against this threat is to install an absolute filter on his residence. It would be necessary that the residence be pressurized every night, if it were in an area such as a large city that might be a likely target for attack. Low-population density areas at some distance from densely populated areas are not likely to be threatened.

A terrorist group planning such an attack would have some problems of its own. Isolating a virulent strain of an organism requires a certain amount of laboratory skill. Even more skill is required to maintain the virulence of the organism in the process of growing enough of it to attack a significant area.

Working with highly virulent organisms is normally done in very expensive facilities designed for the purpose. This work can be done in much less expensive facilities but it requires very skillful people who are experienced in handling virulent organisms. Dispersals of the organ-

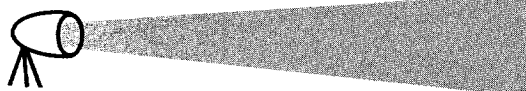
ism in a 1- to 5-micron aerosol is also a non-trivial problem. The aerosol generators described in the scientific literature are generally unsatisfactory for attacking large areas.

Both working with and dispersing the organism require considerable skill, if the terrorist is to remain alive. However, the recent penchant for suicide attacks by terrorists suggests that such risk is not a major drawback.

Organizing and carrying out a large-scale clandestine biological attack require a number of technological and managerial skills. People with such high levels of skill usually find a more benign way to solve their problems than the wholesale destruction of innocent populations. One can hope they continue to do so in the future. □

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## FIRE DEPARTMENT GOES UNDERGROUND

Tunneling underground for construction is usually looked upon as prohibitive as far as cost is concerned. But how does \$12 a square foot for a new subterranean fire station sound?

This is what Creede, Colorado's Volunteer Fire Department did — with the help of about 75% contributed labor and a good bit of contributed materials. Be that as it may Creede wound up with a roomy, attractive fire station that will never need a new roof.

The magazine *Fire Chief* tells the remarkable story in its October 1984 issue. "The inside temperature of the station," the article states, "remains at approximately 50° F year round, even though the outside temperature may reach 90° F in the summer and -40° F in the winter."

The station houses six vehicles and contains an office and a kitchen.

"At our grand opening celebration," says Chief Danny E. Rogers (who wrote the article), "we entertained 463 people at a sit-down dinner followed by dancing to live music. The acoustics within the station are so good that the musicians had no need for amplifiers. A normal conversation can be overheard anywhere in the main tunnel area."

## SWISS TOWN BUILDS UNDERGROUND CHURCH

In Switzerland, where it is easy to find hospitals, plane hangars, and almost anything tucked away in underground locations, you can now find an underground church.

It's in Raron, a town located in the narrow Upper Rhone Valley as you climb eastward into the Alps from the head of Lake Geneva.

Raron's 16th Century church balanced atop a jutting rock that commanded views of snow-covered alps on all sides was already a prime tourist attraction, and the people of Raron were proud of it. Transportation to it was a problem, however, and oldsters especially were inconvenienced.

The underground church, finished in 1974, is part of the same rock, but at its base. It is in its own right a tourist attraction, but its main

purpose is to serve the people of Roran — and it has a huge parking area. It has a beautiful modernistic entrance. It seats 500 people. It cost less than a similar church would have cost above ground. And, although it is "underground," it is really on the same level as the surrounding area. People simply walk into the side of the rock mountain. Cool in summer. Warm in winter. And beautiful.

It's called the "Felsenkirche" ("Rock Church"), and the people are proud of it too. They have printed a booklet to describe its history and its characteristics.

Its secondary use? You guessed it: shelter.

## NAEMT OFFERS 12 ANNUAL AWARDS

The National Association of Emergency Medical Technicians (NAEMT) announces that nominations are now open for 12 annual awards.

Four awards are open awards without restrictions on recipients. For five of the awards nominations may be made by anyone.

Deadline for submission is March 15, 1985.

Nominating forms and further information may be obtained by

contacting NAEMT at PO Box 334, Newton Highlands, MA 02161-0334 (Phone: 617-894-7179).

## TERRIEN ELECTED ASPEP PRESIDENT

Ernest J. Terrien, Emergency Government Coordinator for Zone C in Wisconsin (just west of Milwaukee), took over as president of the American Society of Professional Emergency Planners (ASPEP) at its annual conference in El Paso, Texas in October.

Terrien is author of the new book *Hazardous Materials and Natural Disaster Emergencies* (see review, page 20).

More than that, Terrien attracted nationwide notice earlier this year when, in the face of criticism and censor from his superiors, he took a position for the need for preparedness against nuclear attack.

Terrien announced that one objective during his term of office as ASPEP president would be to work to establish uniform disaster evacuation tags and disaster area security tags.

(Anyone hunting for the ASPEP president this coming year can find him at the City Hall, 7525 West Greenfield Avenue, West Allie, Wisconsin 53214.)

## COURSES AT THE EMERGENCY MANAGEMENT INSTITUTE EMMITSBURG, MARYLAND

(Contact local or state civil defense for further details.)

Disaster Assistance Center Operations Workshop .....	December 3-7
IEMC/Response .....	December 3-7
National Security Seminar .....	December 3-7
IEMC/Response — Local (Train-the-Trainer) .....	December 10-14
PDS Basic Skills in Emergency Program Management (Train-the-Trainer) .....	December 10-21
Intergovernmental Relations Seminar .....	December 17-19
Exercise Evaluation and Simulation Facility Workshop .....	December 17-21
Public Assistance Course .....	January 14-18
PDS Introduction to Emergency Management (Train-the-Tr.) .....	January 14-18
Seminar on Contemporary Issues in Emergency Management .....	January 21-25
IEMC/Response (By Invitation Only) .....	January 21-25
PDS Emergency Planning (Train-the-Trainer) .....	Jan. 28-Feb. 1
Radiological Emergency Preparedness Planning .....	Jan. 28-Feb. 1
IEMC/Nuclear Incident/Hazardous Material .....	February 4-8
National Security Seminar .....	February 4-8
Intergovernmental Relations Seminar .....	February 11-13
National Defense Executive Reserve-Advanced Workshop ..	February 11-13
IEMC/Response-Local (Train-the-Trainer) .....	February 11-15
State Radiological Officer Management .....	February 11-15
Exercise Evaluation and Simulation Facility Workshop .....	February 18-22
Fundamentals Course for Radiological Response/Team Radiological Officer (Train-the-Trainer) .....	February 18-22



# LOCAL CIVIL DEFENSE — SWISS STYLE

— Walter Murphey

Picturesque Peseux (pronounced P'suh) in western Switzerland is perched above picturesque Neuchâtel. Neuchâtel, in turn, is perched above the 25-mile-long enchanted lake of the same name.

Peseux has a population of 5,100. Like every other Swiss community it lives intimately with a simple, workable, tested civil defense plan — its shelters and its shelter support systems.

Civil defense director Jean Ruch, in addition to putting heart and soul into his work, is affable and helpful — a nice guy. He is business manager of the popular Neuchâtel choir. We had met him at a church dinner. The next day we were in his Peseux civil defense office.

"Every house in Peseux and every person in each house," explained Jean, referring to a big color-coded map, "is assigned shelter space and knows where to go and what to do. It's the law. Many of our shelters

are not yet up to our standards, but those that are not still provide significant protection. We call them 'abris de fortune' [shelters which do not meet stringent Swiss requirements — especially ventilation — but which nonetheless afford significant protection and furnish occupants with oxygen masks]. Our goal is to provide everyone with first class shelter by the year 2000."

"What about visitors in the area?" we asked, and we referred to a West German choir from Cologne which had just left after a two-day visit.

"No real problem," replied Jean. "There are always local people who are not present — doing their military service, on vacation or on business trips, and so on. We are fully prepared to take care of visitors. There would even be many 'abris de fortune' which would be left empty during a crisis."

"What about chemical warfare?"

"We can defend against that with

what we have."

"Biological?"

Jean hesitated. "We are deficient here," he said. Biological warfare needs a solution we haven't yet mastered."

Jean Ruch's underground headquarters (he maintains a conventional office in the Courthouse) could be operational quickly and painlessly. Nearby was a cache of emergency equipment worth over \$300,000. Generators and other machinery were rotated by municipal services to keep them ready for use.

The Swiss civil defense organization boasts a military pattern. "A city of 200,000 people, for example," explained Jean, "would have two divisions of 100,000 each. Then each division would have five 'sections' of 20,000. Under each section are four 'quartiers' of about 5,000 people each. Each 'quartier' is divided into 'ilots' of 500 each, and 'ilots' are subdivided into ten 'do-



*Peseux civil defense director Jean Ruch at the entrance to one of Peseux's Underground installations.*

**... A PEACEFUL LAND. THE SWISS  
INTEND TO KEEP IT THAT WAY.**

maines' of 50. Under that come the families. At every level there is the chief or commander and whatever staff is appropriate. Due to the many variations in population distribution this system must, of course, be very flexible."

"Some things I cannot show you," he continued. "They are classified."

But we had seen quite enough to be again impressed by Swiss determination to give their people the best possible protective measures. We stopped at the Neuchâtel train station for lunch after goodbyes to

Jean Ruch, and the restaurant was alive with soldiers on their way to annual active duty (military service is compulsory in Switzerland, and at age 50 it becomes civil defense service until retirement at 60).

The soldiers brought to mind that the day before (Sunday) Swiss jets

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### **... THE RESTAURANT WAS ALIVE WITH SOLDIERS.**

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could be heard making bombing runs along the Lake Neuchâtel target range. As we returned to our lodgings around the head of the lake we passed a military convoy. And closer to home we went through a field of tank obstacles — called “toblerones” by the Swiss after the thick, sharply raised sections typical of the “Toblerone” Swiss chocolate bar. We paused to take pictures and look at bunkers dominating the pas-

sage the road took through the obstacles.

It's not that Switzerland gives the impression of being an “armed camp.” It doesn't at all. It's a delightfully pleasant, jovial, yodeling bunch of rosy-cheeked boys and girls, men and women, and a good share of spunky oldsters. It's a peaceful land. The Swiss intend to keep it that way.

It's not hard to understand Switzerland's 169 years of peace and why Adolph Hitler — although he attacked countries ten, twenty and a hundred and more times the size of Switzerland — backed off invading his tiny neighbor to the south. It was too tough a nut to crack.

Jean Ruch and his Peseux civil defense are a small but integral part of today's formidable Swiss defense matrix. His choir is a part of Swiss culture and the delightful Swiss “savoir vivre.”

A heady combination that could provide a cue for the rest of us. □



*Anti-tank obstacles cross a slope to Lake Neuchatel. The Swiss call them “toblerones” after their Toblerone chocolate bar of similar design.*

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## **THE OTHER SIDE OF THE IRON CURTAIN**

### **SOVIET SPOKESMEN:**

**To “friends” in the West: “Shelter is a cruel hoax.”**

**To the folks at home: Shelter is “the main means of protection.”**

Trying to advise “peace through appeasement” advocates that Soviet spokesmen don't really believe that shelter against nuclear attack is useless can be frustrating. In July the Foreign Broadcast Information Service monitored a radio talk in Russian that throws more light on the subject. It should demonstrate to all what Russians tell Russians. Parts where the reception conditions were not good and words or phrases faded out hardly detract from the message. Said civil defense official Dmitriy Vasilyevich Burtsev:

The main means of protection for the population from weapons of mass destruction and other means of enemy attack is taking shelter in protective premises. The main civil defense protective premises are shelters and antiradiation refuges. Specially adapted pits, underground railways, premises and constructions below ground level, mines and natural [word indistinct], and the most simple refuge in the form of open and [word indistinct] can be used for this purpose.

Shelters for protection from the consequences of nuclear explosions are divided into five classes, and must ensure protection for people from the consequences of shock waves, penetrating radiation, radioactive (?contamination), (?light) irradiation, high temperatures, and [words indistinct] as well as from poisonous and bacterial substances. They must ensure permanent, safe habitation for not less than 48 hours.

Shelters must be situated in direct proximity to permanent residences and the radius (?of the assembly) of people must not exceed 500 meters where they are single-story buildings and (?1,000 meters) where they are multi-story buildings.

The capacity of the shelters depends on the area of the equipped or adapted premises. According to [words indistinct] the capacity may be for 150, 300, 350, 600, 900, 1,200, 1,800 or more people. The construction of shelters for 50 or 100 people is allowed on corresponding technical-economic grounds. Shelters are divided into main and auxiliary accommodation areas. The main accommodation consists of premises for people and control posts, while auxiliary premises are used for filter and ventilation installations, generators, and for storing water and food.

Entrances to the shelters must ensure that people can take shelter as quickly as possible. Shelters are supplied with filter and ventilation systems. [passage indistinct]

Antiradiation refuges ensure the protection of those taking shelter from [word indistinct] radiation [passage indistinct]. The capacity of antiradiation refuges, according to standard designs, is envisaged for 75, 100, 150, 200 and 300 people.

# THE TACDA-DDP SEMINARS . . .

## STRATEGY FOR SURVIVAL OR STRATEGY FOR SUICIDE?

— A Journal of Civil Defense Staff Report

The American Civil Defense Association (TACDA) seminar at Daytona Beach, Florida November 14-16 proved to be a combination of optimism and pessimism. Eighteen prominent speakers made the distinguished audience feel that both shared the spotlight. The choice appeared to waver between whether one anticipated a leadership reawakening to new defense opportunities or their sabotage by "ap-peaseniks."

The same conflicting sentiments held forth during the Doctors for Disaster Preparedness (DDP) seminar which followed on November 17th.

### GRAHAM

The bottom line was expressed by High Frontier's General Daniel O. Graham when he recognized both seminars' interest in the Administration's "Strategic Defense Initiative." Serious civil defense advocates, he said, support High Frontier because they "are interested in a *strategy of survival* as opposed to the current *strategy of suicide*."

In his address to TACDA Graham forecast a credible defense against intercontinental ballistic missiles with multi-layered space interceptors. Those opposed to such a shield for the West, he observed, form a peculiar alliance with our enemies who also work to discredit a defense that would spoil their expansionist aims. He likened this alliance with the efforts of Prohibitionists earlier in this century. In opposing the sale of alcoholic beverages the Women's Christian Temperance Union was allied with the bootleggers whose business was protected by prohibition.

### CHURBA

Reagan advisor and Senior Policy Advisor to the Arms Control and Disarmament Agency Dr. Joseph Churba also accented a posture of defense. "Not only will the shift in

emphasis from offensive to defensive strategy help bring the arms race under control," he stated, "but elimination of the strategic imbalance will also present a genuine opportunity to attain the stability and the peace for which free people everywhere yearn." Churba described himself as a Reagan critic — "but from the right, not the left." And he added: "I am very much frightened of what may happen in the next two years."

### COHEN

TACDA's banquet speaker was N-bomb developer Sam Cohen. In his revealing discussion of "Discriminate Weapons" Cohen outlined the prejudices against them. It is not generally recognized by a misinformed public, he said, that the effects of a neutron bomb are much less than those of a comparable fission weapon. "There's no way," emphasized Cohen, "to use a fission weapon in a nondestructive manner, and there's every way to use a fusion weapon in a completely . . . non-destructive manner."

### BODI

From Switzerland, Dr. Milan M. Bodi, Secretary-General of the International Civil Defense Organization, came to offer his objective views of the value of civil defense measures. He cautioned that "blackmail has assumed a significance which it never had before. On the part of politically competent authorities, such blackmail calls for decisions which have no historical parallel either in terms of scope or hardship . . . Blackmail is the strategic method which aims at attaining its goal through counting on the victim's fear of being threatened by war."

### GIUFFRIDA

FEMA Director General Louis O. Giuffrida gave an account of his relations with the media and with Congress. "I don't like some of the things I have to agree to," he said.

"If I had a magic wand . . . I'd take us to where we could withstand a nuclear attack upon the United States." A comprehensive shelter program, he observed, is just not going to be realized. Answering a question about Crisis Relocation Planning he said "We haven't done as well as we should have." There is a need in this program, he said, for a public relations effort.

### WIGNER

In his workshop on Training and Education Dr. Eugene P. Wigner stressed the importance of involving youth in preparedness activities. Wigner, a Nobel laureate and TACDA mentor, is recognized as America's leading student of civil defense. He told his workshop that he was disappointed that civil defense directors did not place greater weight on civil defense education.

### KEARNY

Cresson Kearny, author of *Nuclear War Survival Skills*, shared the Training and Education workshop with Wigner. Kearny felt that people needed to know the basics of civil defense, of the simple protective measures that are available, and he deplored the effectiveness of anti-civil defense propaganda.

### SINCERE

Richard Sincere, who is a prolific contributor of civil defense articles to the media and who has debated Helen Caldicott and Jack Geiger and others, held a workshop on Effective Media Liaison.

### CHESTER

Dr. Conrad Chester, Chief of the Emergency Planning section at Oak Ridge National Laboratory (ORNL), furnished a shelter update in his workshop.

### KLINGHOFFER

Dr. Max Klinghoffer, whose book *Triage — Emergency Medical Care Handbook* will appear in a few weeks, conducted a workshop on



# AUDIO TAPES

## THE AMERICAN CIVIL DEFENSE ASSOCIATION • DOCTORS FOR DISASTER PREPAREDNESS SEMINARS

November 14-17, 1984 • Daytona Hilton • Daytona Beach, Florida

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Medical Response to Disaster. At the DDP business meeting two days later Klinghoffer was elected the new DDP president.

### GREENE

Actress-poetess Nancy Greene from Hollywood, president of the Southern California TACDA chapter, editor of *HUMINT* and wife of Lorne Greene, spoke on "Surprise and Deceit." Greene is a well-known expert on Soviet intelligence.

### HAALAND

The luncheon address on November 15th was delivered by Carsten M. Haaland, a veteran nuclear scientist from ORNL. His subject was "In The Shadow of Ground Zero," and he analyzed weapons effects near impact points.

### THURMER

Ruby Thurmer of ORNL gave the seminar the latest information on FEMA's new radiological program. Thurmer is a researcher-analyst who has provided TACDA and the *Journal of Civil Defense* with technical information and articles over a period of ten years. Her talk was entitled "Improving RADEF."

### ZIMMERMAN

Experimental engineer Greg Zimmerman, also of ORNL, addressed the seminar on "Shelter and Survival." Zimmerman's specialty is research in the field of low-cost effective blast shelter. His most recent testing ground was the "Direct Course" test.

### BJORNSTADT

Another ORNL scientist, Dr. David Bjornstadt, spoke on "The Strategic Food Reserve — A Vital Requirement." Bjornstadt is head of ORNL's Energy and Technology Research group, and he specializes in post-attack survival.

### BARBIER

Dr. Marcel M. Barbier, who heads his own shelter construction company in the Washington, D.C. area, focused on quality shelter designed to protect against all weapons effects. He spoke on "Nuclear Survival: Lessons from History."

### GLIDEWELL

The surprising success of "Nuclear Awareness Week" at Oklahoma State University last April attracted wide attention, and its promoter Bob Glidewell — a graduate student in journalism — addressed the seminar on "College Youth — An Unused

Resource." Glidewell hopes to carry his message to other American campuses.

### WILLIAMS

Frank Williams, retiring TACDA president, gave the opening presentation on "America's Choice: Defense Dawn or Red Dawn." In his conclusion Williams said that current indications "combine to tell us that we have during the next Reagan term — if we start immediately and if we utilize all our expertise, all our energies, all our moxie, and all our chutzpah — an opportunity to bring about a thoroughly credible homeland defense, one which will serve to promote a nuclear peace. I think we must set our sights on this objective right now."

•

### SINCERE

DDP's seminar on November 17th began with an address by Richard Sincere entitled "MDs on the Podium: Challenge and Opportunity." Sincere was asked to take the place of Dr. Sidney Williams who was prevented from attending the seminar due to a medical emergency.

### MACCABEE

Dr. Howard Maccabee, DDP's retiring president, analyzed predictions of precipitous temperature drops as a result of nuclear warfare in his talk "Nuclear Winter Snow Job." Maccabee showed how the TTAPS nuclear winter study had reached conclusions that were not supported by the evidence.

### DUNMAN

Law enforcement officer William H. Dunman appeared before the DDP seminar in his role as an authority on dealing with terrorists, and his subject was "Terrorism and the Medical Problems of Terrorism." Dunman underlined the fact that terrorism had become a profession, and that acts of terrorism were thoroughly studied and rehearsed beforehand. In reference to suicide missions Dunman made the point that most terrorists really had no flair for suicidal missions.

### FRYKBERG

Lt. Commander (Dr.) Eric Frykberg addressed the doctors on "Medical Services During the Bombing of Marine BLT Headquarters." This was the 1983 suicide mission that destroyed a complete barracks.

Lt. Commander Frykberg was Surgeon-in-Charge at the Naval Medical Command where casualties were processed. Frykberg's talk was illustrated with slides showing actual scenes of the incident.

### GOURE

The banquet address was delivered by Dr. Leon Goure, Director of Soviet Studies for Science Applications, Inc. Goure's subject was "The Soviet Civil Defense Medical Preparedness Program." Goure, America's leading Sovietologist, is author of the 1984 book *The Soviet Civil Defense Medical Preparedness Program* (reviewed in the August 1984 issue of the *Journal of Civil Defense*). Goure's talk showed that the Soviet Union has organized an in-depth medical response to nuclear attack.

DDP also held an hour forum on "Governmental Responsibilities for Disaster Preparedness."

•

Moderators for the DDP seminar were Dr. Gerald Looney, Dr. Henry Huntley and Dr. Max Klinghoffer.

Masters of ceremony for the TACDA seminar were Charles L. Badley and Walmer E. Strobe.

•

Frank Williams flew to Washington, D.C. and back on November 15th to attend President Reagan's White House reception for supporters of the "Peace Through Strength" initiative. On the morning of November 16th Williams gave a brief report of the reception and contacts with a number of guests.

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The American Society for Professional Emergency Planners presented to TACDA (as fund custodian) a check for \$1,000 to go toward erecting a monument to civil defense heroes at the National Emergency Training Center in Emmitsburg, Maryland.

•

Certificates of Achievement and citations were awarded by TACDA to:

Laurence Beilenson  
Oz Ellis  
Peter Enwall  
T. J. Hilbus  
Steuart Pittman  
Richard Sincere

# TORNADO TARGET: THE MOBILE HOME!

— Richard A. Wood  
National Weather Service

Where do most deaths occur during tornado outbreaks? The greatest percentage occur in mobile homes! Statistics for 1983 show that 14 of the 34 deaths due to tornadoes were in mobile homes, while 53 of the 117 deaths so far in 1984 were in mobile homes! In 1983-84, 67 of the 151 tornado deaths (or 44 percent) were in mobile homes. Statistics from the Foremost Insurance Company indicate that in 1981, there were 83,000,000 permanent homes and 5,021,900 mobile (manufactured) homes in the country. Thus in the past 2 years, it is noteworthy that 44 percent of all tornado deaths occurred in mobile homes which comprise only 6 percent of the total number of dwellings! About 10,300,000 people live in these 5 million mobile homes or about 4.6 percent of our population.

**IN U.S.A.: 4.6% LIVE IN MOBILE HOMES**

**44% OF ALL TORNADO DEATHS OCCUR IN MOBILE HOMES**

**RISK OF TORNADO DEATH IN MOBILE HOMES OVER 20 TIMES THAT IN PERMANENT HOMES.**

Several years ago, SRH distributed two videotapes on the effects of tornado winds on various structures. The tapes featured Dr. James McDonald of Texas Tech University. Dr. McDonald has continued his research on the topic by "shooting" 12 foot two-by-fours into various structures. Traveling at 50 to 55 mph, the two-by-fours easily perforate both solid and hollow-core wooden doors and all wooden walls. The missiles emerge completely in one piece on the other side. At about 120 mph, a two-by-four goes right through a concrete block wall. In the case of a brick wall, the brick crumbles but the two-by-four does not emerge from the wall. The only wall that remains unscathed is one built from concrete blocks in which the hollow cells are filled with reinforced steel and concrete. □

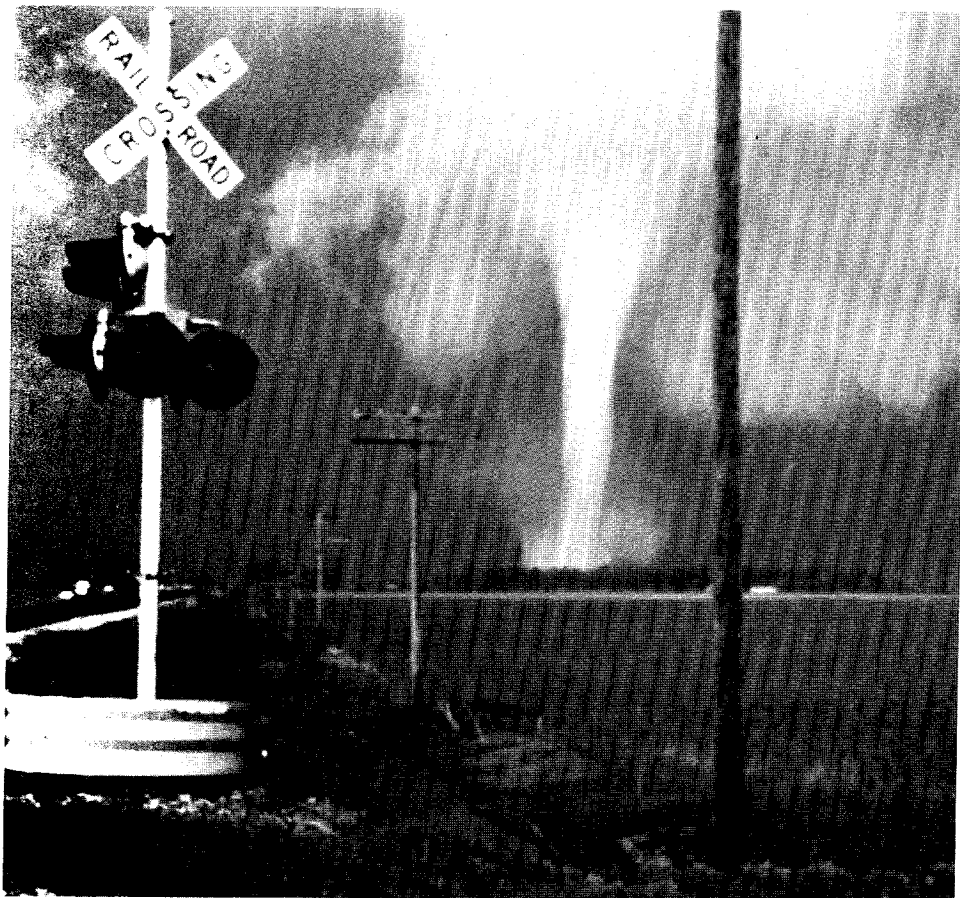


Photo by Dr. Morris Young, Jonesboro, Ark. 5 PM, April 3, 1984.

## TORNADO DEATHS — U.S.A. 1984 — BY STATE

As of September 7, the following is a breakdown of tornado deaths by state for 1984:

State	Mobile Homes	Homes	Moving Vehicles	Other	Total
N. Carolina	21	13	2	6	42
S. Carolina	10	4	0	1	15
Mississippi	3	8	1	3	15
Oklahoma	11	0	2	0	13
Wisconsin	1	11	0	0	12
Arkansas	3	3	0	1	7
Alabama	1	0	4	0	5
Iowa	1	0	2	0	3
Illinois	0	0	0	1	1
Texas	1	0	0	0	1
Missouri	1	0	0	0	1
Maryland	0	0	0	1	1
Minnesota	0	1	0	0	1
<b>Total Deaths</b>	<b>53</b>	<b>40</b>	<b>11</b>	<b>13</b>	<b>117</b>
<b>Percentage of Deaths</b>	<b>46%</b>	<b>34%</b>	<b>9%</b>	<b>11%</b>	<b>100%</b>

# REVIEWS

**HAZARDOUS MATERIALS AND NATURAL DISASTER EMERGENCIES**, by Ernest J. Terrien. Published by Technomic Publishing Company, Inc., 851 New Holland Ave., Lancaster, PA 17604. 8½-in x 11-in paperback, 64 pages. \$20. Two or more: \$15 each.

— Reviewed by Kevin Kilpatrick.

More and more the local civil defense director is faced with hazardous materials emergencies as the transportation of toxic materials through his area increases. One has only to read the incident reports in John Cashman's *Hazardous Materials Newsletter* (PO Box 204, Barre, VT 05641) to realize that in the past 10 years there has been a big jump in disasters involving toxic materials.

Author Ernest Terrien, an old hand at dealing with disaster and disaster preparedness (he is 1984-5 president of the American Society of Professional Emergency Planners), does a remarkable job of putting disaster response in a logical, workable, understandable framework.

He correctly warns, however, that in a disaster a civil defense director (or whatever he may be called) is on his own. The buck stops with him.

But he also needs guidance and grounding, a review of accepted procedures, a path to practical hands-on methodology, leads to what difficulties may be and to many of the tools that will help him contend with an emergency.

Terrien does this in a refreshingly graphic and simple manner. In a thoroughly professional manner. His book will not only be a godsend to the new or disaster-uninitiated director. It will provide the veteran with what he knows he needs and will help in contending with disaster pitfalls and in promoting the saving of lives. It is for him an in-depth brush-up containing new ideas and approaches worth their weight in diamonds when the chips are down.

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**THE HUNDREDTH MONKEY**, by Ken Keyes, Jr. Published by Vision Books, 790 Commercial Ave., Coos Bay, OR 97420. Paperback, 176 pages. 1983.

— Reviewed by Don Hanks.

In a recent spurt of latter day evolution at a zoo in Japan, a group of monkeys discovered that washing their food — an endless supply of sweet potatoes — improved the flavor.

On another island a while later, according to the author of *The Hundredth Monkey*, another group of cousins adopted the same practice, presumably without direct communication of the discovery.

Ken Keyes, Jr., is apparently ready to swear the new potato washers got the recipe via (guess what) extra-sensory transmission.

Indeed, Keyes admits to belief that enough monkeys, or people, if they really believe in the power of love and good food, can communicate their awareness, and their yearnings, to their own species anywhere in the world, all without the usual electronic devices.

If some given number (say, 100) is needed to effect this mysterious communication, then *The Hundredth Monkey* will turn on the transmitter.

A devout pacifist when it comes to nuclear war, Keyes calls on fellow believers to exert the magic forces until all (or perhaps merely most) Americans will wish the nation into a total unilateral disarmament of our nuclear weapons.

Then the Russians, presumably as telepathic as the Americans, upon hearing of the unbounded joys of the people of a disarmed America, will be so burdened with envy that forthwith they will destroy their own weapons — and peace and lower taxes will prevail for all.

The book, though possibly not intentionally, is in two parts. The first 92 pages with a few hundreds of short crisp sentences, quotes a number of unilateralist writers: Helen Caldicott, David Hoffman — who said "the best defense is not to have an offense" — Carl Sagan, Admiral LaRocque, and a number of others.

Numerous documents are credited as evidence of the effects of nuclear weapons in all their horror. But documentation of a number of other newsy little items of doubtful accuracy is generally missing.

For instance, is a nuclear bomb still lost in a swamp somewhere in

the Carolinas? Did another bomb, also dropped in the Carolinas, land without a 24-megaton explosion after five of its trigger guards failed?

Did "People close to Nixon in his last days in office . . . deactivate . . . the signal mechanism that our president can use to hurl our nuclear holocaust at Russia and destroy the world"? Keyes leaves the footnote unattributed but has the grace to cite the item as being "reportedly".

On the 93rd page Keyes injects a price list for additional copies of his work — 25¢ each in 1,000 book lots.

Continuing to page 174 the author further espouses his philosophy, as is his right, again in some hundreds of short crisp sentences.

Tucked between the middle pages is a sample badge declaring "I Choose Peace" (as do we all) and a letter urging us all to wear it. Another letter is a model to your Congressman. A third tuck-in is an eight-page piece on propaganda.

The book is accurate in much of the matter of weapons effects. Some of the book is questionable, however, and some is amusing, such as scores of little drawings of monkeys carrying cue cards declaring things like "Nuclear War is Bad for Capitalism" or "Rosy Cheeks" or "Your Old Age".

Civil defense is recognized only once. To quote: "Civil Defense was usually protective against ordinary bombs." As of now "forget it".

For a better picture, imagine *Effects of Nuclear Weapons* rewritten by the Creators of *Fun and Games with Dick and Jane*. Dick and Jane negotiating disarmament in Ken Keyes' way would play a very deadly game indeed.

---

**THINKING ABOUT SURVIVAL** by Bruce Clayton, Ph.D. Published by Paladin Press, a division of Paladin Enterprises, Inc., P.O. Box 1307, Boulder, Colorado 80306 USA. (303) 443-7250. 135 pages. 1984. \$10.00.

— Reviewed by Van E. Hallman.

This book, if disseminated to and read by the public, should do much to dispel the notion that the Survivalist movement is primarily made up of selfish, gun-toting individuals.



From a survey of more than one hundred fifty survivalists, Dr. Clayton has compiled data which will interest both those favoring and those opposed to the movement. By breaking the survivalists into categories including sex, age, race, religion, political affiliation, wealth and profession, the author has obtained some surprising results. (As an example, approximately one out of eight of the respondents were physicians or occupied in the medical profession.) When questioned on the subject, most of the survivalists stated that they wanted to contact other individuals who were, "friendly, cooperative, moral, family-oriented, and with small town values of community." They also regarded guns as "tools or unpleasant necessities."

Included in the book is information on the proper use of guns and camouflage and the relation of survivalism to civil defense. The book concludes with a chapter on the astronomical problems to be anticipated for radiological defense communications following the effects of electromagnetic pulse. (*FEMA please read and heed!*) Also for those interested in the effects of EMP, a descriptive listing of 40 sources of information could be, in itself, worth the relatively small price for the book.

"Thinking About Survival" should contribute to a better understanding of the survivalist movement. Under the conditions of a nuclear war, without an effective civil defense for the United States, all of us will become survivalists — like it or not.

**REFUGEE — U.S.A. (FOOD).** No 2 in "The Civilian Survival Series." Published by Survival Ink, 914 Pinehurst Drive, Arlington, TX 76012. Paperback, 8½-in. x 5½-in. format. 100 pages, double-column manuscript form. 1984. \$10 (includes postage and handling).

— Reviewed by Kathryn Kilpatrick.

Back in the 1960s when a good many people were serious about shelter there was some good-humored speculation on the ideal girl companion for a prolonged shelter stay. "The girl I'd like most to be holed up with in a shelter" the saying went. But why not: "The *man* I'd like to be holed up with in a shelter"?

Well, anyway, after reading Mr. Oster's No. 2 book in his series (on

food and where to find it) it occurred to me that "the book I'd like most to be holed up with in a shelter" would be this Oster volume designed to keep me among the living.

And if I had to choose between the book and the man I'd choose the book because the man wouldn't help much if I (and he) starved to death. Hopefully I'd have both, because obviously you need the man to get the food — and sweep out the shelter.

Anyway, Oster's food book is so chuck full of earthy wisdom and how to manage without the supermarket that I didn't do what I usually do with reviewed books — pass it on to others who might enjoy it. What I did with Oster's No. 2 volume was to stash it away in my survival packet, admittedly a pretty selfish gesture.

My excuse is that that man and I have to make out with plants, fish and animals — and that darned book leads you by the hand to edible wild life, what to do with it, what to avoid (poisonous items), and so on. It analyzes a wilderness diet. It's an education. It's filled with tables, pictures, sketches and maps. It's as unsophisticated as a plumber's helper. Oster on every page betrays the fact that he's a master survivalist and knows the wilderness ropes right down to caloric, mineral and vitamin values of the foods he describes.

After mapping out his plan for boondock gastronomy Oster gives the reader a 66-question quiz that provides a final learning dimension.

What I really learned in reading the book was that in a desperate situation, with Oster's guidance, the situation is not all that desperate.

You can come out a winner. So can that man.



"Ahoy there!"

STAN  
SCHNEIDER

# REVIEWS (Cont.)

*THE COLD AND THE DARK*, by Paul Ehrlich, Carl Sagan, Donald Kennedy and Walter Orr Roberts. Published by W. W. Norton & Company, New York. 1984. 161 pages. \$12.95.

— Reviewed by Robert Ehrlich.

Disinformation — the word is not to be found in most American dictionaries. Most politically sophisticated observers are, however, aware that the Soviet Union invests a considerable effort in an attempt to influence Western public opinion — particularly on nuclear matters. Indeed, given the potential for reaping large benefits, the USSR would need to be exceedingly stupid not to make a large effort of this kind.

There are some observers who believe "nuclear winter" is primarily another example of Soviet disinformation rather than a real effect. Those who hold this belief are likely to find considerable support for it upon reading *The Cold And The Dark: The World After Nuclear War*. This book consists of a transcript of a conference "The World After Nuclear War" held in Washington DC on October 31 and November 1, 1983, which this observer attended. Although I do not happen to believe that "nuclear winter" is simply another example of Soviet disinformation, there are a considerable number of circumstances that indirectly might support that view:

## 1. *Circumstances surrounding the conference.*

This was no ordinary scientific conference, with many diverse views on a strictly scientific subject involving many dull, but highly knowledgeable experts. Rather, it was a lavishly funded affair run by a group expert in packaging, publicizing, and presenting to a key group of influential citizens, a scientific finding with profound political consequences. The extensive publicity surrounding the conference and its findings, the professionalism displayed in packaging the results, and the extensive media coverage of results presented by several highly visible public scientists, all bespeak a strong desire to influence the public policy debate on nuclear issues. Although the confer-

ence speakers repeatedly expressed their intention not to get into policy questions, as we shall see later, the policy preferences of the conference participants came through loud and clear on numerous occasions. Several of the American scientists most involved in the conference in fact have been long involved in the antinuclear disarmament movement.

The conference also involved an unprecedented live television link between Soviet scientists in Moscow and conferees in Washington, and participants noted on many occasions the important role played by Soviet scientists in supporting the nuclear winter findings. The Soviet scientists, all members of the prestigious Soviet Academy of Sciences, were clearly involved in an enterprise that their government considered a matter of some importance. One may be forgiven for wondering whether that important matter is: (a) discovering the objective truth concerning the nuclear winter hypothesis, or (b) promoting a belief that nuclear war would have such catastrophic results — even with the use of a small fraction of the arsenals — that continued American nuclear deployments are clearly "insane". A suspicion that (b) may be the more important Soviet objective is given additional weight both by the timing of the conference (on the eve of American Pershing — Cruise deployments in Western Europe), and by Soviet suggestions during the conference that scientists are especially influential people who should try to influence their government to end the arms race.

Although Soviet scientists repeatedly referred to the non-survivability of nuclear war (in light of nuclear winter findings) nothing, of course, was said during the conference concerning existing Soviet civil defense preparations. More importantly, since the nuclear winter hypothesis has first come to light in 1982-83, there does not appear to have been any Soviet effort to incorporate nuclear winter findings in their nation's expanding Soviet civil defense effort. It is possible that just as Josef Stalin, during the period of American nuclear monopoly, viewed the new U.S. atomic bomb as simply a weapon for scaring "faint-hearted people", the Soviets have now found their own new "weapon" for scaring faint-hearted Americans — Americans who by all public opinion polls are already

highly fearful of the risks of nuclear war and eager to freeze the arms race in its tracks.

## 2. *Continual Stress on worst-case predictions*

Throughout the conference, speakers gave worst-case predictions great prominence — all the while noting that the results could, in fact, be still more dire. For example, the World Health Organization estimate that the direct casualties in a nuclear war would involve half the human race was cited on numerous occasions and said to be either the "likely" or "certain" outcome of a nuclear war. Furthermore, the most extreme nuclear winter scenario was given the greatest emphasis by the biologists considering the ecological consequences of a nuclear war. Even though the nuclear winter study, known by the nickname TTAPS, predicted that worldwide average temperature declines of between 8 and 60°C could occur, depending on the war scenario assumed, primary importance was accorded to an examination of the ecological consequence of a 60°C decline lasting over a year. Accordingly, Paul Ehrlich is able to inform the reader that the biological results of nuclear winter are "robust", and not doubted by any of the biologists who have examined them.

There are occasional acknowledgements made that considerable uncertainties remain in the nuclear winter findings, and that more refined research may be necessary, but generally one gets the strong impression that enough confirming work has already been done, so that a catastrophic nuclear winter, if not the certain outcome of any nuclear war, is at least highly likely.

The fact that some previous nuclear war effects, e.g. *worldwide* fallout, are now believed to be greater than originally thought is used to indicate that increased knowledge of nuclear effects generally increases the severity of our estimate — a highly dubious logical proposition. Other examples of overstatement at the conference concern ozone layer destruction, falsely claimed to lead to the possible blinding of most animals; and genetic damage, falsely claimed to be serious enough to lead by itself to the extinction of humanity. The nuclear winter study holds that the effects will propagate to the Southern Hemisphere as well,

and it holds out the real possibility that the extinction of human life cannot be excluded. Nothing, however, is noted about the Southern Hemisphere effects likely being far less severe than those in the Northern Hemisphere. Highly speculative sociological statements about irrevocably tearing the "fabric" of society, and causing survivors to revert to small bands of hunters and gatherers, are made to sound as though such things can be known with confidence.

Although the conference speakers continually stress their results are not worst-case estimates they would certainly seem to this observer to be biased towards the higher end of the spectrum of possibilities. Occasionally, however, the careful reader will find unusual statements of candor from some of those scientists most closely involved in the climatic modelling calculations: According to Stephen Schneider, for example:

"I view the climatic aftereffects issue as a continuous spectrum with decreasing probability of increased consequences . . ."

In other words, according to Dr. Schneider, a large nuclear winter effect is less likely than a much smaller one. But such admissions of candor are very rare, indicating that the conference was less a disinterested objective assessment of a theory, with all its strengths and weaknesses, than a promotion of an idea, "nuclear winter", with a dramatic and easily grasped name — one which will long persist as a metaphor in the public consciousness, even if further research should demonstrate that the actual magnitude of the effect is far less than originally thought.

### 3. Policy implications

A third reason a suspicious observer might regard nuclear winter as a prime Soviet disinformation objective concerns the many policy implications discussed at the conference — despite repeated assertions that policy questions were outside the realm of the conference. Five specific policy implications come to mind:

- (a) *futility of civil defense* noted explicitly by at least one (American) scientist. (In reality, it seems to this observer that a severe "nuclear winter" would, in fact, make civil defense preparations that much more essential, and that the

effect is by no means the "nail in the coffin" of civil defense, as claimed by the Physicians for Social Responsibility.)

- (b) *insanity of the arms race* and the need to disarm to below the nuclear winter "threshold". — claimed to be at a level of 100 megatons — a level less than one percent of the present arsenals.
- (c) *impossibility of limited nuclear war* — thereby supposedly showing that any vulnerability of one side's forces to surprise attack is illusory (since the war is bound to escalate and we will then all be killed anyway).
- (e) *mutual suicide in the case of unanswered attack*. This particularly pernicious idea was repeated many times during the conference. In order to "demonstrate" that the U.S. need never worry about the vulnerability of its forces to a successful surprise attack which annihilated them all, it was held that such an attack would result in mutual suicide for the attacker as well as the victim through nuclear winter. Clearly, if both sides actually believed this, no sane leader would ever attack even if the other side's forces were vulnerable in some theoretical sense. In fact, upon learning this "news" the conference participant sitting next to me actually suggested that now unilateral disarmament — her preferred solution to the nuclear dilemma — was actually feasible. Obviously, the Soviets would not dare attack, and thereby commit suicide. But, what I asked, if the Soviet leaders don't believe in nuclear winter. The conversation ended after I was assured that could not be the case, since top Soviet scientists had just indicated the contrary.

I do not believe "nuclear winter" is *solely* a matter of Soviet disinformation. There is in fact the *potential* for a large climatic effect induced by smoke and dust following a nuclear war. This is an important area of investigation worthy of quantitative assessment — and the U.S. government has, in fact, launched such a large-scale effort. Moreover, some of the scientists associated with the nuclear winter study are objective, careful, and highly knowledgeable persons, seeking the best answer to

a complex scientific question. Many have no hidden agenda to promote a particular cause. Nevertheless, I am also sufficiently suspicious of the motives of some other scientists to believe that a fraction of those associated with nuclear winter studies are, in part, motivated by political considerations. They seem to believe that if the American public and the U.S. leaders become sufficiently scared of the consequences of nuclear war they will become motivated to solve finally the nuclear problem (or at least not worry about foolish nuclear imbalances and the need for new U.S. weapons). Only if the focus can be kept on a fear of nuclear war, they believe, rather than a fear of the Soviet Union, will the public be willing to take risks for disarmament.

Are some of these nuclear winter scientists then "tools" of the Soviet Union? No, I don't think so — at least no more than people who support U.S. nuclear modernization could be said to be "tools" of the Pentagon. People who are motivated to exaggerate nuclear winter for political reasons are doing something that they hope will promote peace. Many of the policies they wish to promote may be of considerable interest to the Soviet Union which is desirous of furthering its own version of "peace" through all means possible — especially including the important Psychological weapon of disinformation. One does not have to believe the Soviet Union is an evil empire to understand that, given the nature of open Western Societies, disinformation about nuclear matters is an inexpensive and highly valuable tool in influencing Western public opinion in ways the USSR finds desirable. Disinformation may prove to be particularly easy to propagate in those instances which:

- (a) Confirm ideas most of the American public already accepts, such as the non-survivability of nuclear war.
- (b) support the goals of the anti-nuclear disarmament movement,
- (c) have enough scientific credibility to conceivably be true.

Thus, "nuclear winter" would appear to be a tailor-made disinformation issue.

(Continued on page 30, col. 1)

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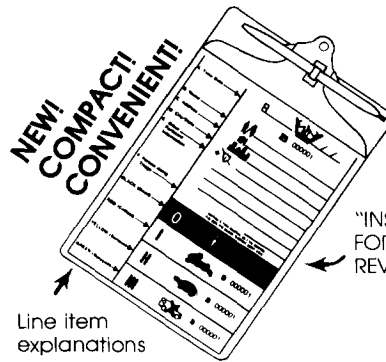
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- To bring about through these humanitarian endeavors (well established in other countries) a condition whereby rewarding nuclear targets in the United States become unrewarding nuclear targets, whereby aggressor attack upon the United States becomes clearly much too risky and dangerous for any aggressor, and whereby such nuclear attack and nuclear blackmail are effectively discouraged; and
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## SEMINAR SIDELIGHTS...

(From TACDA and DDP seminars  
— see feature, page 16.)

The new High Frontier film, "A Defense that Defends," was shown to TACDA and DDP audiences in the exhibit area on November 16th. The film is now available for television showings. It features Lorne Greene and others — 24 minutes.

The registration desk at the seminars received a flood of comments on superb hotel service and superb hotel facilities. The Daytona Hilton staff did everything possible to make guests happy. In addition, every time there was a seminar problem the hotel staff had a handy solution.

The site committee (Nancy Greene, Van Hallman, Max Klinghoffer) tentatively picked Los Angeles for the 1985 TACDA-DDP seminars. Dates will be sometime in October with the DDP seminar probably coming first. Nancy Greene is already working on a suitable location. Announcement of definite dates will be made in the February 1985 Journal issue.

TACDA president Charlie Badley plans to pick seminar dates several years in advance so that long-term planning can be made.

Exhibitors without exception were delighted with the exposure they received in the exhibit area and the coffee breaks and receptions that were held there. Seminar participants in turn took advantage of making contacts with exhibitors. The Whole Body Counter enjoyed a full-blown response. Federal Signal, Crown Industries, Alterting Communicators of America, Florida Group Retreat and others reported that business was exceptionally brisk.

The new American Security Council Foundation book *A Strategy for Peace Through Survival* was distributed to TACDA members in the exhibition area (still available as long as supplies last by mail free of charge to TACDA members who have not yet received their copies). The Journal review of *A Strategy for Peace Through Strength* will appear in the Journal's February issue.

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## AMERICANS FOR STRONG CIVIL DEFENSE PICKET ARKANSAS PEACE CENTER

Turning the tables on "peace through appeasement" advocates seven members of "Americans for Strong Civil Defense" staked out an all-day picket line at the Little Rock,

peace. We should not be here, because peace is not something to tamper with for the sake of sensation, for anybody's cause. And when we come to attack a movement

**"... A MORAL FLAW IN THAT  
MOVEMENT THAT IS NOT PEACE."**

Arkansas "Arkansas Peace Center" on October 23rd.

In a statement read before the peace center's headquarters, picket leader Sam Hilburn said:

"It is sad that we have come to this day. We should never be here to protest any movement committed to

that is named "peace" at its center as we've come here, it can only be because there is a moral flaw in that movement that is not peace."

Hilburn is president of Americans for Strong Civil Defense, an organization based in Eureka Springs, Arkansas.

# TOO GOOD TO FILE

Unfortunately, we in the US seem to be conditioned to the idea that unless our Armed Forces are under direct attack by other Armed Forces, we are still in a period of peace. But the facts are that we are not living in a time of peace today. We are in the midst of war, with the US as the principal objective.

— Major General John K. Singlaub as quoted in *Daily News Digest*.

[In its newsletter Press Reports on Soviet Affairs the Advanced International Studies Institute refers to the Soviet Agitator of the Armed Forces in the following excerpt.]

Soviet soldiers, the *Agitator* article reports, attend hate-oriented "theme nights" featuring films and other audiovisual materials. There are exhibitions with such titles as "Why I Hate Imperialism." Attendees are shown photographs of bombed-out hospitals and schools, and the mangled bodies of women, children and old people in El Salvador and Lebanon. *Agitator* explains:

"Our hatred for the imperialist is sacred. We hate them for their brutality and violence, for their encroachment on the freedom and independence of peace-loving peoples. Therefore we are ready at any minute to fulfill our patriotic and international duty, to secure the safety of our country, her friends and allies."

Despite an auspicious beginning as far back as the 50s when the Federal Civil Defense Act of 1950 was passed calling for a "system of civil defense for the protection of life and property in the United States from attack" and focussing on the building of nuclear-proof shelters, C.D. in the USA has been the victim of vacillating politics ever since. In the mid-50s, with the advent of thermonuclear weapons, the accent shifted to mass evacuation, to shift yet again when the effects of fallout became better known, and when warning times were reduced from hours to minutes, to encouraging citizens to build home fallout shelters. In 1961 (post-Berlin crisis) the

accent changed to a national public fallout shelter system. Finally, in the late 60s and 70s funding for C.D. declined sharply.

It is only quite recently that attention has once more focussed on C.D., an improved C.D. program designed to strengthen the US total strategic defense being approved by President Reagan in 1982...

— from a survey in *Aegis* (Zurich, Switzerland)

All of the proposed orbiting anti-missile systems depend on spotting Soviet I.C.B.M.s as they rise from their silos. The boosters are still burning when they leave the atmosphere, leaving a trail of fire that makes them easier to track.

Opponents of the defensive systems have suggested that it would be a waste to install them since the Soviets could switch to "fast-burn" boosters, which would complete their engine thrust before leaving the atmosphere. That has been considered a valid argument against such defensive systems as space-based lasers and the missile-armed High Frontier system. A new study by the Air Force Space Command, however, shows that fast-burn boosters would not prevent the anti-missile defenses from working.

Besides, converting to fast-burn boosters would require an entirely new missile program, which could not result in a Soviet deployment of this type of weapon until 2005.

Secondly, a fast-burn missile would have only 30 percent of the payload of an identical missile designed for the normal launch system. Thus, a Soviet SS-19, which now carries six warheads, would only be able to carry two if equipped with a fast-burn engine.

Finally, the tracking systems have proved surprisingly capable of locking onto a missile that is still in the early phases of its flight, when even fast-burn missiles would still be under full thrust.

Based on the new Air Force study, it appears that no substantive technical obstacles remain to building a defensive system.

— Review of the News

[In its July-August 1984 issue The Journal of Practical Civil Defence in Great Britain, editor Bruce Sibley devotes almost the entire issue to the Nuclear Winter debate. In a cover statement Sibley calls Nuclear Winter "a theory based upon insufficient data" and explains in part as follows.]

Nonetheless, ranks of normally cautious politicians and others are making utterances which appear to give the impression that NUCLEAR WINTERTIME is a definite article of scientific faith. Their followers and the general public, who rarely study these things in their complex detail, seem willing to accept these over-zealous media-thirsty individuals rather than acknowledge that scientists themselves cannot agree over the magnitude or duration of such an event!

Amid all the controversy flows an undercurrent of misinformation...

[In this same issue a "briefing" by Cresson Kearny contains the following.]

I conclude that Soviet propaganda will continue to forecast unsurvivable "nuclear winters," to reinforce their years-old external line, well stated by Academician Moisey A. Markov at last year's Erice Seminar. Markov, describing the buildup of nuclear arsenals, proclaimed that "... it became possible to destroy many times over all life on our planet." And at this year's Erice Seminar, M. N. Moiseev, Director, Computer Center, USSR Academy of Sciences, stated without qualification: "No one can hope to survive a nuclear war."

[In a rebuttal to Kearny, also published by Sibley, Owen Greene of Open University takes exception to Kearny's "vitriolic attacks" on Soviet scientists. And Kearny replies below.]

I find Greene's defense of propagandizing Soviet scientists significant because it reveals that he, like many Westerners, finds it too disturbing to recognize the fact that almost all Russians who are permitted to work with Westerners on projects involving important interests of the Soviet Union work to advance especially the strategic interest of the expanding Russian empire.

METTAG (Medical Emergency Triage Tag) is the international disaster response tag marketed by the Journal of Civil Defense throughout the United States and Canada, and to a limited but growing extent overseas. A tough 4-color casualty tag boasting individual serial numbers, tear-offs, vital signs chart and other features geared to the requirements of disaster operations and mass casualties, METTAG has come to be widely recognized as an invaluable lifesaving device.

## METTAG SPREADS WINGS — HOLDS PRICE LINE

— A Journal of Civil Defense Report

1984 was a good year for METTAG. More disaster response units selected it. The 1984 Summer Olympics used it (the 1980 Winter Olympics had adopted it four years ago).

At the EMERGENCY 84 international safety congress in Geneva, Switzerland Journal editor Walter Murphey presented METTAG to disaster response authorities from countries around the world.

"METTAG," Murphey told them, "gets around the objection of limiting use to those familiar with one

language by using *no* language. It relies completely on symbols. Why not? Symbols are exploited more and more in our overlapping lives today. Road signs are one good example. Airports have made of them an international language."

He also explained other METTAG features which support good rescue and lifesaving operations.

During the comment period that followed, the advantages of standardization were recognized by members of the audience, and it was suggested that a METTAG liaison with the Geneva-based World Health Organization (WHO) would further such interests. METTAG is now in touch with WHO.

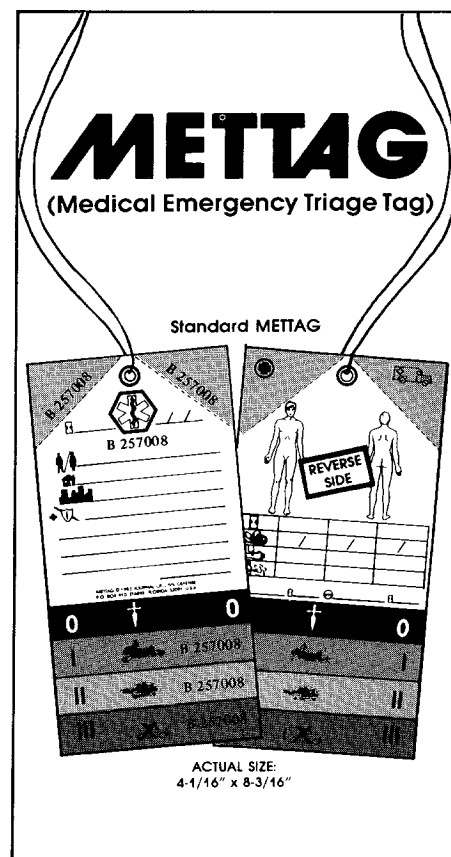
### NO METTAG PRICE INCREASES

In spite of hefty increases in printing costs, salaries, shipping and materials METTAG prices will not increase on January 1, 1985. This is due to a stepped-up sales volume and further operational streamlining. With continued sales volume and normal economic conditions there will be no price increase until January 1, 1986.

"We have our customers to thank for this," said METTAG coordinator Brenda Reynolds. "Both new orders and repeat orders have seen a strong upswing."

### 1983 METTAGS STILL ON SALE

"For those who are looking for a special bargain in METTAG's," she continued, "we still have some 1983 METTAGs left at a 20% discount. These older tags do not have the vital signs chart on the back, but they are the same tag that has been used so successfully for many years past and is being used extensively



still. The way they are going we should be running out about March or April. After that there'll be plenty of new tags."

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AIRPORT OPTION	5,000	26¢	48.25	1,348.25
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AIRPORT OPTION	50	43¢	2.25	23.75
	100	41¢	3.40	44.40
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Foreign shipping costs vary widely. Accounts abroad will be billed individually according to documented charges.

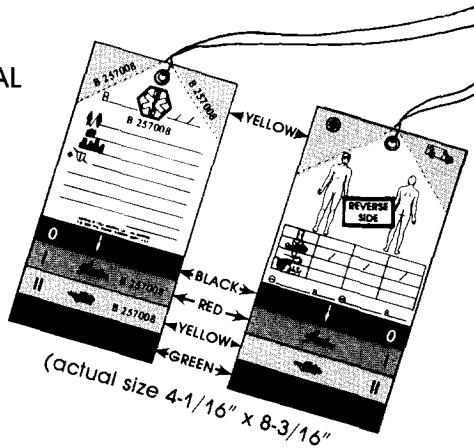
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| Apr 28-May 1 | DEMEX 85 World Congress & Exposition for Disaster & Emergency Management, Indiana Convention & Exposition Center, Indianapolis IN. Contact: Patrick Carr, Andry Montgomery & Association Inc., 101 N. Seventh Street, Louisville, Kentucky 40202. |
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## THE COLD AND THE DARK

(Continued from page 23)

## BOOK REVIEW

Although, the scientific validity of the nuclear winter theory remains to be established, the policy implications could be highly significant if the magnitude of the effect is anything like that suggested in the initial studies. In my opinion, however, further research will not definitely settle the matter. The uncertainties are so large that "nuclear winter" may forever remain an ambiguous phenomenon, one that is both potentially negligible and potentially catastrophic. In that event one

should be prepared for a long controversy in which worst case estimates continue to receive prominence in the media.

Note: Dr. Ehrlich's book, *Waging Nuclear Peace*, published by the State University of New York Press, Albany, N.Y., an objective analysis of nuclear issues — including civil defense and "nuclear winter" — has just been published. It will be reviewed in the *Journal of Civil Defense*.

*The annual international Seminar on Nuclear War held in Erice, Italy (on the island of Sicily) has come to be recognized as an opportunity for the evaluation of Eastern and Western ideologies and scientific advances by world scholars. The Erice seminar is the brainchild of Professor Antonio Zichichi of the Ettore Majorana Centre for Scientific Culture in Erice. Here Dr. Arthur A. Broyles of the University of Florida and Livermore National Laboratory gives his impressions of the 1984 Erice seminar, and retired ORNL scientist Cresson H. Kearny tells an anecdote.*



Arthur A. Broyles

## REPORT FROM ERICE

**The Fourth Erice Seminar on Nuclear War — August 19-24, 1984**

— A. A. Broyles

Prof. Zichichi had originally hoped that this seminar would be attended by Dr. Edward Teller and Academician Velikhof. When it became known that Dr. Teller's health would not allow him to attend, the Soviets decided to downgrade their delegation. This meant that Velikhof and Ambassador Issraelyan did not come. In fact, many of those who attended last year did not return. As far as I could tell, the best Soviet scientist there was Vladimir Aleksandrov. He is an expert on Nuclear Winter problems. The meeting seemed to divide into sessions on active and passive defense, Nuclear Winter, and other geophysical problems.

The Soviet spokesman on defense attacked the proposals for active defense and said nothing about civil defense. He quoted a document signed by several Soviet scientists purporting to show that active defense is not technically feasible. I believe it was John Nuckolls from Livermore that pointed out that one of the formulas that they used was in error. The error was equivalent to saying that the area of an object scales with the first power of the length rather than the second. The erroneous formula was referred to a couple of times in subsequent pages so that it was not simply a typographical mistake. The Russian speaker was not prepared to answer this and reverted to the propaganda line that the U.S. should agree to no first use of nuclear weapons. It was explained to me that a low level delegation of this sort has strict orders when it leaves Moscow. Anything unanticipated leaves them with no answer since they dare not say anything that might be later disapproved by their government. They looked very bad and Lowell Wood kept baiting them to answer our objections to make them go deeper into trouble. They refused to answer him however.

I emphasized in my talk that the Russians have an effective civil defense system. I quoted extensively from their civil defense manual waving it in front of them several times. I even said that this civil defense system showed that they had never subscribed to MAD. They said nothing in opposition to my statements and seemed totally unprepared on the matter. Their spokesman on defense, who had fared so badly on active defense, did ask to

by giving up "deterrence". I was not able to get him to explain clearly what he meant by "deterrence". Our statements in our talks were to the effect that we did not like MAD. Perhaps he thinks of MAD as deterrence . . .

I have the feeling that Zichichi was very unhappy that Teller and the other senior people had not come. That is easy to understand since, after reading the proceedings of last year's conference.

### Cresson Kearny's Anecdote



To learn firsthand what is the current Soviet official external line regarding civil defense, during the period of informal contacts between Seminar participants one night before dinner I first introduced myself to Vladimir Aleksandrov, and immediately began giving him my honest opinion: that the Soviet government is properly discharging one of the basic duties of any government by doing what it can to protect its citizens by continuously improving the Soviet civil defense system. I did not pause before mentioning my work at Oak Ridge building Russian expedient shelters and even testing several types in blast tests of Defense Nuclear Agency. Later that evening I used the same approach in separately striking up a conversation with A. A. Vasiliev (Director, Academy Institute of US and Canada Studies, USSR Academy of Sciences, Moscow). Both Aleksandrov and Vasiliev responded in similar fashion, each smiling as one does to a misinformed child and gently stating that his country has no consequential civil defense system. When to each I stated that I had had official Soviet civil defense manuals translated from original Russian manuals, one a 2nd edition of 500,000 copies, and that American friends of mine had bought civil defense manuals in ordinary bookstores in several Russian cities, but Russian scientists separately stated they had never seen any civil defense manuals for sale. (Vasiliev is a physicist, and indicated he knew of my work.)

see the manual as though he would have liked to prepare an answer, but I did not have it with me at the time. He did not press for it further. Some of the Europeans there seemed to have such a low opinion of the Russian system that I left with some concern that they may underestimate their war-making capability.

A West German diplomat, Hemming Wegener, was there and did a good job of explaining why we do not subscribe to the Soviet call for non-first use of nuclear weapons. He also stated in a conversation at the dinner table that the Europeans fear that we plan to abandon them

Our knowledge about the nuclear winter is still very inconclusive. No one has any numbers on the rate of rainout of smoke during the period of a couple of weeks when the smoke is being distributed. I also believe that we do not have a good knowledge of how much smoke will be produced by burning cities. We have numbers for the amount of smoke produced by fuel burned in the laboratory and some feeling of what would result from forest fires, but we have no measurements on burning cities. Research is, of course, continuing and may sustain further Erice meetings. □

## EDITORIAL . . .

# PRESCRIPTION FOR A GOOD DIRECTOR

— John E. Bex

Intelligence, knowledge, and expertise are worthwhile. A good director can make use of all of these. But they are not the heart of the matter.

Men of superior intelligence have often failed as managers and directors. They have sometimes created total disasters while other men, not dull but very far from the top of the class, have been really outstanding directors. It happens every day.

Another common fallacy is that a good director, above all, is someone who gets along well with people in the sense that he likes everyone and everyone likes him. Actually, good directors vary widely in this respect. Popularity is undoubtedly a positive asset to some degree. But it is a surprising fact how much good performance as a director is compatible with at least a moderate degree of unpopularity.

A good director is, above all, a man who gets things done and sees that others get things done in one way or another. This essential point is sometimes stated in the form that a good director is a person who makes things happen. Today in most fields, whether it be in civilian business or government business, a good manager or director has to have a certain bias toward progress, to be leaning forward, as it were. He has to be in tune with the times. This means a certain openness to ideas and belief in the possibility of the new. He must fight his managerial battles neither with obsolete weapons of previous wars nor with the non-existent ones of future wars, but he must work with the best currently available tools.

The modern director needs some very old-fashioned virtues — drive, ambition, persistence, a sense of purpose, confidence. These are the motivating forces required to make all other qualities effective.

The manager or director needs to have a certain sensitivity and even vision regarding long-term goals, interests, and the ultimate welfare of his agency and the people composing it. If he diverges too widely from these or is out of time with them, he will fail as a director.

Though people are easy to fool in some ways, they often sense the director who is in tune with them and the one who isn't, despite all verbal protestations. They will value a tuned-in director intuitively and follow his leadership gladly, even though he may lack some of the small change of popularity and demand a great deal from them.

Related to this is the valuable quality of being a good communicator. Since communication is a two-way process, this means a good director must be a good listener. Good listeners are in surprisingly short supply. Thus, a director who can listen courteously and intently to what is said, and listen "with a third ear" to what is not said as well, is way ahead of the game.

The popular term "nitty gritty" says something about a director's job. It is not an intellectual exercise or something that can be done by remote control. Often it is an inelegant and messy job. As Grover Cleveland once put it: "We are faced not with a theory but with a situation." Often it is the nasty problems which the director can least afford to delegate to others and which he may have to face and solve with his bare hands, so to speak.

Finally, the good director must be a mature person. Being mature specifically implies responsibility and the strength to avoid many temptations to dodge responsibility. It means being objective and fair, being able rise above one's own prejudices. And it also means having the courage to proceed as a minority of one when this is necessary. □

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