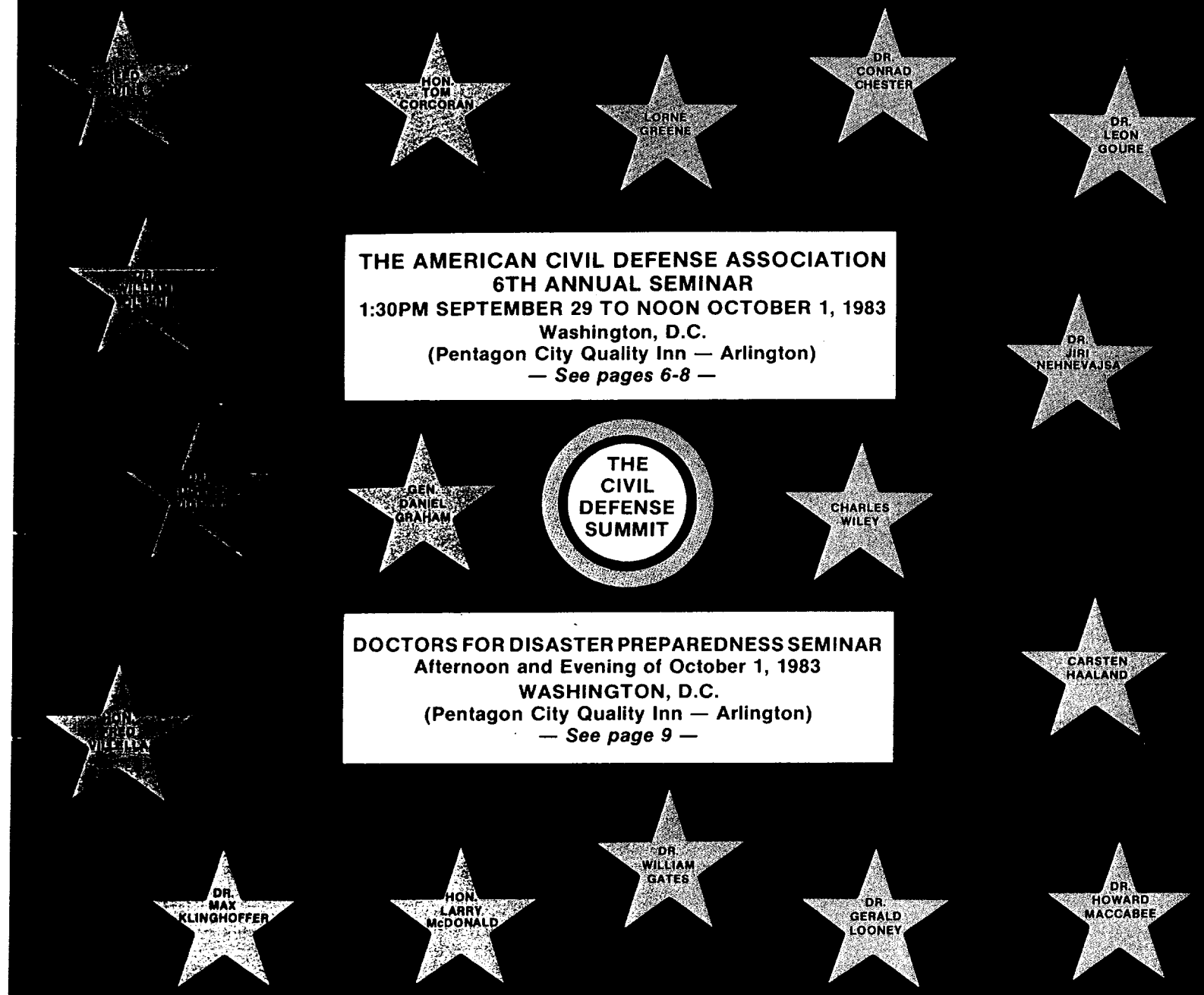
$2.50

Journal of Civil Defense



THE AMERICAN CIVIL DEFENSE ASSOCIATION
6TH ANNUAL SEMINAR
1:30PM SEPTEMBER 29 TO NOON OCTOBER 1, 1983
Washington, D.C.
(Pentagon City Quality Inn — Arlington)
— See pages 6-8 —

DOCTORS FOR DISASTER PREPAREDNESS SEMINAR
Afternoon and Evening of October 1, 1983
WASHINGTON, D.C.
(Pentagon City Quality Inn — Arlington)
— See page 9 —

Journal of Civil Defense

The American Civil Defense Association

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

VOLUME XVI — NUMBER 4 AUGUST 1983

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

CONTENTS

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The *Journal of Civil Defense* presents authentic information relating to civil defense—to the survival of free government, the United States and peace in the nuclear age. Its aim is public education in this field and service as a forum.

Authors are encouraged to submit manuscripts for consideration by the editorial committee for publication (the *Journal,* as a non-profit organization, pays no fees). Articles, preferably illustrated, should be 500 to 1,200 words in length, slanted to the non-technical reader, and oriented toward the civil defense field. Views expressed in contributions to the *Journal* are those of the authors and do not necessarily reflect *Journal* policy. Material may be reproduced if context is preserved, credit given, and copy sent to the *Journal of Civil Defense.*

CAPITAL COMMENTARY — Jerry Strope

SUMMER DOLDRUMS

The Nation's capital is caught up in the summer doldrums. Most lawmakers have taken full advantage of the Independence Day recess and have left Washington to the tourists and the protestors. The President is back in California except for occasional forays into the hinterland to launch his unannounced but expected bid for a second term. The media is left with the mystery of the purloined Carter briefing book to occupy itself until something more newsworthy comes along.

The workings of the Congress have been more chaotic this year than in recent memory. The budget process survives only in principle and the appropriations cycle is in neutral. The Reagan budget request has been roundly denounced not only by the opposition Democrats but also by an increasing number of Republican Senators. After months of hearings, maneuverings, and debate, the two Houses finally agreed in June on a budget resolution that proposed to cut the defense buildup from the 10 percent proposed by the President to 5 percent; proposed to raise taxes by about 12 billion dollars and added a like amount to domestic programs. The budget resolution does not have to go to the President for approval but Reagan has made it clear that he will veto the appropriation measures that attempt to carry out the tax hike and other features that he does not like.

All this has made hash of the Congressional calendar. Most Federal Agencies are anticipating that they will have to operate at least the first part of next fiscal year on a continuing resolution that will restrict them to this year's appropriation level. Oddly enough, the Federal Emergency Management Agency and its civil defense program is not one of these. The FEMA appropriation appears to be set and how that could have happened makes a small breeze in the summer doldrums.

The normal legislative process begins with authorization hearings. The civil defense part of the FEMA budget request comes under the cognizance of the Armed Services Committees of the House and Senate, presumably because civil defense is part of the national defense. The proposed program is reviewed here and some ceiling amount of funding authorized in the Defense Authorization Act. These authorizations for the Department of Defense — and such minor items as civil defense — have to be consistent with the joint budget resolution, and I just reported on that.

As reported in the last column, the House Armed Services subcommittee responsible for civil defense, which is chaired by Ronald Dellums (D-CA), a bitter civil defense opponent, held hearings during the nuclear freeze debate and then decided on their recommended authorization. Despite his public clamor against civil defense, Dellums proposed a mark of $163 million, up from the $147 million of this year. Representative Ken Kramer (R-CO) proposed $225 million, down from the President's $253 million request. Ultimately, the subcommittee agreed on $200 million and the full committee later concurred. But, of course, the stalemate over the budget resolution intervened and, as of the Glorious Fourth, the Defense Authorization Act had not reached the House floor for debate.

Over in the Senate, a similar foulup occurred. The Senate Armed Services Committee reportedly agreed on a bill that included only about $170 million for civil defense but the whole thing had to go back to the subcommittees when the budget conference agreed to reduce the defense buildup rate to five percent. So, on Independence Day, the authorization bill had not reached the Senate floor either.

Now comes the strange part. The appropriations bill, which normally follows the completion of the authorization process, quietly made its way through the committees. Civil defense funding, along with the rest of FEMA's budget, is part of the HUD (Department of Housing and Urban Development) and independent agencies appropriation act and has nothing to do with the defense appropriations. In the House, Representative Boland (D-MA), another nuclear freeze enthusiast, chaired the subcommittee hearings and reported out — guess what! — the same $163 million that Mr. Dellums had had in mind all along. The bill sailed through the main committee and was approved by the House itself. Over in the Senate, the chairman of the appropriations subcommittee, Mr. Jake Garn (R-UT), took his cue from the mark of the House Armed Services; namely, $200 million. The Senate version also passed and the two bills went to conferences in mid-June. Agreement was reached and, despite the fact that the authorization measure is still to be settled, Congress has at this point agreed on $169 million for FY 1984, which begins in October. The appropriation, if it remains unchanged, is far from the President's budget request and does not permit any significant improvement in the basic protection afforded the American people, but it is a robust 15 percent over this year's funding.

THE APPROPRIATION . . . DOES NOT PERMIT ANY SIGNIFICANT IMPROVEMENTS . . .

That increase is not applied in general to FEMA's civil defense program, however. The appropriation language is unusually restrictive in the designation of the increases. For practical purposes, the funding is held to current year levels for most of the program line items and therefore is a small net decrease due to inflation. What was added to this year's $147 million was about $6 million for what is now called EMA, matching funds for State and local emergency management staffs; another $6 million for training and education; $5 million for telecommunications and warning; and $5 million for matching funds for emergency operating centers. If the matching funds aren't matched at the local level, some of this increased funding may go back to the Federal treasury. □

THE CD SUMMIT

TACDA 1983 SEMINAR OPENS SEPTEMBER 29th

FOR REGISTRATION AND ROOM RESERVATION FORMS SEE PAGE 8

LORNE GREENE BANQUET SPEAKER

Top "Peace Through Preparedness" Spokesmen Address Washington D.C. Seminar

The controversial world of disaster preparedness pulls its act together at The American Civil Defense Association seminar September 29 - October 1. Place: Washington, D.C. (Arlington). Participants will see a focus on new concepts and new initiatives that promise a new day for civil defense.

An afternoon business meeting to set the stage for TACDA's expanded activities kicks off TACDA's 1983 seminar on September 29th. Following will be a 3-hour "Welcome Reception." The host hotel, the Pentagon City Quality Inn — a stone's throw from the Pentagon, enjoys a unique panoramic view of the nation's capital and is designed to take full advantage of it.

THE AMERICAN CIVIL DEFENSE ASSOCIATION
Sixth Annual Seminar
September 29 - October 1
Washington, D.C.
(Pentagon City Quality Inn - Arlington)
— REGISTRATION OPEN TO PUBLIC —

All day Friday, September 30th and the morning of Saturday, October 1st will be devoted to the TACDA seminar proper. Presentations, which will include generous question and answer periods, will be made by ten of America's top authorities in their fields, and five "roundtable" workshops will take place during two one-and-a-half-hour sessions (see biographical sketches and agenda).

For the first time in its history TACDA brings to its podium a leading Hollywood film personality — Lorne Greene — and two media notables — Reed Irvine and Charles Wiley.

For the first time an associated — but separate — seminar will follow TACDA's. The Doctors for Disaster Preparedness (DDP) seminar will take place in the same setting during the afternoon and evening of October 1st.

The TACDA exhibit hall will be open to both seminars, and to the general public. Registrations to both seminars are unrestricted — membership in either organization is *not* required.

TACDA's sixth "Civil Defense Summit" promises to be the best ever and to carry beyond it the much-needed momentum to bring about an early enhanced preparedness program.

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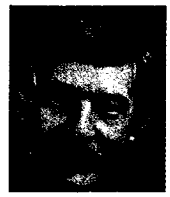
Capsule biographical sketches of speakers (in order of appearance):

Dr. Jiri Nehnevajsa — University of Pittsburgh. Dr. Nehnevajsa is the foremost pollster on the subject of civil defense in the United States. His polls have consistently shown that a great majority of the population wants civil defense, is willing to pay for a first rate program, and in fact thinks that an adequate program is in place.

Dr. Eugene P. Wigner — Princeton University. Wigner's government studies have resulted in recommendations for a much stronger civil defense. Wigner, a Nobel laureate in physics, is widely known as America's top civil defense authority.



Professor, writer, speaker, photographer, war correspondent Charles Wiley has covered ten wars and been arrested eight times by secret police (KGB, Castro's G2, etc.). These experiences and his many interviews with world leaders make him a dramatic and popular speaker on dealing with opposition strategies.

Reed Irvine, syndicated columnist and radio-TV news commentator, was a Fulbright scholar at Oxford. He edits the provocative *AIM Report* which calls erring media representatives to account for incorrect, biased and/or malicious reporting. Recognized as a top authority on disinformation techniques.

Congressman Tom Corcoran, conservative Republican (IL) will challenge liberal Republican Senator Charles H. Percy for his senate seat in 1984. Corcoran's strong views on homeland defense provide TACDA with tighter congressional liaison.

AGENDA
THE AMERICAN CIVIL DEFENSE ASSOCIATION SEMINAR

Registration fee covers all agenda functions

September 29 - October 1, 1983
Washington, D.C. (Pentagon City Quality Inn — Arlington)

— All activities take place on the 2nd Floor Mezzanine unless otherwise noted —

Registration desk open 1PM to 9PM September 29th, 8AM to 8PM September 30th, 8AM to 12N, October 1

EXHIBIT HALL OPEN 5PM - 8PM SEPTEMBER 29, 8AM - 8PM SEPTEMBER 30, 8AM - 4PM OCTOBER 1

Sept 29 — 1:30PM-5:00PM — TACDA BUSINESS MEETING (Conference Hall)
7:00PM-10:00PM — Welcome Reception (in Hospitality Suite)

Sept 30 — 8:30AM-8:45AM — Seminar Opening (Frank Williams)
8:45AM-9:30AM — Dr. J.I. Nennevaisa — "National Perspectives on Civil Defense"
9:30AM-10:00AM — COFFEE in Exhibit Hall
10:00AM-10:45AM — Dr. Eugene P. Wigner — "Waging Peace"
10:45AM-11:30AM — Charles Wiley — "Anti-War Movement: Road to War?"
11:30AM-1:30PM — (Luncheon) Reed Irvine — "Disinformation: Polluting the News Stream"
1:30PM-3:00PM — TACDA Roundtable Workshops:

SHELTER/EMERGENCY SUPPLIES — Moderator: Dr. Conrad V. Chester — Parlor Room B	NOW CIVIL DEFENSE — Moderators: Gen. E. D. Woelfner/Dr. William Olsen — Hospitality Suite	TACDA CHAPTER ORGANIZATION — Moderator: Stephen H. Mayerhofer — Conference Hall

3:00PM-3:30PM — COFFEE in Exhibit Hall
3:30PM-4:15PM — Congressman Tom Corcoran — "Civil Defense Issues and the 98th Congress"
4:15PM-5:00PM — General Daniel O. Graham — "High Frontier — A New National Strategy"
5:15PM-6:45PM — TACDA Roundtable Workshops:

FEMA TRAINING & EDUCATION — Moderator: Hon. Fred J. Villella — Hospitality Suite	YOUTH INVOLVEMENT IN CIVIL DEFENSE — Moderator: Richard E. Sincere, Jr. — Parlor Room B

7:00PM-8:00PM — Reception
8:00PM — (Banquet) Lorne Greene — "Civil Defense: For Humans or for All Living Things?"

Oct 1 — 9:00AM-9:15AM — Opening
9:15AM-10:00AM — Dr. Max Klinghoffer — "Lies and Antidotes"
10:00AM-10:30AM — COFFEE in Exhibit Hall
10:30AM-11:15AM — Carsten M. Haaland — "Facts of Weapons Effects"
11:15AM-12:00N — Dr. Leon Goure — "Alternate Strategies for Peace"

DOCTORS FOR DISASTER PREPAREDNESS SEMINAR FOLLOWS — PLEASE SEE PAGE 9

General Daniel O. Graham, former Director of the Defense Intelligence Agency, is prime mover of HIGH FRONTIER, the space-based missile intercept concept which promises, with government development of it, to make the ICBM obsolete and nuclear peace a reality.

Lorne Greene's acting spectrum spreads from space wars to Shakespeare. He extends his interests to many other fields, including a deep concern for the ecology — which leads him to a unique view of civil defense and what its total mission should consist of.

Physician-humorist -rescue specialist Max Klinghoffer — author of "Triage — Emergency Care," now appearing in the *Journal of Civil Defense,* calls reluctance to plan and prepare for disaster a violation of medical oaths. The medical problems of nuclear attack, he claims, must be faced and dealt with.

Nuclear scientist Carsten M. Haaland, a veteran of Oak Ridge National Laboratory civil defense research, is an international authority in the field of nuclear radiation. In addition to his scientific achievements he is an accomplished musician and band leader.

Leon Goure's books on Soviet civil defense reinforce his position as No. 1 expert in that field. But that's only the tip of the Goure iceberg. Russian-born, French-educated Goure is an international strategic analyst of the first water. Goure, crushed between two cars in April of last year, is still mending.

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Due to requests for more workshops at the close of last year's TACDA seminar and the obvious benefits of give-and-take discussions the number of workshops this

year increases to five.

The Honorable Fred Villella, director of the National Emergency Training Center, will — with the help of Dr. Eugene Wigner — conduct the workshop on Training and Education from 1:30PM to 3:00PM on September 30th in the Hospitality Suite.

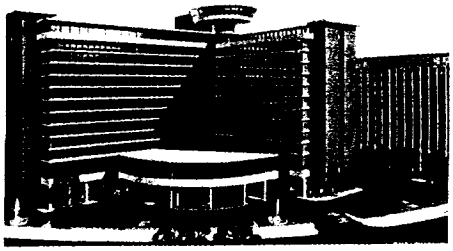
TACDA Executive Director Stephen H. Mayerhofer will lead discussions at the TACDA Chapter Organization workshop for those interested in chapter activities. This will take place in the conference hall from 1:30PM to 3:00PM on the 30th.

At the same time in Parlor Room B the "NOW Civil Defense" workshop will be conducted by General E. D. Woellner, Director of the U.S. Global Strategy Council, and Dr. William Olsen, NASA scientist. This will include a discussion of the pilot NOW Civil Defense operation underway in northern Ohio at present.

During a second workshop session, from 5:15PM to 6:45PM two more workshops will be held:

The first is the Shelter and Emergency Supplies Workshop — a focal point at the 1981 and 1982 TACDA seminars and one which has earned a permanent spot on TACDA seminar agendas. Dr. Conrad V. Chester, Chief of the Emergency Planning Group at Oak Ridge National Laboratory, has agreed to serve as moderator again this year.

The other workshop at this time is a new one: Youth Involvement in Civil Defense. Richard E. Sincere, Jr., president of TACDA's Washington D.C. area chapter, will conduct it. With a stronger play by youth in survival issues during the past year and signs of an explosion of youth involvement upcoming an analysis of what is happening and how to deal with it is vital. ☐



REGISTRATION — TACDA 1983 Seminar, Washington, DC, Sept. 29-Oct. 1
Registration fee — $95 **(Advance registration before Sept. 15 — $80)**

TO: **TACDA 6th Annual Seminar**
P.O. Box 1057
Starke, FL 32091
(Phone: 904/964-5397)

☐ Enclosed $_____
☐ Please bill me
☐ I'll pay at registration desk

Name(s) _____

Address _____ (Phone: _____)

City _____ State _____ Zip _____

QUESTIONS

Q: Has President Reagan been invited?
A: Yes. The White House has suggested we resubmit our invitation 10 to 12 weeks prior to the seminar—which we shall do. Fingers are crossed.

Q: Why the Pentagon City Quality Inn again? We were there in '81.
A: Everyone liked it in '81. The hotel staff was superb. Meeting facilities great. Rates are reasonable. Good food. View. Skydome. Roof pool. Handy Metro. Quiet. Free airport service. And where do you get an extra phone in every bathroom?

Q: Is the seminar restricted to TACDA members?
A: Registration is open to all. Same goes for DDP seminar.

Q: Will speakers entertain questions?
A: Each speaker is being asked to set aside about 15 minutes (1/3 of his presentation) for questions and answers. It appears that all will agree to do so.

Q: Will partial registrations be accepted?
A: Yes. Morning and afternoon seminar sessions and receptions may be attended separately — $15 each. The luncheon and banquet separate price tags are $22.50 each. It is preferable, if practical (and more economical) to register for the entire seminar.

Q: Will there be ample time to visit exhibits?
A: Yes. Extended coffee breaks will be held in the exhibit hall. It will remain open for the convenience of seminar participants on the following schedule:

September 29 — 5PM to 8PM
September 30 — 8AM to 8PM
October 1 — 8AM to 4PM

The October afternoon exhibit hours are for the convenience of participants of the Doctors for Disaster Preparedness seminar.

Q: Is the Doctors for Disaster Preparedness seminar a part of the TACDA seminar?
A: The DDP seminar is separate, but the two organizations have planned the back-to-back seminars because their missions are interrelated, and because many participants of one seminar will want to attend the other.

Mail reservation to:

PENTAGON CITY QUALITY INN
300 Army-Navy Drive
Arlington, VA 22202

☐ Single $50
☐ Double $55
☐ Confirmation requested

ROOM RESERVATION FORM

(No Deposit or credit card information required except for arrivals later than 6 PM).

Arrival date/time: _____ No. of days: _____

Name _____

Address _____ (Phone: _____)

City _____ State _____ Zip _____

— TACDA SEMINAR PARTICIPANT —

DOCTORS FOR DISASTER PREPAREDNESS SEMINAR FOLLOWS TACDA CONFERENCE ON OCTOBER 1st

— AT PENTAGON CITY QUALITY INN —
CONGRESSMAN LARRY McDONALD BANQUET SPEAKER

History will be made on October 1st in the Washington D.C. suburb of Arlington, Virginia when Doctors for Disaster Preparedness (DDP) holds its first seminar. The DDP function follows the TACDA seminar and brackets the afternoon and evening. The Pentagon City Quality Inn will be host for DDP as it will be for TACDA. Most DDP members are also TACDA members.

DDP was formally founded on December 12, 1982 at Washington's Georgetown University. It contends that response without preparedness for wartime medical problems is not enough, that a responsible response must include planning, training, preparedness and equipment. The concept is similar to that of emergency response to accidents. Being available is obviously not enough. Needed are pre-alerted and trained medical personnel who have been schooled in rescue operations. And along with that the necessary transportation, equipment and supplies.

Larry McDonald

Howard Maccabee

Gerald Looney

DDP holds that a wartime response is valid — and a fulfillment of the medical oaths — only if honest and organized preliminary measures have been taken so as to assure coordinated and effective operations. Refusal to take these measures will lead to the full-blown chaos portrayed by those errant medics and others who market a policy of vulnerability to nuclear attack. The more we prepare to deal with a war situation the more risky an attack becomes and the less likely it is to occur.

This rationale underlies the DDP seminar and the DDP support *for measures to contend with disasters of all kinds.*

Featured dinner speaker for the DDP seminar will be Congressman Larry McDonald, himself a physician, whose presentation will be "Valley of the Shadow Updated." Congressman McDonald is well known for his conservative stand and for his backing of full-fledged preparedness measures.

Afternoon speakers (please see agenda) will be:

- Dr. Howard Maccabee, who heads an oncology clinic and who holds a doctorate in nuclear physics;
- Dr. Paul Morris, an emergency physician from Oakland, California.
- Dr. Max Klinghoffer, author of the "Triage — Emergency Care" series in the Journal, whose experience includes years of airport rescue;
- Dr. William H. Gates of Cincinnati, Ohio, chairman of the Ohio Emergency Medical Services Advisory Council; and
- Dr. Gerald L. Looney, Medical Director of the Emergency Department at Glendale Adventist Medical Center-Chevy Chase, staff member of the University of Southern California School of Medicine.

DDP sees the October seminar as the beginning of a series of seminars throughout the United States. These seminars will stress the humanitarian aspects of across-the-board preparedness in serving the medical needs of mankind in all types of disaster. □

DDP SEMINAR AGENDA
PENTAGON CITY QUALITY INN
WASHINGTON, D.C.
(ARLINGTON)
OCTOBER 1, 1983

1:30-2:15PM — Dr. Howard Maccabee and Dr. Paul Morris (RADIATION IN SHELTERS)
2:15-2:45PM — Dr. Max Klinghoffer (AIRPORT DISASTER PLANS)
2:45-3:15PM — Coffee Break
3:15-3:45PM — Dr. Gerald Looney (EXPERIENCE IN DISASTERS; FLEXIBILITY IN PLANNING)
3:45-4:15PM — Dr. William H. Gates (THE BEVERLY HILLS FIRE)
4:15-6:30PM — Business Meeting
7:00-7:30PM — Reception
7:30 — Banquet — Speaker: The Honorable Larry McDonald, Congressman from Georgia. (VALLEY OF THE SHADOW UPDATED)

REGISTRATION — Doctors for Disaster Preparedness 1983 Seminar, Washington, D.C. October 1.

Registration fee — $45

TO: **DDP Seminar**
P.O. Box 1057
Starke, FL 32091
(Phone: 904/964-5397)

□ Enclosed $_____
□ Please bill me
□ I'll pay at registration desk

Name(s) _____

Address _____ (Phone: _____)

City _____ State _____ Zip _____

Use TACDA Room Reservation Form

SPOTLIGHT

WIGNER PORTRAIT GOES TO NETC IN TACDA SEMINAR PRESENTATION

A life-size oil painting of Nobel laureate Dr. Eugene P. Wigner has just been completed by the widely-known American portrait artist Ann Schuler. The Wigner portrait will be presented to the National Emergency Training Center art collection by TACDA president Frank Williams at the September 30th (1983) seminar banquet in Washington, D.C.

The idea for a Wigner portrait was conceived by John E. Bex, one of the strongest advocates of an adequate civil defense in the United States. The portrait, in fact, goes to the NETC art collection via TACDA from the Bex collection.

It helps to create at NETC a center for civil defense art.

"The purpose behind this," said Bex, "is to recognize the patriotism, the dedication and the sacrifices of Eugene Wigner in over 20 years of effort to promote for the United States an effective system of civil defense. Wigner's expansive research and his organization of civil defense initiatives make him 'the father of civil defense' in our country. If Wigner's recommendations to our government, based on the work he accomplished for government, had been followed we would today have a credible civil defense. This great scientist is a God-given blessing we need to exploit better."

Wigner at 80 has the appearance and drive of a man 30 years younger. His value to TACDA and to his country is incalculable.

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SAFETY SYSTEMS INC. STAGES DRAMATIC FLORIDA SEMINAR

Live field demonstrations of chemical spill fire, underwater rescue, plane crash triage and other special emergencies provided participants in a Safety Systems seminar with a training experience as close to stark reality as possible.

The seminar was held June 13-17 at Ponce de Leon Lodge and Country Club and the St. Augustine Technical Center training facilities, St. Augustine, Florida. Safety Systems conducts seminars throughout the United States for firefighters, field medics, hospital personnel, police, civil defense staff and others in the rescue business.

Safety Systems Inc. used the METTAG emergency triage tag. Here a rescue team member prepares to affix a METTAG to an exercise casualty.

Safety Systems may be contacted for further information at P.O. Box 8463, Jacksonville, FL 32239 (Phone: 904-725-3044).

•

USA ONE UP ON USSR — INTRODUCES "CHICKEN GUN"

The New York Times and *The Wanderer* report that the United States Air Force has now perfected its "chicken gun" — a new-technology weapon which projects chickens at parked aircraft at a speed of 700 miles per hour. The idea is to simulate planes hitting birds in flight and devise ways to reduce damages to the planes.

Air Force spokesman Major Dennis Funnemark is quoted in *The Times* as saying that the "chicken gun" is a converted 20-foot cannon that shoots four-pound chickens into engines, windshields and landing gears so that damages can be measured.

Senate Majority Leader Howard Baker observed: "I am sure that . . . many Americans are trying to find out how far along the Soviet Union is with their deployment of the chicken gun . . . I am also trying to find out if the Navy is working . . . on this project to develop one of their own missiles which would be, one assumes, a 'chicken of the sea.' "

The reports make no mention of how the chickens fare in the project.

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FORESIGHT FOLDS ITS TENT . . . "TEMPORARILY"

After one year of publication the very remarkable newsletter *Foresight,* as previously predicted by editor-publisher Richard E. Oster, Sr., ended its brief history with a whopping 36-page issue (plus 3 attachments!). On page 36 Oster placed the following in his "Next Month" box:

> "Publication temporarily discontinued due to insufficient public response."

It is hoped that "temporarily discontinued" means that *Foresight* will be on the market again soon. It deserves to be. Survivalist-scientist Dick Oster gave his readers many times their money's worth. We all need him again.

Near the end of his final July issue Oster chivalrously chastises Dr. Jennifer Leaning of the Physicians for Social Responsibility for presenting some good arguments for preparedness and drawing the wrong conclusion (that preparedness is a no-no). He tells this story to demonstrate his point:

> Dr. John Doe was doing research on the jumping capabilities of the 8-legged locomotorus flea hopper. He trained this flea to jump over a toothpick whenever he hollered "JUMP." With 8 legs the flea could do it with no problem. So the good doctor (he had a PhD.) cut off one leg and tried it again. It took a little more effort, and the flea went over a little sideways, but he made it. This continued, with removal of one leg at a time and continued loud "JUMP" commands. Finally, the good doctor got down to one leg. It took an awful lot of hollering, but upon the advance offer of sugar and honey water the flea mustered up the courage and made it, albeit a real sloppy and sideways leap. The doctor was jubilant. Now he removed the final leg. He thought that with enough encouragement (he and the flea had a good rapport) maybe he could do it. But holler and persuade as he did the flea did not jump.

In the conclusion to his report the good doctor states that "it is obvious that when you remove the last leg of a locomotorous flea

hopper he loses his hearing ability and can no longer hear the command to 'JUMP.' "

So much for Dr. Leaning's logic as explained by Dick Oster. The point is that Dick, in spite of bumping head-on into apathy and worse, has a lot of "JUMP" left in him, and we predict all of it — and then some — will be used to plug preparedness.

(Back issues of *Foresight* are still in stock and for sale at $7 per copy, $77 for all 12 copies. Each one is a masterpiece. Available from Richard E. Oster, Sr., 914 Pinehurst Drive, Arlington, Texas 76012. Consulting services are also available at modest fees. The Journal certainly intends to bang on his door for articles.)

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SOVIET HIGH FRONTIER OVERTURES FOR REAL?

Call it "High Frontier" or "Missile Intercept" or "Space Defense" — whatever. The idea of disarming an opponent by making most of his nuclear weapons useless toys is intriguing.

So much so that Soviet Foreign Minister Andrei A. Gromyko wants to talk about it. He so stated in a Moscow speech according to a New York Times News Service dispatch.

It all started when President Reagan on March 23rd addressed the nation and said ". . . what if free people could live secure in the knowledge that their security did not rest upon the threat of instant U.S. retaliation to deter a Soviet attack; that we could intercept and destroy strategic ballistic missiles before they reached our own soil or that of our allies? . . .

According to the Times News Service the White House statement on the subject, issued on June 17th, said: We are considering how best to engage the Soviets on the issue."

Relegating nuclear weapons to the trash pile along with the bow-and-arrow and the tomahawk could let the world breathe easier again. But some pinko propagandists in the U.S. disagree. They feel that such a nuke umbrella would be "dangerous."

Dangerous to whom? To those bent on world conquest for sure.

•

JAPANESE NUCLEAR PLANTS WITHSTAND MAJOR EARTHQUAKE

In the July issue of *Access to Energy* Dr. Petr Beckmann reports: "On May 27, 1983 an earthquake measuring 8.6 on the Richter scale struck Japan; it was followed by a tidal wave. There was considerable loss of life and heavy damage, but Japan's nuclear plants, two of them in the region with the heaviest damage, never missed a beat." Beckman also printed the following table, showing nuclear capacity in gigawatts and percentage of nation's power produced by nuclear plants:

Country	GW	%
Canada	6.1	7.1
China (Taiwan)	3.1	27.3
Finland	2.2	21.4
France	23.7	33.0
Germany	10.1	14.5
Great Britain	6.6	9.6
Japan	17.2	12.5
Sweden	6.4	21.0
Switzerland	19.4	13.8
U.S.A.	65.7	11.0

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PRACTICAL CIVIL DEFENCE

The May-June issue of Bruce Sibley's British *Practical Civil Defence* — its second issue — again produces hard-core information on nuclear shelter and survival with illustrations and in basic easy-to-understand language. A top notch source for any civil defense buff serious about shelter and related subjects, as well as British budgets, programs, innovations, rehabilitation of World War II bunkers, etc.

Practical Civil Defence appears bimonthly and is published by editor Bruce Sibley. Americans and Canadians may subscribe to *Practical Civil Defence* for $38 a year with prompt bulk air mail delivery to distribution points. Write:

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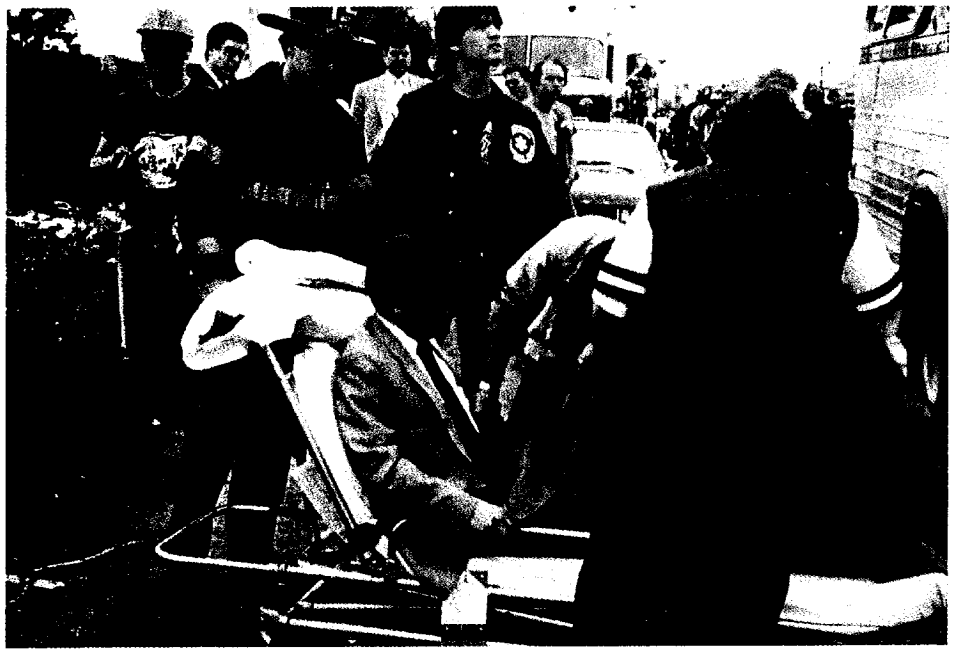


One of the 28 bus passengers injured when a truck loaded with cement rammed the back of the stopped bus near Hartford, Connecticut is placed in a stretcher. METTAGs (see METTAG ad, page 21) purchased by the Windsor Volunteer Ambulance service were used to tag the injured. After the June 8, 1983 accident a new order for five times the original quantity was placed. (Information from Windsor Volunteer Ambulance, Inc. Photo by Chris Griffin of WVA.)

Want to know the approximate fallout protection of a building and don't have a qualified shelter analyst in your back pocket? Using your own "Kentucky windage" and "Tennessee elevation" you may be able to get in the ballpark. Read on.

SIMPLIFIED FALLOUT SHELTER EVALUATION GUIDE FOR SURFACE BUILDINGS

— A *Journal of Civil Defense* Staff Study

Fallout protection is often present in surface buildings where it was not really intended. Construction planning is therefore often undertaken where protection is innocently worked into the design and where, with simple changes, it might have been significantly improved without affecting cost. Even where possibilities are recognized there remains the problem of how to determine the fallout protection factors (FPFs) in the absence of a qualified analyst. But a pretty fair indication of an FPF can still be ascertained by the uninitiated through the use of a "Simplified Fallout Shelter Evaluation Guide" such as the one below. For instance, it can be determined that even some barns (especially those with masonry walls) with their stocks of hay may offer an FPF that could mean the difference between life and death for man or beast. It is also possible for communities, on their own, to make lay assessments of their shelter capabilities.

Satisfactory accuracy, of course, is not assured without detailed knowledge of a structure and proper engineering analysis. The evaluation guide is meant to provide only an *indication* of fallout protection characteristics in conventional construction where window sills are at a height of three feet or more. If, through the use of this guide, a building area shows promise as a fallout shelter *it must be surveyed by a qualified shelter analyst* in order to give it reliable fallout protection factors. This table permits non-technical evaluations of potential shelter. Overhead and horizontal radiation shielding — in terms of pounds per square foot — must be estimated as accurately as possible. A table of mass thicknesses appears on the following page for assistance in estimating these weight factors.

Figures in the body of this guide indicate trial fallout protection factors.

OVERHEAD FALLOUT PROTECTION (POUNDS PER SQUARE FOOT)

HORIZONTAL FALLOUT PROTECTION (POUNDS PER SQUARE FOOT)	0	10	20	30	40	50	60	70	80	90	100	120	140	160	200	Over 200
10						2	2	2	2	2	2	2	2	2	2	2
20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
30	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3
40	2	2	3	3	3	3	3	3	3	4	4	4	4	4	4	4
50	3	3	3	3	4	4	4	4	4	5	5	5	5	5	5	5
60	3	3	4	4	4	4	5	5	5	6	6	6	6	6	7	7
70	4	4	4	4	5	5	6	6	7	7	7	7	8	8	8	8
80	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
90	4	5	5	6	6	7	8	9	10	10	11	12	12	13	13	13
100	4	5	6	7	7	8	9	10	11	12	13	14	15	16	16	17
120	5	6	7	8	9	10	12	13	15	16	18	21	23	25	25	26
140	5	7	7	9	10	12	14	16	19	21	24	29	33	35	42	46
160	6	7	8	9	11	13	16	19	23	27	30	38	44	50	62	70
180	6	7	8	10	12	14	17	22	27	31	36	46	57	68	88	100
200	6	8	9	10	12	16	19	23	29	35	42	56	71	92	123	150
220	6	8	9	11	13	16	20	25	32	37	46	65	83	120	170	210
240	6	8	9	11	13	17	21	26	33	40	50	73	95	144	220	305
260	6	8	9	11	13	17	21	27	34	42	52	79	105	166	275	420
280	6	8	9	11	14	17	21	27	35	43	54	83	115	185	330	560
300	6	8	9	11	14	17	22	28	36	45	55	87	125	200	380	720
Over 300	6	8	9	11	14	17	22	29	37	46	56	89	140	220	440	950+

Note: Roof washdown systems can generally be considered effective where horizontal shielding exceeds 100 pounds per square foot. Overhead shielding of 20 pounds per square foot or more is also helpful.

TABLE OF MASS THICKNESS

Item	Thickness Inches	Mass Thickness (lb/sq. ft.)
ADOBE:	1	10
ASBESTOS:		
Board	3/16	2
Corrugated		4
Shingles	5/32	2
ASPHALT:		
Roofing (3 ply)		1
Roofing (4 ply and gravel)		5½
Roofing (5 ply and gravel)		6
Shingles		2
CLAY:		
Brick	1	9
Tile		
Facing	2	15
Facing	4	25
Facing	6	38
Partition	4	18
Partition	6	28
Partition	8	34
Partition	10	40
Shingles		15
Structural	8	42
Structural	12	58
CONCRETE:		
Cinder	1	9
Haydite	1	8
Lightweight	1	7
Reinforced	1	12½
Slag	1	10½
Stone or gravel (Std. Wt.)		12
Block (Hollow) Stone or gravel (Std. Wt.)	4	30
	6	42
	8	55
	12	85
Cinder	4	22
	6	30
	8	39
	12	61
Lightweight	4	20
	6	28
	8	39
	12	61
FIBERBOARD OR SHEATHING:	½	1
GLASS BLOCK:	4	18
GLASS PANES:	¼	3½
GYPSUM:		
Block	2	9½
Block	4	12½
Block or sheathing	½	2
MATERIALS ON FARMS:		
Barley	1	3
Corn (shelled)	1	4
Grain Sorghum	1	3½
Hay		
Loose	12	4
Chopped	1	1
Baled	12	15
Manure		
Dairy	12	30
Poultry	12	50
Swine	12	60
Oats	1	2
Rice	1	4
Peas, dry	1	3
Potatoes	1	3½
Rye	1	4
Silage	12	40
Soy Beans	1	4
Straw		
Loose	12	3
Baled	12	6
Wheat	1	4
Bran	12	15
Water	12	69
PLASTER:		
Applied directly		5
On lath		6
Solid	1	10
PLYWOOD SHEATHING:	3/8	1
SLATE:	3/16	7
SOIL:		
Clay, dry	1	6
Clay, wet	1	9
Loam, dry	1	7
Loam, wet	1	10
Sand & gravel, wet	1	11
STEEL:		
Plate	1	41
Corrugated Sht.	20 GA.	2
Panels	18 GA.	3
STONE MASONRY:	1	11
STUCCO:	3/4	5
TERRA COTTA:	1	5
WOOD:		
Flooring, hardwood	7/8	4
Flooring, softwood	3/4	2½
Sheathing	1	2½
Roof shingles		2½
Wall shingles		1
SIDING:		
Bevel	8	1½
Drop	6	2½

MINI-SCENARIO

SITUATION: Farmer Brown has anticipated measures to be taken in the event of a nuclear attack. When it comes, his radio tells him that a one-megaton ground burst has impacted on a military base 30 miles to his northwest and that fallout is due to reach him 8 hours after the burst at an estimated level of 40 roentgens per hour (r/hr). Brown and his family go into pre-planned action. They bring designated cattle to their barn, they herd the remainder into a fenced-in swamp. At the same time they finish berming their chicken house, and they take measures to beef up their basement family shelter. A number of other tasks are completed well within the several hours they have to prepare. Brown does some figuring (estimates) on his "survival chart":

IN ROENTGENS PER HOUR (R/HR.)	In Open	Family Shelter (FPF 300)	Barn (FPF 20)	Swamp (FPF 10)	Chicken House (FPF 8)
Fallout arrival	40	0.133	2	4	5
2 days later	4	0.013	.2	.4	.5
2 weeks more	.4	0.001	.02	.04	.05
14 weeks more	.04	0.0001	.002	.004	.005

Note: A number of factors would tend to influence FPFs and levels moderately up and down.

Q & A CORNER

(The following excerpt of an interview with General Daniel O. Graham is reprinted with the permission of *Survive.* The complete interview appeared in the May-June issue of *Survive.* See page 25 of this issue of the *Journal of Civil Defense* for a review of General Graham's latest book: *High Frontier — A Strategy for National Survival.* General Graham is speaking here of missile intercept in space.)

Q: What do you think of the role of civil defense if, say, just 5% of Russia's missiles make it through this screen of yours?

A: If we're capable of stopping 95% of a Soviet attack, that means that people in civil defense no longer have to deal with wholesale slaughter, the kind of apocalyptic situation that a full attack would entail. It's a more manageable situation: it makes civil defense make more sense. Now, civil defense has always made sense to me, but it makes a lot more sense when it's in combination with an active defense that reduces the rate of attack on the United States. And therefore, the whole issue of civil defense has to be restudied in the light of High Frontier, which we are doing.

. . . CIVIL DEFENSE HAS ALWAYS MADE SENSE TO ME, BUT IT MAKES A LOT MORE SENSE WHEN IT'S IN COMBINATION WITH AN ACTIVE DEFENSE . . .

Q: Interesting. It's obviously easier to handle something like 20 million dead than 190 million.

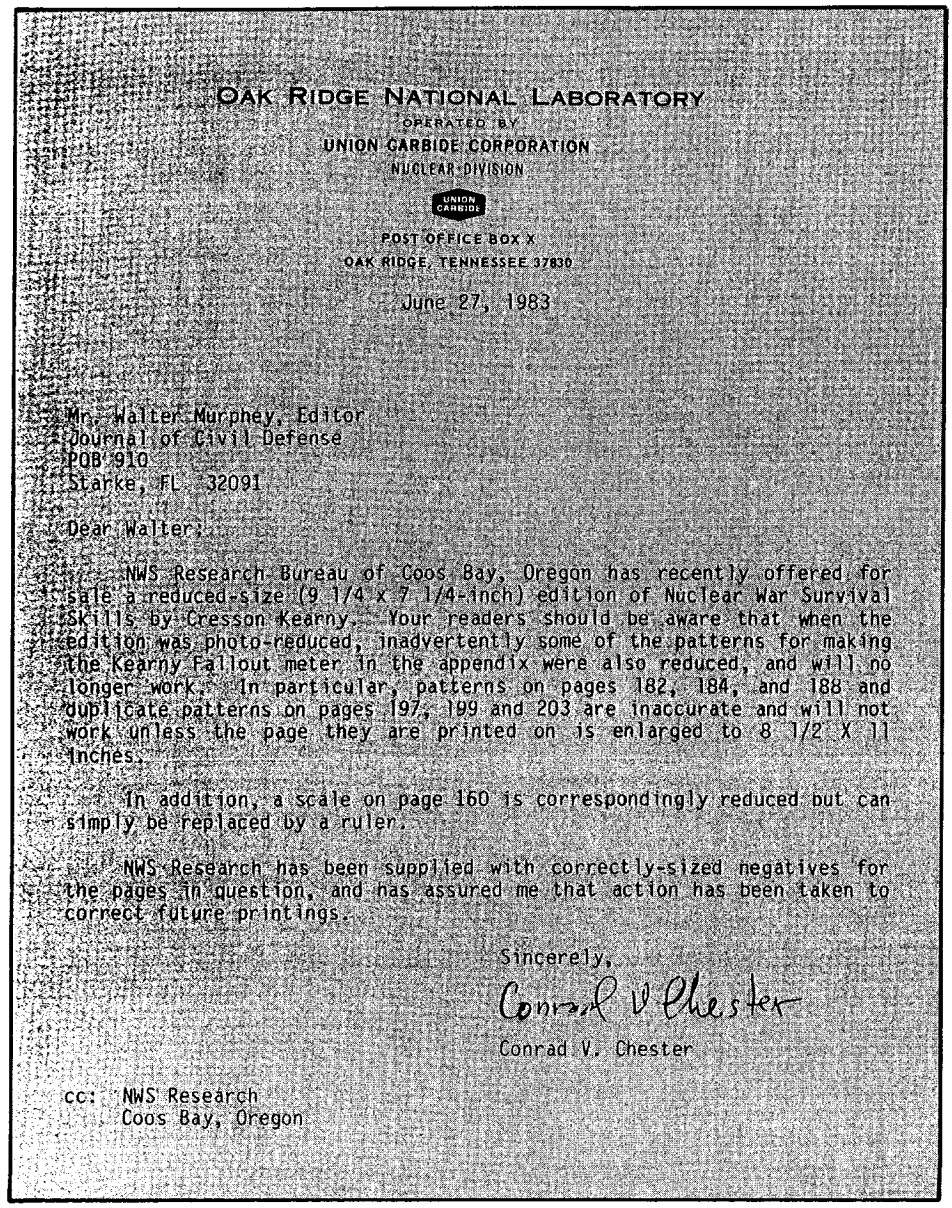
A: Well, it's not really a matter of how many dead you have to handle. If you have High Frontier, the chance of the Soviets' loosing their main arsenal of long-range missiles at you is practically out of the question. The Soviets are not going to fire 1,000 ICBMs at us if they know that only 50 would get through, and especially *when they won't know which 50.* They wouldn't know if those 50 were aimed at missile silos, submarine pens or radar. They just won't do it.

Q: Still, do us a favor and talk about the worst case. What is war occurred when we had High Frontier?

A: If 50 random warheads hit the United States, it could be handled. If you've got, say, three targets in Maine — three towns having something the Soviets intend to hit — the chances of all three getting hit are remote. So one out of three might get hit. And that means the other two can aid the town that's been hit. We'd lose very few people, because the Soviets would have to fight through our spaceborne defense line, which means that the American people would have time to *do* something, which makes all the talk about evacuation begin to make sense. The reason that crisis relocation doesn't make a helluva lot of sense to Americans now is that they are envisioning a scenario in which a radio announcer comes on and says, "Twenty minutes from now, the bombs start hitting." So everyone says, "Hell, what the devil good does it do to evacuate?"

Q: In a scenario like that, they wouldn't be able even to get to the suburbs.

A: Right, But if that announcer comes on the air and says, "The Soviets are attacking our spaceborne defenses and in two days they may have battered through them," then you've got time to do something in a fairly orderly fashion to get people out of harm's way. So, the problems civil defense faces are reduced, and the money and effort required are reduced.



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June 27, 1983

Mr. Walter Murphey, Editor
Journal of Civil Defense
POB 910
Starke, FL 32091

Dear Walter:

NWS Research Bureau of Coos Bay, Oregon has recently offered for sale a reduced-size (9 1/4 x 7 1/4-inch) edition of Nuclear War Survival Skills by Cresson Kearny. Your readers should be aware that when the edition was photo-reduced, inadvertently some of the patterns for making the Kearny Fallout meter in the appendix were also reduced, and will no longer work. In particular, patterns on pages 182, 184, and 188 and duplicate patterns on pages 197, 199 and 203 are inaccurate and will not work unless the page they are printed on is enlarged to 8 1/2 X 11 inches.

In addition, a scale on page 160 is correspondingly reduced but can simply be replaced by a ruler.

NWS Research has been supplied with correctly-sized negatives for the pages in question, and has assured me that action has been taken to correct future printings.

Sincerely,

Conrad V. Chester

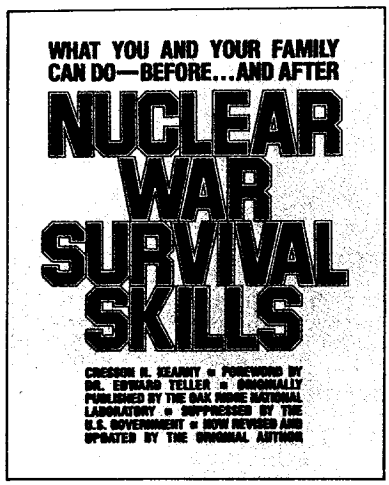
Conrad V. Chester

cc: NWS Research
Coos Bay, Oregon

Editor's note: Dr. Conrad V. Chester is Chief of the Emergency Planning Group, Energy Division, Oak Ridge National Laboratory.

3 groups will survive if nuclear war comes to America: (1) the Soviets (2) the fortunate American 20 percent (3) those who are prepared

If you are an American, you can ignore the problem and hope for the best . . . or you can get the facts by reading NUCLEAR WAR SURVIVAL SKILLS



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"Don't tell the people" . . . is this the policy of the U.S. Government? The facts of nuclear survival are available in this 239-page volume with 83 dimensional drawings, 26 sketches, 60 photos and patterns for the do-it-yourself construction of a workable fallout meter. If you only purchase one book in the 1980s, it should be NUCLEAR WAR SURVIVAL SKILLS.

Some influential congressional and bureaucratic power groups do not want the American people to learn the facts about the nuclear risk in the years ahead. These people believe that the subject is "too deep" and "too risky" to let the voters know the truth. They believe that widespread nuclear survival information would create a groundswell of support for an expanded U.S. civil defense program . . . and they're right! They know that the people do not share their view that "only an exposed population is a safe population" and will do almost anything to keep the public in a state of ignorance. Thus, NUCLEAR WAR SURVIVAL SKILLS is the most provocative book in existence for the Washington, D.C. establishment . . . a book which must not gain wide circulation. Do you agree?

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Thunderstorms pose frequent threats to life and limb the world over. Like EMP, lightning and other thunderstorm phenomena can to a degree be brought under control. But only if we analyze the causes and effects and take the necessary steps to contend with the problems.*

THUNDERSTORMS AND LIGHTNING

— Richard A. Wood
Program Leader, Disaster Preparedness
National Weather Service

It's estimated at any given moment nearly 2,000 thunderstorms are in progress over the earth's surface, and lightning strikes the earth 100 times each second. Statistics from 1959-82 for the United States show that 2,430 people have lost their lives, and 5,882 have been injured by lightning, an average of a little over 100 people killed and about 250 injured each year. Property loss is estimated in the hundreds of millions of dollars annually.

What Are Thunderstorms?

Thunderstorms, generated by temperature imbalances in the atmosphere, are a violent example of convection. Warming of the air near the earth's surface and/or cooling of the air above puts warmer, lighter air layers below colder, denser layers. The resulting instability causes convective overturning of the layers, with heavier, denser layers sinking to the bottom and the lighter warmer air rising rapidly.

A thunderstorm may be several miles across its base and often towers to altitudes of 40,000 feet or more. High level winds shred the cloud top into the familiar anvil form. These cloud towers are sometimes visable as lonely giants and at other times while moving several abreast are known as a squall line.

Thunder

Thunder is a sound produced by explosive expansion of air heated by a lightning stroke. When lightning is close by, the thunder sounds like a sharp crack. More distant strokes produce growling and rumbling noises. Because the speed of light is about a million times that of sound, we see a lightning bolt before the sound of the thunder reaches us. This makes it possible to estimate the distance (in miles) to a lightning stroke by counting the number of seconds between lightning and thunder and dividing by five. Divide the number of seconds by three to obtain distance in kilometers.

Lightning

Lightning is an effect of electrification within a thunderstorm. As the thunderstorm develops, inter-

ELECTRICAL POTENTIAL . . . AS MUCH AS 100 MILLION VOLTS

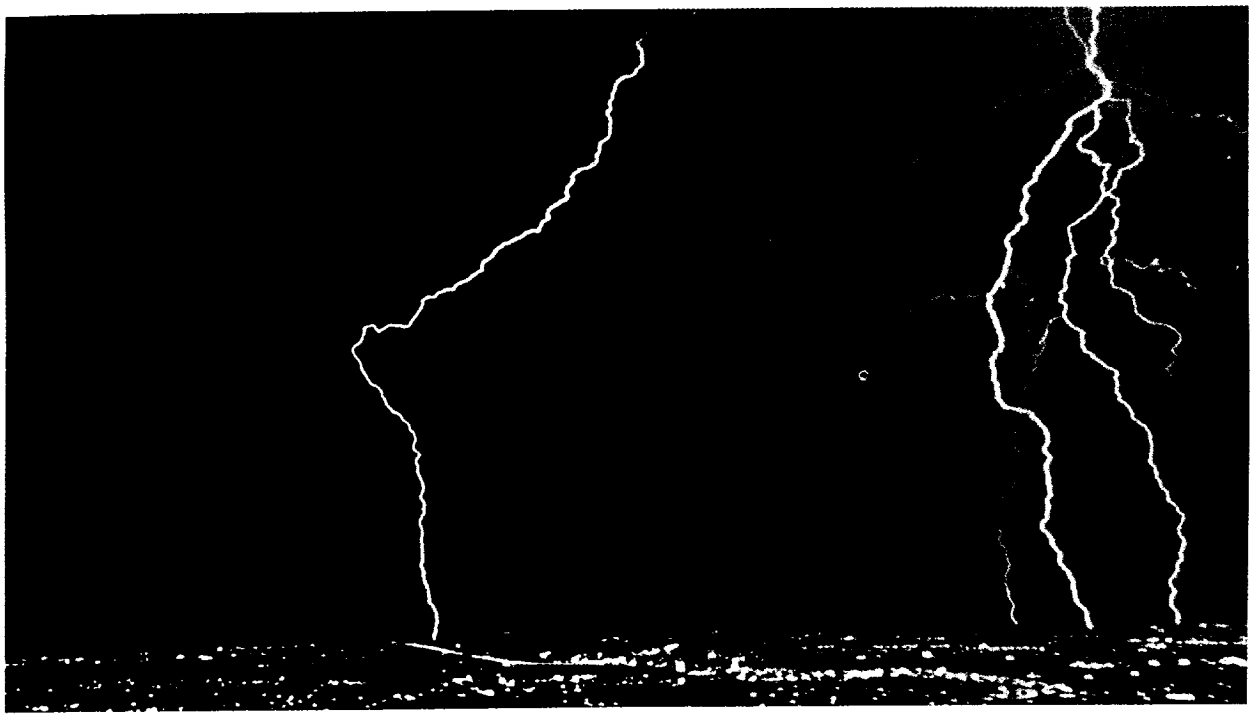
actions of charged particles produce an intense electrical field within the cloud. A large positive charge is usually concentrated in the frozen upper layers of the cloud, and a large negative charge, along

*EMP (electromagnetic pulse) is an electrical surge associated with nuclear detonations, especially very high altitude detonations.

COMPARATIVE STATISTICS

Statistics compiled by Henry Vigansky of the National Climatic Data Center show that only two states have recorded no deaths or injuries from lightning over the past 24 years (1959-1982). These are Alaska and Hawaii. The state of Washington is runner-up with only 1 death and 17 injuries during this period. Florida leads in lightning deaths with 235 fatalities. On a deaths-per-square-mile basis the District of Columbia is out in front with .04 deaths per square mile during the 24-year accounting. Total for the United States is 2,430, an average of slightly more than 100 a year. 71% of these lightning deaths occur during the three summer months — June, July and August.

Lightning is a hazard we have to live with, and certain precautions tend to minimize casualties (see "Lightning Safety Rules" on facing page). The death toll for highway accidents during this same period is over 1,100,000 or more than 400 times that of lightning. We take this toll for granted, but improved control measures could have a highly beneficial effect here too (the 55-mile-per-hour speed limit was accompanied by a sharp drop in highway deaths). Control measures could also sharply reduce fatalities anticipated for the U.S. in a nuclear attack — which are on a one-time basis some 65,000 times those for lightning over the 24-year period. In the nuclear attack case effective control measures would fortunately work to prevent the occurrence of the disaster itself — impossible in the case of lightning, and improbable in the case of highway traffic.



Lightning over Tucson, Arizona (Photo by Arizona Daily Star)

with a smaller positive area, is found in the lower portions.

Lightning occurs when the difference between the positive and negative charges — the electrical potential — becomes great enough to overcome the resistance of the insulating air and to force a conductive path for current to flow between the two charges. Electrical potential in these cases can be as much as 100 million volts. Lightning strokes proceed from cloud to cloud, cloud to ground, or, where high structures are involved, from ground to cloud.

Downbursts

Downdrafts along the leading edge of a thunderstorm form the gust front. It is usually marked by gusty cool winds that can produce damage. Strong localized downdrafts are called *downbursts.* These are intense concentrations of sinking air which fans out as it strikes the earth's surface, producing damaging "straight" winds and, in some cases, blowing dust, particularly in the southwest United States. Thunderstorms which have downbursts typically produce several such events in succession of varying strengths and sizes. Frequently, damage that is attributed to tornadoes is actually caused by the straight winds of a downburst. This is because downburst winds can be as great as those of strong tornadoes and may produce a "roaring" sound. At times, a thunderstorm may produce a combination of tornadoes and downbursts. The occurrence of downbursts makes it imperative that the threat of severe thunderstorms be taken as seriously as that of tornadoes. When a severe thunderstorm approaches, seek shelter in a sturdy building. As with a tornado, mobile homes should be evacuated. In a home, the best shelter is in the basement or in a bathroom or a small closet on the lowest floor.

Hail

Hailstones are precipitation in the form of lumps of ice that form during some thunderstorms. Hailstones range from pea size to the size of a grapefruit. They're usually round, but may also be conical, or irregular in shape, some with pointed projections. Hail is most devastating to crops but can also cause heavy damage to aircraft, automobiles, roofs, and windows.

Lightning Safety Rules

If you plan to be outdoors, check the latest weather forecast and keep a weather eye on the sky: At signs of an impending storm — towering thunderheads, darkening skies, lightning, increasing wind — tune in your NOAA Weather Radio, AM-FM radio, or television for the latest weather information.

When a thunderstorm threatens, get inside a home, a large building, or an all-metal (not convertible) automobile. Do not use appliances (electric typewriters, hair dryers, telephones, water taps, etc.) except for emergencies.

If you are caught outside, do not stand underneath a tall isolated tree or a telephone pole. Avoid projecting above the surrounding landscape, for example, don't stand on a hilltop. In a forest, seek shelter in a low area under a thick growth of small trees. In open areas, go to a low place, such as a ravine or valley.

Get off or away from open water, tractors, and other metal farm equipment or small metal vehicles, such as motorcycles, bicycles, golf carts, etc. Put down golf clubs and take off golf shoes. Stay away from wire fences, clotheslines, metal pipes, and rails. If you are in a group in the open, spread out, keeping people several yards apart.

IF YOU FEEL YOUR HAIR STAND ON END . . .

Remember — lightning may strike some miles from the parent cloud. Precautions should be taken even though the thunderstorm is not directly overhead. If you are caught in a level field or prairie far from shelter and if you feel your hair stand on end, lightning may be about to strike you. Drop to your knees and bend forward, putting your hands on your knees. Do *not* lie flat on the ground.

A Red Cross first aid course provides excellent instruction on how to render aid to a person who has been struck by lightning. □

TRIAGE — EMERGENCY CARE

XIV — ELECTRICAL INJURIES (14th of 18 installments)

— Max Klinghoffer, M.D.

In the discussion of electrical injuries and the treatment of those injured by electricity, it is interesting to note the parallel between electricity and ionizing nuclear radiation: both are forms of energy and both can serve us in many areas. Improperly handled, however, or out of control, both may inflict serious injury or death.

THE HUMAN BODY HAS A FAIRLY HIGH RESISTANCE TO ELECTRICITY, WHICH ACCOUNTS FOR ONE OF THE PHENOMENA IN ELECTRICAL INJURY.

It is not necessary to fully understand the physics of electricity in order to properly treat the victim. But it is advisable to know the more simple definitions.

The ampere (strength) is an arbitrary unit of electric current. The volt is also an arbitrary unit, and is the force which "pushes" the current through a conductor. A conductor is any material which will permit a current to pass through it, and there are many degrees of conductivity. For example, copper and aluminum are good conductors of electricity, while porcelain, bakelite, and dry air are poor conductors. The degree of conductivity depends upon the resistance of the material — a good conductor having a low resistance (allowing the current to pass through readily), while a poor conductor has a high resistance.

When current flows through a material which has a low resistance, it generates comparatively little heat. When the current meets a high resistance, heat is generated in a conversion of energy. For example, the element in your electric heater is made up of a material with fairly high resistance; when the current flows through this element, heat is created, and the "element" may glow. When the current meets a higher resistance as in the incandescent light, the glow is so brilliant that the element would almost immediately "burn out" if it were not for the fact that the bulb contains almost no oxygen. The oxygen is removed by creating a partial vacuum or by replacing the oxygen with an inert gas which will not support combustion.

The human body has a fairly high resistance to electricity, which accounts for one of the phenomena in electrical injury.

In general, a high voltage with a very low amperage will result in burns, but very seldom a fatal shock. If both amperage and voltage are sufficiently high, severe injuries may occur or the victim may be killed instantly.

At this point it is important to correct a common misconception. Many people think that the danger of accidental electrocution exists only for those who

work in generating plants, or who work with high voltage wires. Actually, a much greater number of serious electrical injuries occur due to "household current" which we use every day. This is simply because we ARE exposed to it every day. The high voltages are seldom factors in the injury of the average person since relatively few of our population ever come very close to high voltage lines, except when the lines may be downed in a storm or in an accident.

But it does not take two thousand volts to kill. The ordinary household current, which varies from 115 volts to 230 volts is deadly under certain conditions. The voltage used in our lighting and most of our appliances is 115 volts. The higher voltage of 230 is usually used for dryers, stoves, and air conditioners.

Another definition is needed to understand the effects of electric current on the body. Direct current (abbreviated D.C.) is a current which flows constantly in ONE direction. Alternating current (abbreviated A.C.) is a current which reverses directions at a set frequency (our household current is 60 cycle, meaning that the current reverses its direction 60 times every second). Direct current, of sufficiently high voltage and amperage, will produce severe burns, especially at the points of contact (where the resistance is higher), and will produce muscle stimulation.

THE ORDINARY HOUSEHOLD CURRENT, WHICH VARIES FROM 115 TO 230 VOLTS IS DEADLY UNDER CERTAIN CONDITIONS.

Alternating current of high voltage and amperage, is relatively even more dangerous, since it results in severe muscle contraction (with the victim often unable to release his grip on the conducting material) and may cause severe or even fatal changes within the heart. A rough parallel would be this: direct current produces burns and muscle contraction. The contraction is greatest at the moment of contact. If the same individual were to come into contact with the same voltage and amperage of alternating current, it would be almost as though he contacted the source of direct current and then released the contact 60 times every second.

Linemen who work with higher voltages often refer to "let go current" and "no let go current". This refers to one of the effects of the current on human tissue. If voltage and amperage are high enough, the muscles may contract to the extent that the individual may not be able to open his hand and release himself from the contact. If the voltage and amperage are low, he may feel the contractions, but may still be able to release himself from the contact.

IF A SUFFICIENTLY HIGH ELECTRIC CURRENT IS APPLIED ACROSS OR THROUGH THE HEART, IT WILL DISRUPT THE NORMAL ELECTRICAL MECHANISM.

Electricity injures or kills in one of three general ways — or a combination of them.

1. When an electric current passes through the body, heat is generated because the body has high resistance. This heat is higher at the two points of contact, since the resistance is usually higher at these points. Thus, if a high current is contacted at the feet and head, the brain will be destroyed by the heat generated. At the points of contact, there will usually be burns, where the resistance (and therefore the heat) are higher. A very high current may literally amputate the extremity at point of contact.
2. As a result of muscle stimulation by the current, the individual may be unable to release his hand from the conducting wire. If the current passes through the central portions of the body, it will also paralyze the muscles of respiration, thus making it impossible for the victim to breathe.
3. The heart contracts ("beats") normally through an electrical mechanism in the heart, which controls the rate at an average of 60-80 contractions a minute. If a sufficiently high electric current is applied across or through the heart, it will disrupt the normal electrical mechanism. The heart will either stop or will enter into an abnormal type of contraction, with no particular rhythm, which is incompatible with life.

Having discussed some definitions and having indicated the various ways in which electricity can kill, it is time to see how we come into accidental contact with this current. (Almost all household current in the United States today is A.C.)

In Figure 1 the high voltage wires (A and B) are suspended from the line pole by the insulators (C and D). These lines enter a "step-down transformer" (E), which reduces the high current to the ordinary house current. Usually three wires go from the transformer to the building. These are F, G, and H. The voltage from F to G is 115, as is the voltage from G to H. The voltage from F to H is 230. Note that one wire, G, is also

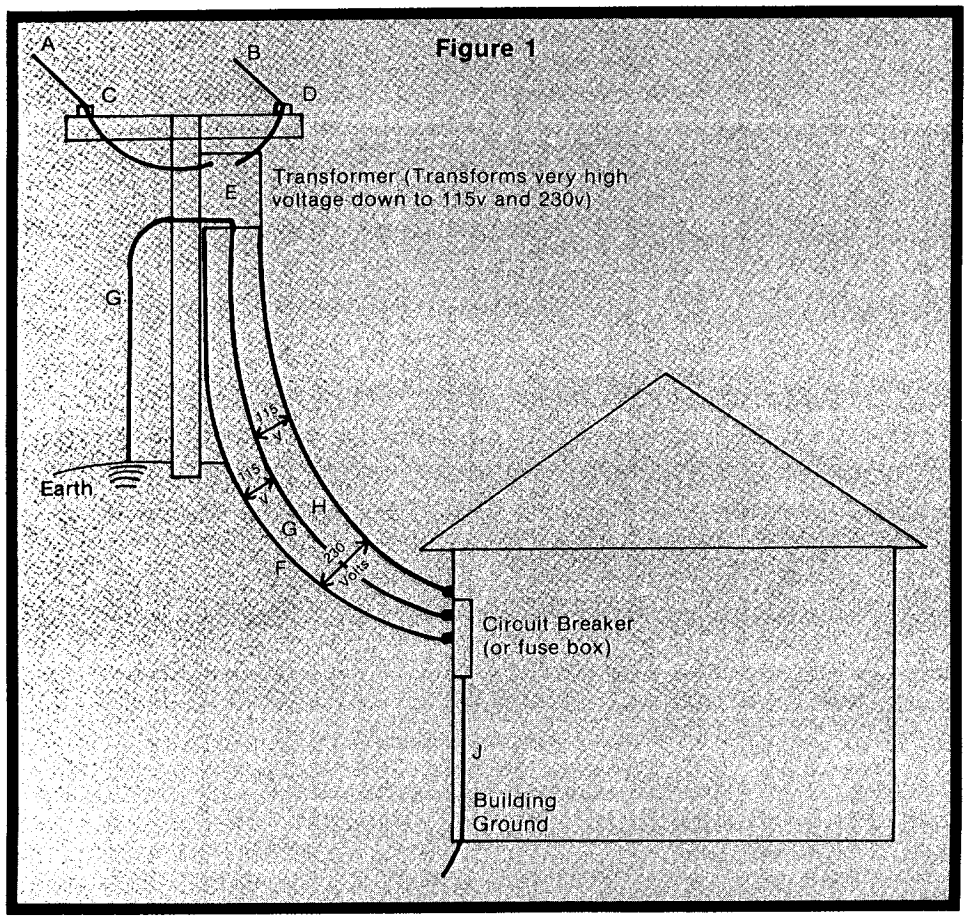
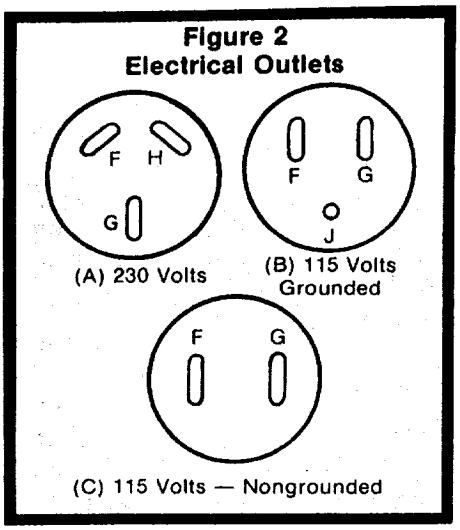


Figure 1



"grounded" which is in part for protection against lightning — thus making this a "neutral" wire. This also means that anything "grounded" — that is, to the earth itself, concrete, a water or gas pipe (J) will be grounded in the electrical circuit of line G. Thus, if you contact F and H you will receive a shock due to 230 volts. If you contact G and H, or if you contact F and G, you will get a shock of 115 volts. But (and this is extremely important in understanding most accidents due to electricity about the home) if you touch F **or** H, **and** you are also in contact with anything "grounded", you will still get a shock of 115 volts. Remember — this is more than enough to kill.

Figure 2A shows the type of socket used for an outlet for 230 volts. The 230 volts are represented by the combination of F and H, while G is the ground wire.

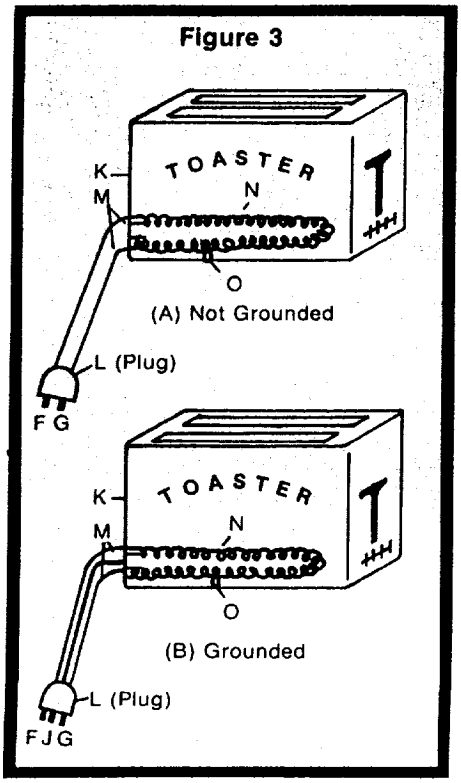
In Figure 2B, F and G represent 115 volts, with J as the secondary ground wire. In Figure 2C found in older buildings, the outlet has just two openings, F and G, with no secondary ground wire. This is now considered obsolete and dangerous. It is not practical to consider the many ways in which accidental electric shock may occur; but perhaps a few examples will explain the danger.

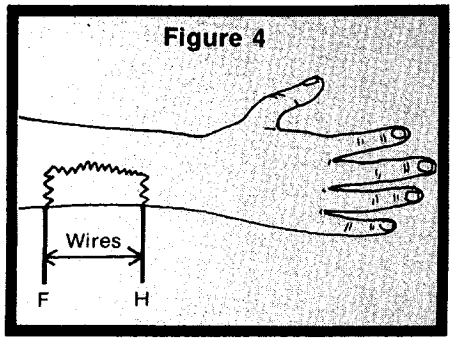
In Figure 3 the metal frame of the toaster is (K). The plug (L), with two contacts, F and G connecting the two wires from the plug to the toaster, entering the metal frame through the insulators, M. N is the heating element. But note that at point O the toaster has been damaged and the element is touching the metal frame K. Now the metal frame is the equivalent, electrically, of contact F. Therefore, touching the toaster while at the same time touching a water pipe or standing on a concrete floor (or contacting any other "grounded" point) will produce a shock. The protection against this type of accident is the use of the "grounded" plug, as shown in Figure 3B. Here the same situation exists; but note that there is a three contact plug, including a ground wire and contact J, (which "grounds" the frame of the toaster.) Now if the toaster is "plugged in", the current flows from F and G through the point where the element touches the frame, and thence to the ground lead. This results in the immediate "blowing" of a fuse, or the circuit is broken through an automatic circuit breaker. In other words, we lose a fuse, or have to switch the circuit breaker, rather than have a seriously injured patient. (**ALL** extension cords should be of the three wire type, a "hot" wire, a neutral, and a "ground".) Obviously, this same mechanism can take place with a defective electric drill, a heater, a radio, or almost any electrical apparatus.

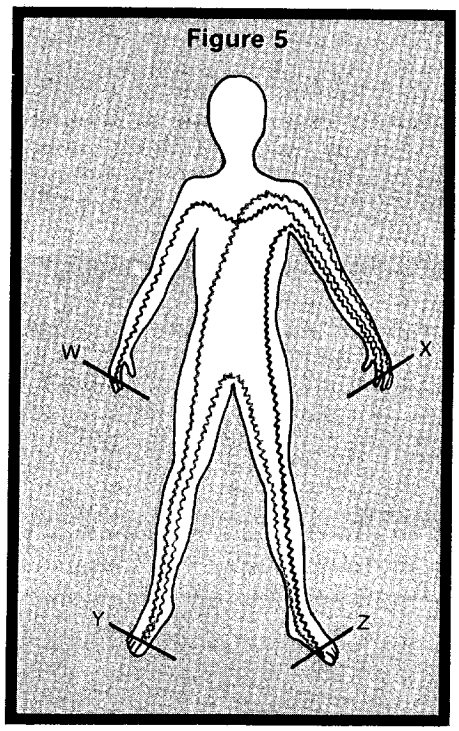
But much of the effect of the electric current on the body will depend on the route it takes through the body. For example, if a very high current from wires F and H passes through the arm (see Figure 4) it will produce a shock and severe burns, and may even amputate the arm. But the patient may well survive. But if a much lower current passes through the two arms (see Figure 5) this now affects the heart as well as the muscles of respiration, and may be fatal. Similarly, such a current passing from either leg through the arm may cause death.

In Figure 5, a current applied at W and X may be fatal since it passes across the heart area. Similarly, a current from Y to X or from Z to X may be fatal. But a current from Y to Z is less likely to be fatal since it does not pass across the heart area. (Such a current, if very high, may produce serious injury to the legs, and even cause electrical amputation.)

BUT MUCH OF THE EFFECT OF THE ELECTRIC CURRENT ON THE BODY WILL DEPEND ON THE ROUTE IT TAKES THROUGH THE BODY







It now becomes apparent that an individual standing on a terrazzo floor or on the concrete floor of a basement (both may retain a considerable amount of moisture, thus rendering them more conductive) and at the same time handling any appliance in which one of the "hot" wires is in contact with the appliance frame, runs a great risk of death as the current passes from both feet through the hand holding the appliance.

In the all-too-familiar instance of the electric heater falling into the bathtub and causing death, the mechanism is as follows: the element of the heater contacts the water (a fairly good conductor) and some of the current passes through the water to the ground (in this case, the bathtub drain). But some of the current is "shunted" from the element through the body of the victim and then to the ground. This would usually be 115 volts. But that is enough to render the

ONCE THE VICTIM IS STRUCK BY LIGHTNING, THERE IS NO DANGER IN HANDLING HIM AFTERWARDS . . .

victim unable to remove the heater or to disconnect the plug (due to electrical contractions of the muscles). Similarly, he now becomes unable to breathe because the muscles of respiration are paralyzed. And, further, the normal heart rhythm is converted to an abnormal rhythm (usually a "ventricular fibrillation" — an irregular and uncoordinated contraction of the heart muscle, which allows little or no circulation) which is incompatible with life for more than a few minutes.

Sometimes an individual is trapped in a vehicle, a crane or other heavy equipment, by a high voltage wire which has fallen across the vehicle. The metal frame of the vehicle is now "hot". In almost all cases, the individual is safe so long as he can remain in the vehicle. But the moment he tries to step out of the car or crane, the current passes from the "hot" metal of the frame, through his body, to the ground, and he is electrocuted. Paradoxically, this danger is greater if the tires are all intact, thus insulating the car from the ground. If the individual should be in such physical condition that he can jump from the car (thus never being in contact with the car and the ground at the same time), it is possible for him to escape safely. But in such a case, he must be able to jump well clear of the vehicle, because of the danger of "arcing" with high voltages. That is, at high voltage, the current may actually jump across a space, causing electric shock and severe burns.

The question frequently asked is: "What about handling a victim of lightning?" Once the victim is struck by lightning, there is no danger in handling him afterwards (unless you want to consider the very remote possibility of another bolt of lightning at the same spot!). Many victims of lightning are killed outright, literally "cooked" by the extremely high voltage. But many survive, especially if it was not a direct strike, and many of these can be saved by appropriate measures.

The methods of rescue of the victim in contact with an electrically charged surface may be a matter of controversy. Obviously, if the switch is immediately at hand or a plug can be pulled, this is the simplest and safest way to break the current. But there is no time to hunt for a switch or a plug, since the individual may have only moments to live.

It is of course very hazardous to reach for the "hot" wire. If, however, the wire is lying ACROSS the victim, there are a few relatively safe methods by which it may be removed. If there is a fireman's pike pole (made of fiberglass, not wood — as wood may be wet enough to be a conductor) available, it may be possible to hook the wire and pull it quickly off the body — always being careful, of course, not to allow the wire to approach too near your own body (remember arcing?). Try, if possible, to "flip" the wire off the body.

Another method is to attempt to throw a length of line or rope (this must be dry orlon, dacron or nylon rope — cotton rope may have absorbed enough moisture to have become a conductor) under the wire, and form a loop around the wire. Then, standing at a distance, pull the wire quickly off the victim (again **quickly** — because the wire may also arc to the body if it is removed slowly, thus causing more severe burns).

A third method and perhaps the most dangerous of the three, is to use a long-handled ax (be SURE the handle is dry) and, standing well back from the wire, chop it sharply in two; then use the ax to move it away from the body. It is necessary to chop the wire on **each** side of the body, since you will rarely know from which direction the current originates. (Remember to sever the wire some distance from the body; striking the patient with the ax is considered bad etiquette in rescue circles.)

If the patient is lying ON the wire, the situation is more complex. Any attempt to remove the body from the wire may result in the death of the rescuer. Here the only choice (unless you have immediate access to the switch) is to sever the wire on both ends.

An important note: the old army adage of "splint 'em where they lie" is a good general rule. There are exceptions. One of these exceptions is proximity to an electric line. You should take a moment to remove the victim a short distance in order that neither you nor he comes in contact with the line.

If the individual is in a vehicle which is "hot", your best method of helping him is to urge him to remain in the car until the appropriate personnel can shut off the current. If this is not possible (due to the nature of his injuries) the only recourse is to try to break the current. If he is not injured, but there is imminent danger of fire and/or explosion, then, as a last resort, he may be able to jump free of the car.

Note: NONE of these rescue methods is without risk. You, as the rescuer, must determine at that moment, the degree of risk as opposed to the life of the victim.

In the actual treatment of the patient who has been shocked, priorities must be considered. Almost always the first two considerations are respiration and cardiac action. These are both adversely affected by the electric current and the patient may have only a few minutes to live. Therefore cardio-pulmonary resuscitation is a MUST in many cases of electrical injury.

It should be remembered that electric shock and physiological shock are two different entities, but electric shock often results in physiological shock. This is due to the effects on breathing and circulation, or to severe burns, or to electrical amputation of extremities. It may also be due to injuries only indirectly related to the electric shock, such as a fall, or fractures resulting from severe muscle contraction.

An attempt has been made to keep personal references out of this series, but perhaps one case history may help

MANY VICTIMS OF LIGHTNING ARE KILLED OUTRIGHT, LITERALLY "COOKED" BY THE EXTREMELY HIGH VOLTAGE. BUT MANY SURVIVE, . . .

to make several points about electric shock. In this case a young girl went to check the electric deep fry where she was cooking. She was barefooted, it was summer and the floor was terrazzo. As she contacted the deep fry (which obviously was defective, with a wire touching the metal frame) she sustained a severe electric shock. The path of the current was of course from her hands, through her body and from her feet to the grounded terrazzo floor. She was unable to release her hold on the appliance and fell backwards. Fortunately, as she fell she pulled the plug of the deep fry. (Remember this was "only" 115 volts.) Unfortunately, as she fell, she sustained severe third degree burns from the hot grease. But there is little doubt she would have died had she not broken the circuit as she fell.

In further treating electric shock victims it is necessary to treat (and prevent) the physiological shock which often results. Further immediate care includes CPR, treatment of burns (whether due directly or indirectly to electricity), treatment of fractures and treatment of any wounds which may have resulted if the victim fell. □

NEXT INSTALLMENT:
Emergency Childbirth

FAMILY FORUM

One of the devastating direct effects of nuclear weapons detonations is fire. A study of common home fires is a good introduction to contending with fires caused by nuclear attack. Some of the same principles apply.

FIRE IN THE HOME — *PREVENTION, DETECTION, ESCAPE*

— Marie Sanford & Janice Tyliczka

We recently returned from a Safety Systems Seminar held in St. Augustine, Florida where one of the topics covered was "fires and rescue". While watching these exercises it became evident that fire safety in the home was an important subject for FAMILY FORUM.

Are you aware that fire in the home is responsible for approximately 6,500 deaths and 200,000 injuries each year in the United States? Not including the billions of dollars in personal loss. Fireman have a saying "A clean building seldom burns." Firemen put their lives on the line each time they respond to a fire. Let's do our part to make their responses far and few in between. Here are some simple things you can do to lessen the chance of fire in your home. Make yourself a check list and live by it. It may save your life and/or one of your loved ones.

PREVENTION

1. Dispose of your interior garbage daily.
2. Keep garages, basements, attics, closets, etc., free of rubbish.
3. Keep curtains away from stoves and other open flames.
4. Keep yards and gardens well trimmed (free of tall dead weeds and grass).
5. Keep matches and lighters out of reach of small children (use *safety* matches).
6. Prohibit smoking in bed.
7. Use proper fuse sizes.
8. Replace frayed electrical cords or broken plugs promptly.
9. Avoid running electrical cords under carpets or rugs.
10. Use fireplace screens.
11. Put spark arresters on chimneys.
12. Keep appliances clean and in good repair.
13. Do not overload electric outlets.
14. Keep all flammable liquids in tightly closed metal containers, away from heat.
15. Keep fire extinguishers handy (check gauges monthly and weigh every 6 months).
16. Post phone numbers of fire/police departments on all telephones.
17. Never use multiple extension cords.
18. When you must use extension cords, use heavy duty ones.
19. Install an adequate number of good smoke detectors — *and keep them in operating condition.*

DETECTION

Statistics show that most FATAL fires occur during sleeping hours. Smoke and toxic gases are the killers in most fires rather than flames.

Smoke detectors can alert your family before the fire breaks out, which may mean the difference between life and death. For minimum protection there should be a smoke detector outside the bedrooms or sleeping areas and/or a smoke detector at the head of each stairway. Another important place for a smoke detector is near the kitchen. The type of fire or smoke detection equipment you use in your home or apartment will be determined by the size of your floor plan, and how much money your family is able to spend. Smoke and fire alarms start as low as $15.00. Be sure to check that they are UL approved. Your local fire department can give you assistance in planning your fire detection system.

Basic firefighting tools that you should keep handy are: fire extinguishers, garden hoses (preferably connected), ladders and a shovel. Fire extinguishers come in many classes and varieties. Class A is used on ordinary combustible materials (paper, wood, cotton, etc.); Class B is used on flammable liquids; Class C is used on electrical fires; and Class D is used on flammable metals. The most useful in the home is the class ABC extinguisher. It is a dry chemical with multipurpose uses.

Remember the three steps to put out a fire: (1) take away its fuel supply, (2) take away its air supply (smother it), and (3) take away its heat (by cooling it with water). With small electrical fires shut off the power source (if possible) and use foam fire extinguishers (not water). With oil, grease, or gasoline fires — smother the flames by using your Class B or ABC fire extinguisher, a lid, breadboard, baking soda or earth. With LP or natural gas fires — shut off the gas supply (if possible) then use extinguisher, water, sand or earth to put the flame out. When fighting a small fire, always point the fire extinguisher or hose at the base of the fire where flames meet the fuel. If your clothes catch on fire — STOP . . . DROP . . . and ROLL . . . DO NOT RUN.

ESCAPE

The best fire detection equipment can do no more than warn you. From then on it is up to you. Plan your escape route in advance. Every room should have at least two ways out if possible. If your family lives in a two-story home, consider a rope or chain ladder for exiting. The expense may be worth your life.

GET OUT FAST . . . DON'T STOP to dress, gather pets, valuables or toys. Once out . . . stay out . . . smoke and toxic gases can kill in minutes. Remember, if doors are hot, DO NOT OPEN them as fire is probably on the other side. Stay close to the floor and crawl during escape. Take short, small breaths and cover mouth if possible. DO NOT STAND UP.

Have a meeting place established outside where all members will report to. When two people have reached the meeting place, one should go for help while the other stays to tell other family members that someone has escaped and gone for help.

It is wise to have a fire and rescue plan prior to the real thing. In this way every family member knows his route of escape. When small children are involved don't scare them as they may panic if a real fire breaks out. Use your imagination and make it fun.

Practice makes perfect. □

REVIEWS

MANUAL OF EMERGENCY MEDICINE, by Michael Eliastam, George L. Sternbach, and Michael J. Bresler. Published by Year Book Medical Publishers, Inc., Chicago and London, 1983. Paperback, 468 pages, $19.95.

Reviewed by Max Klinghoffer, M.D.

This excellent book is the updated version of the original book, Medical and Surgical Emergencies, by John Schneewind, M.D. The first edition was published in 1963.

This book provides one of the most complete and concise references on the subject of emergency care. Above all, it offers in each case a practical approach. It does not offer a mass of confusing methods, but adheres to a single or a few accepted approaches. Nor does it go into detailed physiology; the wealth of specific information on emergency procedures does not permit that. The purpose of the book is to give the physician immediate and specific information on the care of the emergency patient, and it accomplishes this purpose.

This manual covers the entire spectrum of emergency care, from Arachnidism, to Cardiac Emergencies, to Zygomatic Fractures. It serves not only as a handbook on emergency procedures; it is also an excellent review and source of material for those physicians who are studying for state board examinations. For example, although the book is geared primarily to emergency medicine, it also provides a good review of the differential diagnosis of the acute abdomen. The portion of the book on cardiac arrest is a fine adjunct to courses on life support systems.

This book will undoubtedly be well received by all reviewers. Any points of criticism would be due to the fact that the book seldom offers alternative techniques; but this reviewer feels that is one of the factors which makes the manual so valuable. It is an instant reference.. Those who read the book may not agree on every fine point. For example, there might be differences of opinion on the handling of cases with volatile substances poisoning. But there is nothing in this book which might raise any serious objection. The following items are offered simply as additions which might make a valuable book even more valuable:

1. a glossary of terms (including abbreviations)
2. a table of normal range of laboratory values
3. at the risk of seeming biased, this reviewer would like to see this book, and all similar books, include a section on triage and mass casualty care.

BIOLOGICAL EFFECTS OF RADIATION — Vol. XVII — Low Doses. Vol. XVIII — High Doses. Produced by Training Resources, Suite B-3, Rumsey Center, Columbia, MD 21045. Cost of each of above sets — $145. They may be ordered for evaluation at $40 each (applicable toward purchase price). Prices are subject to an 8% discount for *Journal of Civil Defense* readers.

Reviewed by Robert Baffin.

These two slide presentations on low and high radiation dose effects are excellent technical studies of the biological impacts of radiation. The programs are especially effective in the hands of a well-qualified instructor. With a simple running commentary and explanations where needed by the instructor these slide shows can give briefings that furnish clear and accurate pictures of the effects of radiation.

Training Resources has a current inventory of 22 slide programs of interest to *Journal* readers, among which are:

Internal Dosimetry Series
Physics of Ionizing Radiation
Reactor Isotopes
Biological Effects Series
Hearing Conservation

Training Resources also markets a set of ten 15-minute color films in 16mm or videocassette (any format). These are:

(1) What Is It? (Energy in Motion)
(2) What Is It Made Of? (Particles and Waves)
(3) What Does It Do? (Interaction with Matter)
(4) Where Is It? (Measurement and Detection)
(5) What Effect Does It Have? (Biological Effects)
(6) Does It Affect Us? (Human Effects)
(7) Is It Safe? (Interpretation of Dose)
(8) Can We Use It? (Risk vs. Benefits)
(9) Can We Control It? (Safety Precautions)
(10) Where Do We Go From Here? (Issues)

These films sell for $300 each and are offered to *Journal* readers at a 40% discount — $180 each.

A 10-minute video overview of all ten films can be obtained free.

Training Resources serves universities, hospitals, industries, etc. throughout the nation. Further information may be obtained from them by request to the above address, or call 800-847-8257 (in Maryland, 301-730-2300).

A NUCLEAR POWER PRIMER, by Marjorie Beane, League of Women Voters. $6.95, 80 pages. Available from: Training Resources, 9150 Rumsey Center, (Suite B-3), Columbia, MD 21045. Or call toll-free 800-847-8257. (Mention *Journal of Civil Defense* for 10% discount.)

Reviewed by Jim Dalzell.

A very informative and simple to read manual for the average citizen, who having been bombarded over the past several years by the media and pro and con groups concerning nuclear power, needs a clear, understandable version of the problem. This manual does exactly that — from a brief history of the beginning of nuclear power through a short course on nuclear reactors and the nuclear fuel cycle to the current political climate regarding nuclear power. A very interesting element in the book is the comparison of energy sources and risk assessments involved. This brief manual is a must for those who are concerned and must stand on the sidelines and listen to high policy making decisions on our future energy needs. The public will no doubt make the final decision and it appears to be the author's objective to inform that public in the clearest possible manner on a very political and emotional subject — nuclear power plants.

HIGH FRONTIER — A STRATEGY FOR NATIONAL SURVIVAL, by General Daniel O. Graham. Published by TOR Books, 8-10 West 36th St., New York, N.Y. 10018. Paperback, 1983, 314 pages. $7.95.

Reviewed by Kevin Kilpatrick

If you have a feeling of déjà vu in reading the title of General Graham's gripping new book on space defense don't worry. You are probably recalling last year's study by Graham: *High Frontier — A New National Strategy* (reviewed in the June 1982 issue of the *Journal of Civil Defense*).

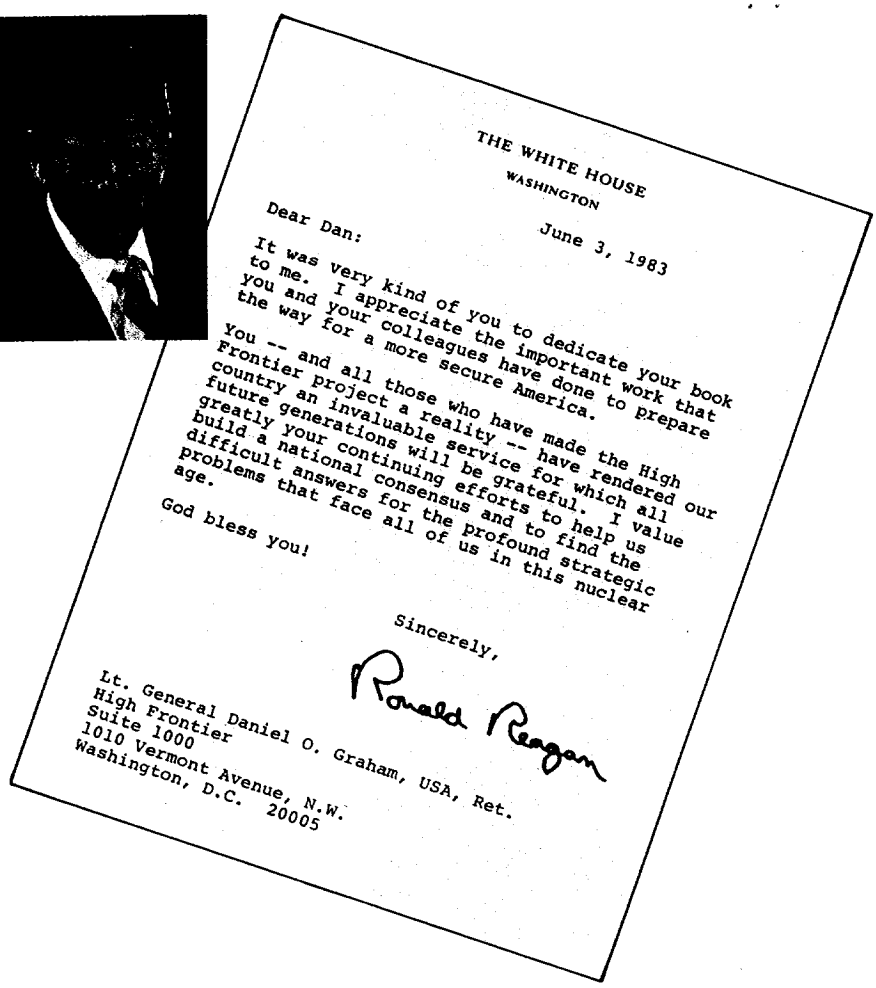
The 1983 *High Frontier* is a much-needed update in the developing field that must accelerate its timetable while meeting changes, problems and opportunities with a flexibility and determination locked into a tight focus on the objective: a way to make nuclear weapons obsolete.

The new book is in popular, paperback format, priced to sell to the public. It is also a blueprint which charts a course from where we are in space technology at present (a good distance ahead of square one, but a long way from where we need to be) to where we must get to without undue delay if we really are serious about defending our country, about seeing it endure into the 21st Century in peace and prosperity.

The space defense concept that Graham markets is revolutionary. It is superdramatic. It is ecumenic. In his introduction to the book Robert Heinlein writes:

> . . . There is no way to kill anyone with High Frontier — all that High Frontier can do is to keep others from killing us.
>
> . . . It is so utterly peaceful that the most devout pacifist can support it once he understands it . . . as it tends to stop wars if war does happen. All who supported GROUND ZERO should support High Frontier.

Graham claims no monopoly on the High Frontier idea. He simply wants to see it promoted, organized and implemented. He anticipates opposition and ridicule. He anticipates inertia. "It is imperative," he says, "that we further reduce layerization, overregulation, and bureaucratic resistance to levels needed for High Frontier systems."



THE WHITE HOUSE
WASHINGTON

June 3, 1983

Dear Dan:

It was very kind of you to dedicate your book to me. I appreciate the important work that you and your colleagues have done to prepare the way for a more secure America.

You -- and all those who have made the High Frontier project a reality -- have rendered our country an invaluable service for which all future generations will be grateful. I value greatly your continuing efforts to help us build a national consensus and to find the difficult answers for the profound strategic problems that face all of us in this nuclear age.

God bless you!

Sincerely,

Ronald Reagan

Lt. General Daniel O. Graham, USA, Ret.
High Frontier
Suite 1000
1010 Vermont Avenue, N.W.
Washington, D.C. 20005

> General Graham will be a featured speaker at TACDA's 1983 seminar in Washington DC on September 30th. (See pages 6-9 for details.)

Graham also emphasizes the importance of civil defense as a necessary adjunct to High Frontier. What Dr. Eugene P. Wigner said about civil defense can also be applied to High Frontier aims. "A world in which neither of two opponents can destroy the other," he observed "is much more stable than one in which each can destroy the other."

Graham points this out when he says that the realization of High Frontier will change the terrifying Mutual Assured Destruction (MAD) concept of the past 20 years into "Assured Survival."

At TACDA's 1982 seminar in Wichita Edward Teller predicted that "By the year 2000, 95% of our effort will go into defensive weapons, and only 5% into weapons of retaliation."

Effective homeland defense and the promise of peace constitute the overpowering benefits of a High Frontier initiative. But eventually even these may be overshadowed by the fantastic industrial and commercial space resources that can be put to work for all mankind. Inexhaustible solar power, for instance, can be "piped" to earth for clean, cheap power. A universe of minerals awaits space mining techniques. That's the tip of the iceberg.

"We Americans," writes General Graham, "have always been successful on the new High Frontier successful on the new High Frontier of space. We need only be as bold and resourceful as our forefathers."

High Frontier is set solidly in the pioneer tradition and spirit. It is for red-blooded Americans looking to a 21st Century framed in dignity, peace, prosperity and liberty.

Read it. You'll be glad you did.

A NUCLEAR WASTE PRIMER, by Marjorie Beane, League of Women Voters. $5.95, 63 pages. Available from: Training Resources, 9150 Rumsey Center (Suite B-3), Columbia, MD 21045. Or call toll-free 800-847-8257. (Mention *Journal of Civil Defense* for 10% discount.)

Reviewed by Jim Dalzell.

Addresses one of the major issues of our day in terms the layman can understand. There has been so much technical jargon published in recent years about the problem of nuclear waste, the average citizen has been left behind and the issue has become a political football. This simple, straight to the point primer, offers the man-in-the-street, for once, a clear understanding of what nuclear waste is, the sources and types of waste, the hazards involved, a simple explanation of the types of radiation and management practices, past and present. It not only addresses high-level and low-level waste problems but also the political aspects of the issue.

In the opinion of this reviewer, the primer should be introduced into all high school science classes as collateral reading and should be a must for all planners and politicians.

JUSTICE AND WAR IN THE NUCLEAR AGE, edited by Philip F. Lawler, University Press of America, 4720 Boston Way, Lanham, MD 20706. 1983, 113 pages. Clothbound: $16.95. Paper: $5.25.

Reviewed by Richard Sincere.

Questions of morality and politics inevitably transcend particular political events. *Justice and War in the Nuclear Age* is a collection of essays by five scholars, all actively religious and concerned to examine their tradition — in this case Roman Catholic — and apply its ancient principles to contemporary issues.

This volume persuasively shows the correctness of the pro-deterence, pro-defense position from the perspectives of several disciplines: (politics, philosophy, arms control, military strategy and theology). Together these five essays establish essential foundations for an intellectual defense of flexible deterrence policies and a moral argument for active defenses that will render nuclear weapons obsolete.

One of the essayists, Angelo Codevilla, states: "The assertion that nuclear war must be either mass murder or suicide, or both, cannot be founded on fact."

A 20-Century Voltaire might quip that Mutual Assured Destruction is neither mutual, assured, nor destruction. Recognizing the limited power of nuclear weapons is the first step toward eliminating their horrors. Ballistic missile defense and civil defense are moral and practical alternatives to self-generated vulnerability. The technology exists; only the will to use it seems absent.

Justice, peace and freedom will be secured when we realize that the ethical foundations of our society face human, not merely technological, threats. Until humanity no longer suffers from sin, technology guided by charity and justice must stave off the evil that overshadows us.

NUCLEAR ILLUSION & REALITY — Solly Zuckerman, Vintage Books. 154 pages. Paperback (1983) $2.95.

Reviewed by Van E. Hallman.

This is a book written primarily about nuclear war problems concerning NATO and the United Kingdom but which in the event of hostilities would also affect much of the rest of the world. It follows closely the Molander-Caldicott form of reasoning.

It appears to this reviewer to be another book designed to insure that the Western nations do nothing to protect themselves in the event that peace efforts fail and the world is once again faced with a war that no one wants.

As with all books of this type, there are abundant descriptions of the horrors to be created by nuclear warheads being detonated on totally undefended and unprepared cities. As an example: "Detailed analysis showed that a third of the city's inhabitants would have been killed immediately as a result of blast and fire, or would have died from a lethal dose of radiation in the first two days . . . This means that only about half of Birmingham's original population would have been alive and in a condition to try to cope with the situation by which they would have been immediately confronted." Why "immediately confronted?" With preparations made during peacetime for proper sheltering, including stocking with emergency food, water and equipment, only a relatively small number of deaths and injuries would have occurred and the injured could have remained so.

The author concedes that, "First, nuclear weapons exist and cannot be brushed aside." However, he states, "No technical defence against a nuclear onslaught could possibly make political sense . . . ABM systems are still pie in the sky for political leaders who would wish to be assured, before engaging in military adventures, that the price for so doing, in terms of the destruction which their countries would suffer, would not be catastrophic." Would it not seem just as logical that many world leaders are searching for ways to save the lives of millions of their people in the event that the unthinkable does occur?

"Civil Defence" is dismissed with 5 references in the index, none of which is followed up with any mention of the term "civil defence" in the text. Apparently the references in the index are shown only to insure that readers do not miss the gory details of a nuclear attack — in which not even the most rudimentary civil defence measures are mentioned.

HIROSHIMA AND NAGASAKI: THE PHYSICAL, MEDICAL, AND SOCIAL EFFECTS OF THE ATOMIC BOMBINGS, by the Committee for the Compilation of Materials on Damage Caused by the Atomic Bombs in Hiroshima and Nagasaki. (Translated by Eisei Ishikawa and David L. Swain.) Published by Basic Books, Inc., 10 E. 53rd St., New York, N.Y. 10022. 1981. 706 pages, hardback, $50.75.

Condensation of the review by A. Rizzoto in *Emergency Planning Digest* (Canada).

Hiroshima and Nagasaki represents the result of a study commissioned by the mayors of these two cities in 1977.

The resulting text includes approximately 180 figures, maps and photographs and over 200 tables or statistical analyses of one kind or another.

The book is divided into four parts, Chapters 1 to 6 constitute Part I, which is titled "Physical Aspects of Destruction." This section concentrates on the explosive power of the

bombs and the various types of physical destruction. . .

The second part of *Hiroshima and Nagasaki* . . . explains in minute and intense detail the various effects of the bombs on the human body.

Part III of the book is titled "The Impact on Society and Daily Life." These three chapters treat the overall collapse of the two cities, detailing the social, spiritual, and psychological impacts of the A-bomb attacks.

The fourth section of the book, "Toward the Abolition of Nuclear Arms," attempts to summarize the efforts to survey and analyze the effects of the A-bombs on its victims, as well as efforts to provide relief and medical care.

Clearly, one lesson to be learned from the A-bomb explosion is that the general public must know what to do to help itself in case of this type of calamity. In the end, however, one can hope that nuclear weapons will never again be used in man's hostilities towards man.

HAZARDOUS MATERIALS EMERGENCIES, by John R. Cashman. Published by Technomic Publishing Company Inc., Box 3535, Lancaster, PA 17604. Hardback, 400+ pages, $45. 1983

Announcement: *Hazardous Materials Emergencies,* three years in the making, is now available to communities where planning and preparedness for hazardous materials problems are taken seriously.

Author John R. Cashman has long been recognized as one of the foremost leaders in his field. His bimonthly publication *Hazardous Materials Newsletter* ($26 a year, PO Box 204, Barre, VT 05641 — Ph 802-479-2307) keeps tabs on emergencies, presents field experience, and zeroes in on solutions. Cashman's total dedication to the emergency field makes him in high demand as a consultant.

The book does not rely on published sources; rather, the author traveled the country interviewing numerous public safety agency/industrial/commercial response team personnel. Their viewpoints, insights, strategems, and procedures give the book an immediacy and level of interest that is readily apparent. Rather than dealing in theory, the book details tools/equipment / materials / strategies / methods / processes / "lessons learned" — what specific organizations with broad experience do to plan for, respond to, and control hazardous materials incidents. Those who do it — they tell how it is done.

"With about 250,000 shipments of hazardous materials occurring in the U.S. every day, the possibility of a disaster involving chemicals is very real," says *Chemical & Engineering News.*

The *possibility* of disaster? Make that the *certainty* of disaster. Cashman's June newsletter reports 16 "incidents" during April and May in the United States. In one incident 800 people were evacuated from the vicinity of a leaking tank car (acetic acid) in Kinderhook, New York on May 8. In a chemical explosion at an illegal fireworks factory on May 27th in Benton, Tennessee eleven were killed.

Measures to contend with accidents and disasters caused by hazardous materials are no longer a hobby or a luxury. They are a necessity.

Hazardous Materials Emergencies is a comprehensive guide to these preparedness measures. Applying such measures judiciously will obviously minimize casualties.

EDITORIAL . . .

PLACE TO BE IN '83

TACDA dubs its annual seminar "The Civil Defense Summit" because that, in fact, is precisely what each has been. All of them have succeeded in bringing together under one roof the top authorities in the civil defense field, and those fields related to it. The very best speakers — some from professional CD sources, some from industry, some from medicine, some from government (including the White House), some from the academic world, some from safety and rescue, some from foreign disaster preparedness circles, and so on.

What has more than anything else made TACDA seminars productive, however, has been the outstanding quality of seminar participants. No doubt. (One TACDA speaker a couple of years ago, amazed at the notables seated in front of the podium, humbly announced that the TACDA seminar was the only gathering he had ever attended where the audience was more distinguished than those who addressed it.) The impact TACDA achieves is through the seminar participant. What he or she takes home gets to the right people, spreads to others. Unfortunately, apathy and unreasoned opposition have in the past served to dilute it.

This year, in 1983, TACDA's "CD Summit" (see pages 6-8) confronts a new situation — one which the country has become most sensitive to: the threat of nuclear war and the anticipated death of half to two-thirds of America's people. The resultant hue and cry has been for "prevention" of nuclear war — mostly through supplication, appeasement and demands that nuclear arms be done away with. Developing slowly now is the realization that these are impossible efforts, even counterproductive in terms of playing into the hands of our adversaries. With that the idea that protective measures and active defenses (especially missile intercept systems) can put effective controls on the nuclear threat is beginning to gain ground. With a little help it can break out into a full-blown national movement.

This is the crossroad where the TACDA seminar stands in 1983. Its agenda has been planned to give impetus to a preparedness turnabout. Journalist Charles Wiley, for instance, who has reported the news from over 100 countries and from 10 wars (and from a few jails), senses this and will show in his address how opposition propaganda can be turned on its perpetrators. *Accuracy in Media* publisher Reed Irvine will dissect disinformation.

Lorne Greene will appear, not in the role of a motion picture celebrity, but as a deeply concerned environmentalist. His holistic view of civil defense for the population widens to include the entire ecosystem.

General Dan Graham will update the dramatic "High Frontier" brand of strategic defense now embraced by President Reagan, his cabinet and an expanding number of senators and congressmen.

Other equally outstanding speakers and moderators are listed on the seminar agenda, page 7.

Last year's seminar participants wanted more question and answer opportunities. This year each speaker is being asked to set aside 15 minutes (1/3 of his total time) for questions and answers. It will be done. And last year's participants recommended more workshops. This year they've got them.

This year — 1983 — promises a new focus on upcoming opportunities to bring strategic defense to a point where all America — all the world — will recognize it as the real road to prevention of nuclear war.

At long last we may be now on our way to a meaningful homeland defense, a practical program for peace in our time.

September 29th witnesses the opening of a historical, an exciting, a far-reaching TACDA 1983 seminar.

See you there.

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