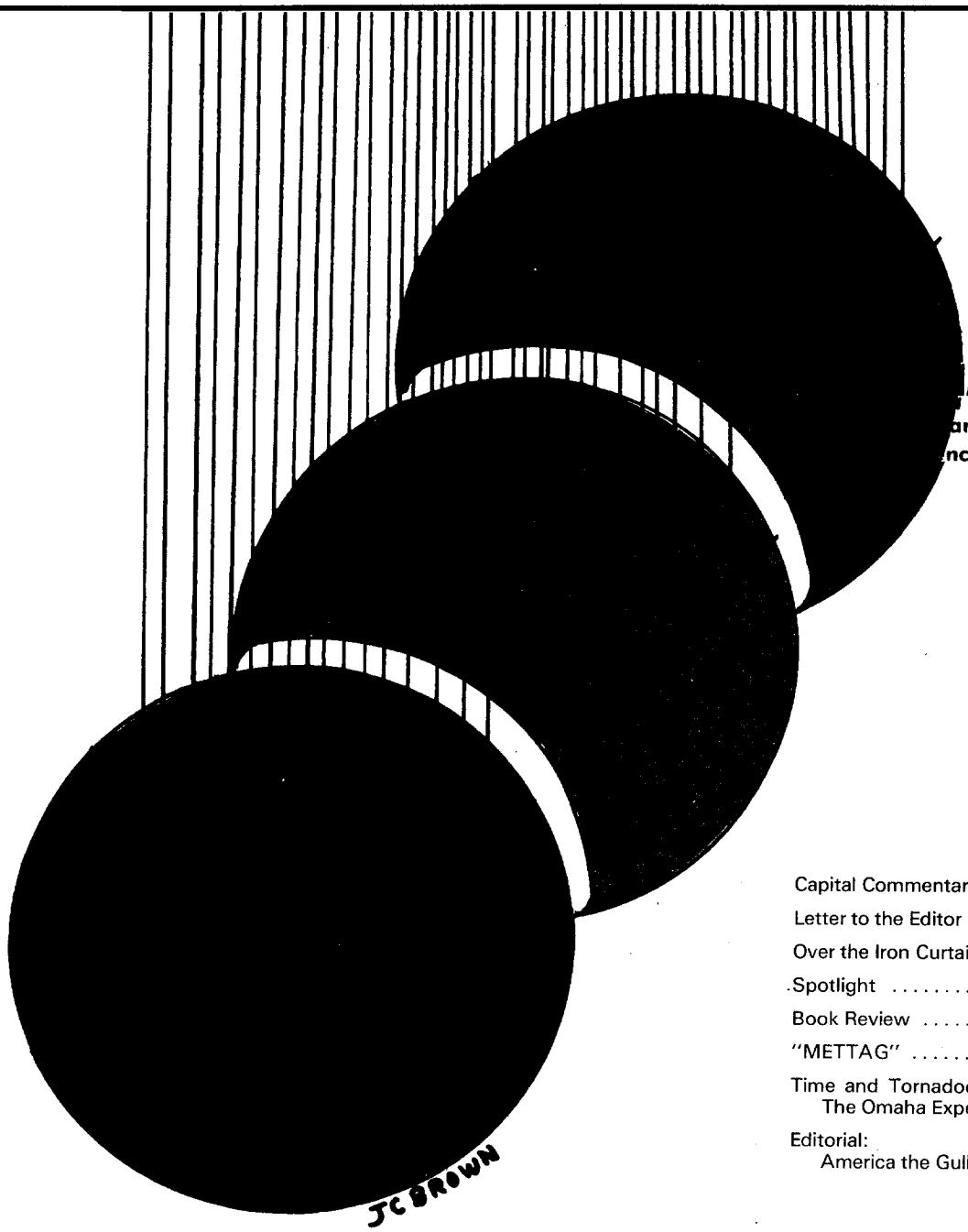
JOURNAL OF
CIVIL DEFENSE



ATOMY — Part 1

nd Conventional Power:
nce

— by Carsten M. Haaland

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MARCH - APRIL, 1976

VOL. 9, NO. 2

CAPITAL COMMENTARY

DUAL USE MISERIES

— by Jerry Strope

Most readers of the *Journal* will have become aware by this time of the funny thing that happened to the DCPA budget on the way to the appropriation hearings. It got mugged under the most curious of circumstances.

To get the full flavor of the disaster, one needs to recall the recent history of U.S. civil defense. In the mid-1960s, civil defense was "put on the back burner" in the defense budget, a victim of the overriding demands of the Viet Nam conflict and Secretary of Defense Robert McNamara's penchant for a policy of "Mutual Assured Destruction." Appropriations for civil defense sank to the $70-$80 million level, which was not enough to stem the continued disintegration of the capabilities built during the Kennedy Administration.

Shelter survey and marking were cut back and the stocking program was abandoned. Since shelter food stocks had been designed for a five-year shelf life, rancid shelter biscuits became the symbol of Federal abandonment of nuclear preparedness. Some of us got very upset about the situation and started writing biting articles and letters about it. Others looked around for other ways to be useful.

Peacetime emergencies — natural disasters, explosions, radiological incidents, airplane crashes — seemed a good bet. What civil defenders brought to peacetime disaster response was a commitment to the need for prior planning and coordinated community response. In Washington, the Office of Civil Defense wangled an assignment from the Executive Office of the President to help local governments plan for natural disasters. In 1972, Melvin Laird brought OCD out of the Army and created the Defense Civil Preparedness Agency with the twin tasks of nuclear preparedness and natural disaster planning assistance.

Meanwhile, the Federal national security bureaucracy began to realize that not only were the Soviets achieving offensive equality with the U.S.; they didn't seem to believe in Mutual Assured Destruction and were planning to evacuate their cities in event of a crisis. Secretary Schlesinger's words got specific and DCPA's budget was set at nearly $125 million to start relocation planning. Imagine the shock when the President's budget decision came back at $40 million!

Imagine the greater shock when it was realized that this was no turn down of nuclear preparedness but rather a complete rejection of any DCPA role in natural disaster preparedness. The "budget decision memorandum" refers to State and local CD organizations as "natural disaster" organizations. DCPA was instructed to reduce and eliminate functions required for natural disaster preparedness and devote its reduced resources to warning, radiological monitoring, evacuation planning, and publications on nuclear preparedness. A week or so later, the budget figure was upped to $71 million but the strictures against peacetime emergency preparedness still stand. And, indeed, DCPA can hardly proceed with Crisis Relocation Planning on the reduced budget otherwise.

Civil defense oversight hearings got underway in early February before a panel of the Investigations Subcommittee of the House Armed Services Committee. The reversal of DCPA's charter is bound to come up again and again. Both the USCDC (local directors) and the NASCDD (State directors) have adopted a

(See STROPE - Page 5)

Journal of CIVIL DEFENSE

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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.

AMERICAN SECURITY COUNCIL

Washington Communications Center
BOSTON, VIRGINIA 22713 – TELEPHONE 703-825-8336

Letter To The Editor

John M. Fisher
President

Mr. Walter Murphey, Editor
Journal of Civil Defense

February 1, 1976

Dear Walter:

Reference the American population being left unprotected by the ABM treaty: The recent action by the Congress in calling for the dismantling of the Grand Forks ABM complex increases the importance of the question. Not only is the population left unprotected, but a significant portion of our retaliatory force has now been denied protection.

This action by the Congress has many significant overtones. First, the question of ABM strength had been settled by an international treaty, and the Senate had ratified the modification to that treaty only a few weeks before its vote to dismantle the Grand Forks complex. This action by the Congress was taken without any corresponding action by the Soviets — or even a request for such action. Indeed, it was taken in the face of extensive testing by the Soviets to upgrade their SA-5 SAM system to the level of an ABM system. So, the Congress in effect rewarded the Soviets for their violation of the SALT agreements. If the Congress is to undercut the efforts of our SALT negotiators after the fact, then why make the effort to negotiate? We might as well unilaterally disarm, and be done with it.

If we are to leave our land-based missiles totally unprotected, in the face of the enlargement of the Soviet ICBM force, then our strategic retaliation more than ever must rest on bombers and SLBMs. But our bomber force is vulnerable to a large degree. We cannot "harden" our bombers, only disperse them. Those bombers which we are able to launch must face a Soviet air defense force of 10,000 SAMs and 2,500 fighter interceptors, all of which will be on maximum alert. And that puts us in the position of having to rely almost 100 percent on SLBMs. But that is our smallest strategic component in the Triad by far, and we are dragging our heels on the TRIDENT program. Moreover, the Soviet ASW capability is improving steadily.

ABBREVIATIONS:	ABM	- Antiballistic missile (a weapon used for target *defense* only)
	SAM	- Surface-to-air missile
	ICBM	- Intercontinental ballistic missile
	SLBM	- Submarine-launched ballistic missile
	ASW	- Anti-submarine warfare
	TRIDENT	- A newly-developed USA generation of SLBM
	SALT	- Strategic Arms Limitation Treaty (USA-USSR arms agreements)
	NORAD	- North American Air Defense Command (in Colorado)

One has to consider the possibility that the current Soviet demand, that their Backfire bomber not be counted in the SALT II totals, grows out of our earlier dismantling of our anti-aircraft defenses. We have no SAMs in operation in the U.S., and so few air defense aircraft that General Lucius D. Clay, Jr. says that NORAD no longer has an air defense mission — only early warning.* In other words, our positive actions are not provocative, as the disarmers like to claim. It is our lack of positive actions or our negative actions (as in the case of the ABM dismantling) which trigger responses in the Soviet Union.

Of course, our lack of a credible civil defense posture makes matters even worse.

Best regards,

Sincerely,

John M. Fisher
President

*I might add that General Clay followed the announcement with the statement: "The nation as an entity and every citizen in it may measure longevity from the instant warning is received."

Reactor Anatomy - I (First of a Four-Part Series)

NUCLEAR AND CONVENTIONAL POWER: THE DIFFERENCE *

— by Carsten M. Haaland

(Emergency Technology Section,
Health Physics Division,
Oak Ridge National Laboratory)

Properties and functions of electricity flowing in electric power lines are exactly the same no matter whether it is produced by falling water, the burning of coal, or by nuclear fission.

Furthermore, regardless of the source of energy, the electricity is generated in the same way: by a generator consisting of a heavy armature rotating against the resistance of a magnetic field. It takes energy to make the armature spin at a high rate of speed within the magnetic field.

POWER → GENERATOR → ELECTRICITY

The main difference between various types of power lies in the methods for producing this energy. Where falling water at a dam site is the source of energy, the force of the large volume of water moving at high speed makes a turbine rotate rapidly, and the turbine drives the armature of the generator.

Whether the source of energy is coal, oil, or nuclear fuel, the energy is extracted from the material in the form of *heat* energy. This heat energy is used to produce high pressure and temperature in steam. The steam, moving at high speed and with great force, acts on the propeller-like blades of the turbines and makes them rotate rapidly, and the turbines drive the generators which produce the end product — electricity.

Currently, the generation of electricity in the United States annually consumes about 22,000 trillion Btu's, or about 28% of the total of all types of energy consumption. Of these 22,000 trillion Btu's, about 10% is used for generating electricity by nuclear fuel and about 16% by hydropower. (See Fig. 1).

In spite of opposition by various people, it appears inevitable for nuclear fuel to become a major source of energy for producing electricity within the next three or four decades, simply because of the increasing demand for electricity and the dwindling supplies of oil and natural gas. These latter energy sources currently provide about 33% of the U.S. energy used for producing electricity.

In order to understand the pros and cons of the nuclear energy debate, one should have some knowledge of how heat is obtained from coal and/or natural gas. Heat is a form of energy which results from rapid motion of atoms and molecules. This rapid motion produces high pressure in gases which are

* Research sponsored by the U.S. Energy Research and Development Administration under contract with the Union Carbide Corporation.

TABLE 1. Nuclear Vocabulary

Atoms	are what all matter consists of. They are tiny particles - one gram of iron consists of 10^{22} iron atoms. Each atom consists of a nucleus surrounded by electrons. Most of the mass is concentrated in the nucleus.
Molecules	are assemblages of atoms, closely stuck together and adhering to each other. A water molecule consists of two hydrogen atoms stuck to an oxygen atom. One gram of water consists of 3×10^{22} water molecules. Chemistry is concerned with the ways atoms can form molecules.
Nuclei (Singular: nucleus)	are the "cores" of the atoms which contain neutrons and protons, forming the center around which electrons revolve. Nuclear energy is obtained from actions which occur within the nucleus. They are not affected by the chemical reactions which only affect the electrons which surround the nuclei.
Hydrogen	is the simplest atom in the series of elements, consisting of one proton in the nucleus and one electron in orbit about the nucleus.
Fission	is the splitting of a nucleus into two parts. The most important fission reactions in reactor technology are the splitting of a uranium or of a plutonium nucleus.
Fusion	is the combination of two small nuclei to form a larger nucleus. The most important fusion reaction is the union of two hydrogen nuclei into a helium nucleus.

confined, and the pressure can be used to produce movement in large mechanical devices, such as the turbine which drives the electric generator.

CHEMICAL PROCESS VS NUCLEAR PROCESS

A scientist might say that the difference between obtaining heat from coal and obtaining it from nuclear fuel is simply the difference between a chemical (molecular) and a nuclear process. To the average person without a technical background, this statement doesn't explain anything.

An understanding is obtained by going down into the microworld, the world of atoms with their electrons and nuclei. This knowledge requires a simple nuclear vocabulary which should become a part of everyday language in a future world in which the predominant energy source will be nuclear fuel. Some of the words in question, with their definitions, are listed in Table 1. A fairly good understanding of these words and concepts will be necessary to grasp the basic ideas which will be discussed in the three articles which will follow this one. It is unfortunate that many people who vociferously oppose the advancement of nuclear energy do not seem to have a nuclear vocabulary — they could be called nuclear illiterates!

Let us first discuss the chemical process which produces heat by combustion. The structure of coal is very complicated, with many different kinds of molecules, some with as many as several thousand atoms. It will be simpler to explain the method of obtaining heat by combustion by considering a less complicated substance, such as acetylene. The acetylene molecule consists of two carbon and two hydrogen atoms. The acetylene molecular system therefore has two relatively heavy carbon nuclei and two lighter hydrogen nuclei revolving around each other in complicated but relatively tight orbits, and this four-body nucleus is surrounded by fourteen electrons, moving along orbits around the nuclei.

When our four-body nucleus and fourteen-electron acetylene molecular system is approached by an oxygen atom with eight electrons, or by a double oxygen atom with sixteen electrons (an oxygen molecule), there is an electrical attraction between the two systems, and a vigorous interaction takes place which breaks up the four-body nucleus of the acetylene system. Atomic and molecular systems of various lower numbers of nuclei and electrons, such as carbon dioxide, for example, go flying out in all directions, about 10 times faster than the initial molecules were moving. It is important to note that in chemical processes *each individual atomic nucleus remains intact.* The electrons are shifted around, and some may become attached to different nuclei than before the reaction, but most of them will remain in orbit about their original nuclei.

HEAT AND NUCLEI

This picture describes the process of combustion on a molecular level. In an acetylene-oxygen flame there are at least 10^{20} (200,000,000,000,000,000,000) molecules of oxygen and acetylene molecules in a cubic inch. The particles which go flying off from each reaction quickly interact with these other particles and thus build up rapidly the number of particles that have a high speed. In a short time, less than a second, virtually all of the atoms and molecules in the flame are stirred up and they move much faster than the molecules of the surrounding air. We recognize this excess movement of molecules as heat.

The essential point which distinguishes chemical processes from nuclear processes is that the nuclei remain intact during the chemical process, but in nuclear processes the nuclei undergo much more violent changes. There are two well-known nuclear processes which produce energy, fission and fusion. In each process the nuclei are grossly changed, and a part of the original matter which enters into the reac-

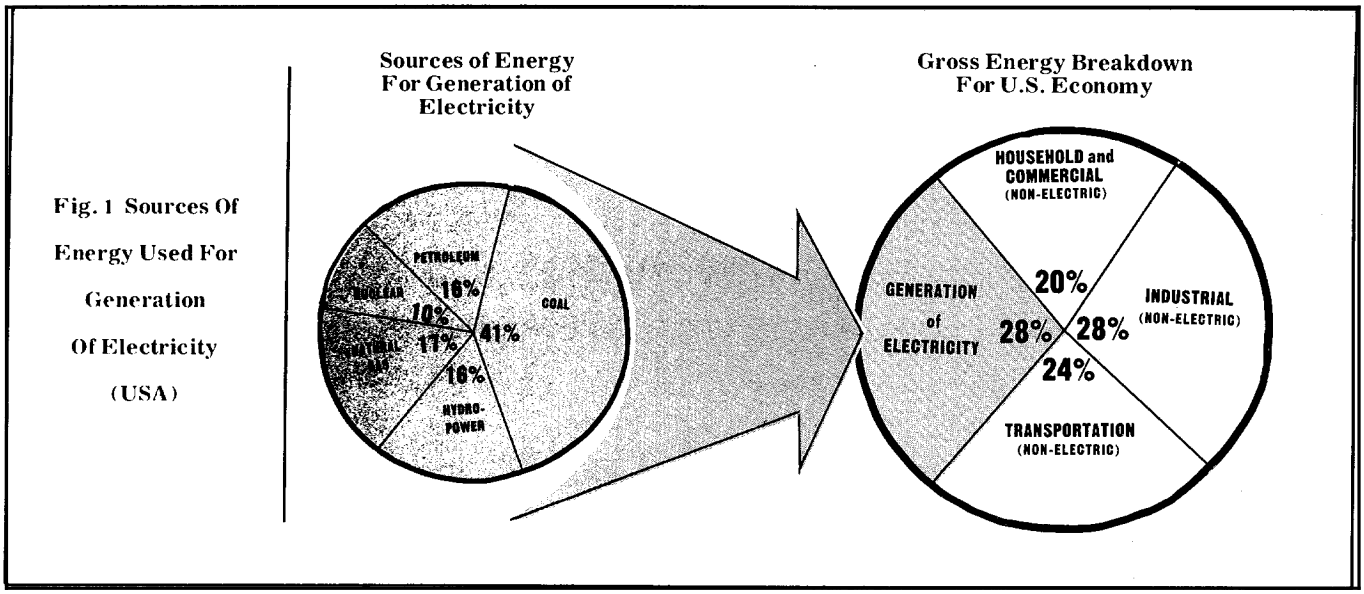


Fig. 1 Sources Of Energy Used For Generation Of Electricity (USA)

tion is converted irretrievably into *pure energy*. In the process of fission a very large nucleus splits up into two smaller nuclei, and in fusion two small nuclei combine to make a large nucleus.

Imagine a very large nucleus, relatively speaking, surrounded by 92 electrons — a very complicated atom called uranium. Within its nucleus there are 92 protons, particles which are almost 2,000 times heavier than electrons, and each with a positive charge of electricity. Also contained within the nucleus are neutrons, which have almost the same mass as the protons but have no electrical charge. There may be as few as 135 and as many as 148 neutrons in the uranium nucleus, depending on which isotope we are considering. If there are 143 neutrons, we are talking about U^{235}, where 235 is the sum of 92 protons and 143 neutrons in the nucleus. This atom is the principal uranium isotope used in achieving nuclear fission.

Suppose a neutron comes rushing from outside this system and slams into the giant central nucleus. The first event after the collision will be a splitting of the central nucleus into two smaller nuclei, which fly off in opposite directions about 10,000 times faster than the initial atom was moving. Each nucleus will pull along a bunch of electrons with it. Eventually one or another or both of the two daughter nuclei, which are still highly disturbed because of the intrusion of the neutron, will spit out a neutron and perhaps several electrons. If there are many uranium atoms in the vicinity of the first one, then it is likely that the neutrons which are spewed out of the disturbed daughter nuclei will strike another uranium nucleus, thus renewing the supply of neutrons, and continuing the process of fission. In addition to neutrons and beta particles (electrons), the daughter nuclei will spew out gamma rays, bundles of intense electromagnetic energy.

NO NUCLEAR EXPLOSION POSSIBLE

If the uranium atoms are packed *very* tightly together, under highly abnormal conditions obtained only by advanced technology, this process of neutron multiplication will result in an explosion — an atom bomb explosion. In a reactor, the excess neutrons are absorbed by special materials, and the proximity of the uranium atoms with other uranium atoms is controlled mechanically such that it is *physically impossible* to have a nuclear explosion.

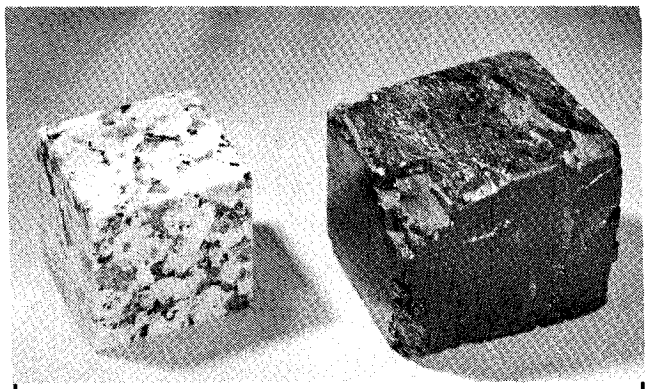


Fig. 2. Two sources of energy. With current technology the granite will provide 100 times more energy than a lump of coal of the same weight.

As in the process of chemical combustion, the process of nuclear fission results in a number of particles which have a much higher velocity than the particles which surround them. Through a process of collisions and other kinds of interactions these surrounding particles are stirred up into greater activity than they had before the reactions, and heat is produced.

In addition to the very fundamental difference in the interactions between nuclear and chemical processes, the former involving the nucleus and the latter only the electron levels, there is tremendously greater energy release by the nuclear processes.

Suppose we were able to construct two very special hypothetical boxes in which we were able to control the motion of two particles sufficiently well to begin the reactions described above — one box for each reaction.

Furthermore, suppose we were able to measure all the energy (which generates heat that drives the turbines) given off in each case, and that we also were able to measure the difference in the weight between the boxes, before and after the reaction.

In the first box let's insert a molecule of acetylene and a molecule of oxygen, and let's direct the molecule of oxygen to fly into the acetylene molecule. In the second box we will insert an atom of uranium and a neutron which we direct to fly into the nucleus of the atom.

FOUR MILLION TIMES MORE ENERGY

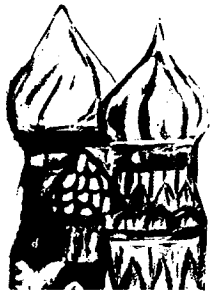
While the reactions are proceeding, we will add up the total energy given off in each case, and when the reactions are completed we will weigh the boxes and see whether there has been any change in mass. We will find in our measurements of energy that in the case of fission of uranium we obtained about *four million times* more energy per atomic mass unit than in the case of the acetylene-oxygen reaction.

We will also detect no noticeable change in weight of the box containing acetylene-oxygen, but the box which contained uranium will be about 0.22 atomic mass units lighter than it was before the reaction.

In the case of fission of uranium, about 0.09% of the initial mass was converted into pure energy. We would find that the amount of energy given off in the nuclear reaction could be calculated by multiplying the change in mass in each case by the velocity of light *squared* (multiplied twice), a famous relationship ($E = mc^2$) postulated by Einstein in the early 1900's, decades before the nuclear process became known.

Because of the enormous increase in energy given off by nuclear processes, it is possible to obtain a hundred times more energy from a block of New England granite (with its small quantity of uranium) than one can obtain from a block of coal of equivalent size, as illustrated in Fig. 2. The methods of extracting this energy in a practical way will be the topic of the next article in this series. □

Over The Iron Curtain



— *Ruby N. Thurmer*

The announcement of the "New Training Year Program" for Soviet Civil Defense was scheduled for September 1, 1975. We have awaited this announcement for many months. Below are August 1975 excerpts from a Moscow *Voyennyye Znaniya* article entitled "From the Very Beginning." This is the first mention we have seen of the new program:

> This year all educational institutions, from secondary schools to colleges and universities, shift to the new civil defense programs. These more intensive programs and the higher demands on practical training have substantially complicated the tasks of the civil defense department and courses at higher educational institutions and military instructors at secondary technical schools, trade-technical schools and secondary schools. . .
>
> Much has been accomplished to achieve successful resolution of these complex problems. Since the spring of 1974 improvement in the qualifications of civil defense instructors at central civil defense courses has been conducted in conformity with the new program. Its content also constituted the foundation of teaching methods conferences for teachers held throughout the country in January-February of this year. A number of ministries have held special meetings of military training officers at secondary schools. . .

There has been much publicity regarding the celebration in the USSR of "Missile Forces and Artillery Day" on November 19. Many speeches and articles praising the Soviet accomplishments in modern armaments have appeared. Here is an excerpt from an article in the Warsaw *Zolnierz Wolnosci* (in Polish) on November 19, 1975:

> . . . In many capitalist states the arms race is continuing, and imperialism is trying to aggravate the situation in Southeast Asia, the Middle East and in the eastern region of the Mediterranean.
>
> This is why the Communist Party relates its militant peace foreign policy to unceasing vigilance vis-à-vis the imperialist states and their aggressive blocs and is continuously concerned to strengthen the country's defense and the combat might of the Soviet Armed Forces." □

SPOTLIGHT

In an interview with *U.S. News & World Report* former Defense Secretary James R. Schlesinger says:

"We've heard a good deal of talk about deception in this country in recent years, but the cruelest form of deception is self-deception. We have tended to put the blinders on about what the trends have been. We have tended to avert our gaze from Soviet objectives and tactics because we wanted to believe that the illusory view of détente was true. We should pursue détente, but we should pursue it without illusion — and we must keep our powder dry."

* * * * *

Media halos got a little bent when the *Chicago Tribune* on October 30 printed a front-page story about the reported explosion at a Siberian breeder reactor construction site — complete with bodies and fallen trees around the crater. The public impact of the fantasy, however, was watered down little by a *Trib* retraction the following day on page 17.

* * * * *

"We will bury you," (the U.S.) declared Soviet Premiere Kruschev in the early 1960s at a time when relations between the U.S. and the Soviet Union were strained.

Now in our nation's Bicentennial year bomb shelters seem to have little more than nostalgia value, either emotionally or economically — but not so in the Soviet Union.

A recent two week trip to Russia proved this point to me. The visibility of the preparedness effort is obvious without a word spoken. Sirens are placed in cities every few blocks, telling me WARNING is there. . . a trip through the subway, as deep at some places as a 12 or 15 story building reflects sounds of SHELTER . . . yet not a word is said . . . and the citizens go on working and the feeling of assurance reflects in their faces. Their Civil Defense is working for them, and I ask myself . . . Will we be buried?

Ruth I. Comitz
Defense Civil Preparedness Agency
Olney, Maryland

STROPE (Con't. from inside cover)

position that knits nuclear-natural as inseparable. This is likely a no-win position for several reasons.

First, those yelling loudest are those who turned their backs most resolutely on nuclear preparedness when they got the chance. Second, a reasoned judgment by a "nuclear nut," such as myself, is that up to a point nuclear and natural have common or dual uses, but on a scale of 10 that might be up to maybe 2. Finally, the House Armed Services Committee has jurisdiction neither over natural disaster matters nor appropriations, so the legislative actions that are needed are just too complex to bring about quickly. For at least a year, then, dual use is going to have a rough time in the civil defense arena. □

Book Review — *R.F. Blodgett*

STRATEGIC CONSIDERATIONS IN PLANNING A COUNTEREVACUATION

Contract Report by C.V. Chester, G.A. Cristy, and C.M. Haaland (Oak Ridge National Laboratory). For the U.S. Energy Research and Development Administration. Printed by National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Va. 22161, 102 pages, $5.45.

This report is far and away the most readable crisis relocation (evacuation) study to become generally available to date. While it could delve more deeply into the problems the authors pose, the lack of specificity makes it all the more interesting and understandable.

Actually, only 35 pages of narrative are devoted to counterevacuation considerations, with the balance of the book comprised of what seems to be "filler" with seven lengthy appendicies headed:

- Strategic Offensive Forces of the U.S. and S.U.
- OBE (Office of Business Economics) Area Population and Average Density
- Availability of Rural Basements
- Timber Resources for Expedient Shelter
- Recommended Items for Urban Evacuees (and the most relevant reference)
- Cities with Average Annual Precipitation less than 16 inches per year
- USDA Home and Garden Bulletin No. 77

This reviewer sees the report as a point-counterpoint presentation:

". . . the Russians have at least a 2½ times greater advantage in megatons and the U.S. has only one-half the area of the Soviet Union, giving the U.S. what is potentially a much worse fallout problem" as opposed to, for instance, the fact that "With the U.S. advantage in transportation, careful and thorough planning should permit the U.S. population to reduce vulnerability to that of the evacuated Soviet population in three days, even allowing the Soviets a 24-hour head start."

"The United States has great advantages over the Soviet Union in food reserves and agricultural productivity that will survive any attack." However, ". . . to neutralize a U.S. evacuation plan, the Soviets need only to cycle their plan two or three times. This should be possible under some circumstances for the authoritarian Soviet government and the disciplined Soviet population."

Even with a very complete and credible program apparently we would be lucky to accomplish a national evacuation just once because politics and the people would probably simply not tolerate subsequent disruptions or even react to repetitive false alarms. Hopefully this situation could evolve into an acceptable blast shelter and food stockpile plan.

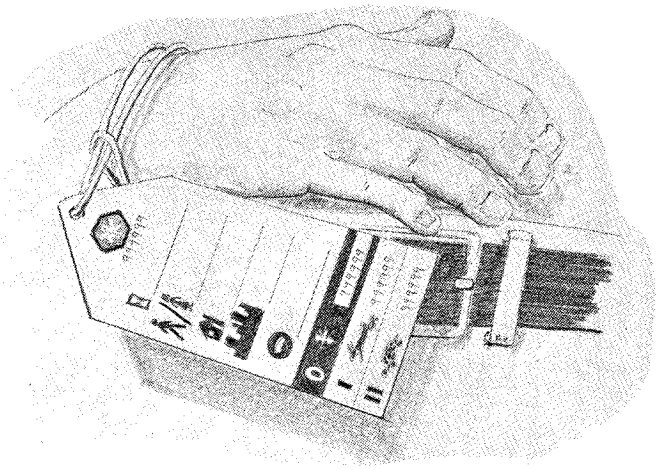
Even though distance, the purpose of evacuation, is one of the best and cheapest defenses against nuclear weapons, parrying Soviet preparations budgeted at 30 to 50 times our U.S. Civil Defense budget will be difficult. The logistic and economic problems loom large, but can be resolved theoretically.

Recommended reading for everyone involved with relocation planning as an excellent overview of a critical, frustrating, underfinanced, national, democratic dilemma. □

The triage problem. . . A grass-roots solution:

"METTAG"

— by Walter Murphey



Every disaster of consequence proves one thing beyond all doubt: that a simple, standard, thoroughly functional casualty triage tag is needed if we are to be serious about maximizing the survival rate of victims.

The 4-color Medical Emergency Triage Tag (METTAG) is the latest effort developed to fill this need. One without language barriers — it uses symbols. Approval by medical, fire-rescue, transportation, and disaster planning authorities across the United States indicates that it is indeed a big step forward and can prove to be a tremendous boon to disaster-response teamwork. (METTAG also marks the first real "promotion" undertaken by the *Journal of Civil Defense.*)

When mass casualties occur, the problem of dealing effectively with victims is often one of staggering proportions. Principal on-scene steps faced by rescue teams include (1) the locating of victims, (2) quick diagnoses of injuries, emergency aid, and field triage, and (3) speedy evacuation to medical facilities.

The triage tag, of course, is nothing new. Long looked upon as a basic necessity, many excellent tags are now in use. In the climate of confusion and tragedy that accompanies disaster it helps to dampen the many things that can go wrong. San Diego and other American cities have devised excellent tag solutions. Sweden, Western Germany and other countries also have developed triage tags that do admirable jobs.

However, they are all "different." Some are too complicated for field use and belong more properly in the hospital triage operation. Used in other localities (disasters usually happen in "other" localities) and in other systems of medical processing their limitations can become severe. When other languages are involved the results can be chaotic. One disaster on top of another is needless. Lives of victims are at stake.

Controlled outside help — a basic major disaster requirement — badly needs standardization, coordination and direction. The use of a common method of triage, with a tag that is understood and used by all concerned, is the idea behind the Medical Emergency Triage Tag.

One special feature of METTAG is the individual serial number that goes on each tag (13 times) and immediately identifies the casualty, even without a name. Numbered tear-offs also identify the casualty with processing steps, accident positions, possessions, or anything else which needs to be related to the victim. Another feature is the remarkable resistance of the tag to abuse, adverse operational conditions and long-term storage. In one test METTAG was soaked for 48 hours, then frozen for 48 hours, then brought to a boil. It remained completely legible and serviceable. A tough plastic 30-inch cord is threaded through each tag's grommet (prior to shipment).

According to expert evaluations the tag will:

(1) Simplify and expedite the rescue mission
(2) Make more effective use of rescue personnel
(3) Provide for coordinated processing on a clearly-defined priority scale
(4) Save lives

METTAG appears to offer disaster response teams a new tool for increased operational effectiveness, to contribute meaningfully to enhanced survival odds, and to be another challenge to the disaster-response profession to align its sights on improved rescue techniques. □

METTAGS may be ordered from the *Journal of Civil Defense,* P.O. Box 910, Starke, Fl. 32091, USA on the insert order form in this issue or by informal written order. Prices have been held as low as possible for a top quality product designed for full adequacy. Prices are:

Quantity	Price Per Tag	Net Price	Shipping Costs	Total Price
50	35c	$ 17.50	$ 1.25	$ 18.75
500	19c	95.00	3.90	98.90
1,000	18c	180.00	7.75	187.75
5,000	17c	850.00	27.50	877.50

[Note: For Florida orders only: add 4% Florida sales tax to net price. For foreign orders — except Canada — double shipping costs. Add applicable amounts to total price.]

See sample tag and order form — page 9, this issue

"Hundreds walk Omaha streets today who would now be in graveyards if 'ho-hum' had been the watchword."

TIME AND TORNADOES — The Omaha Experience

— by Kevin Kilpatrick

Drawing by *Omaha World Herald* and McNaught Syndicate artist Ed Fisher.

Fifteen minutes disaster warning time is "hopelessly inadequate" — "impossible." So say defense strategists in considering target area reaction to incoming intercontinental ballistic missiles.

Yet, 15 minutes was exactly the time the people of Omaha had last May 6th to react to one of the two worst tornadoes in U.S. history.

Those scant 15 minutes of siren, TV, and radio alert gave the people of Omaha a fighting chance. They took it, and with a little luck they beat the odds. Beat them soundly.

Instead of thousands of casualties littering the tumbled debris there were only three dead and a handful of injured. Hundreds walk Omaha streets today who would now be in graveyards if "ho-hum" had been the watchword.

Like other disaster success stories this one too has its roots buried deep in hard-core planning and preparedness. In looking at possible disaster eyeball-to-eyeball, in taking concrete steps beforehand to provide the machinery for prompt warning, and in aggressively implementing those steps at the last minute in the face of an ominous situation, Omaha scored a ringing victory over wholesale death. One that deserved — but failed to get — the coast-to-coast media coverage that neglect and tragedy would have produced.

The matrix of Omaha's preparedness is no secret. First, there is veteran Civil Defense Director Bill Noyes, who assumed his emergency duties in 1954. Then there's what he did over the 21-year period: He promoted a siren warning system for the city — one that would do a first-class job. He formed a radio-TV warning net and kept it geared to do its emergency job. He fostered REACT (Radio Emergency Associated Citizens Team), composed of 45 trained disaster spotters who fan out to hilltop positions whenever called. And much more.

On May 6th, tumbling thunderheads boiled into a balmy Omaha sky during the late morning. By 1:00 PM a tornado watch had been announced by the National Weather Service for portions of South Dakota, Nebraska and Kansas.

REACT reacted. Its trained observers quietly took their posts. Radio and TV stations broadcast the watch and alerted their staffs for a possible warning.

During the afternoon, severe weather and hail was reported south and southwest of Omaha.

At 4:09 PM the first REACT observer spotted a funnel cloud and immediately reported it by radio to REACT Net Control. Net Control relayed it to 911 Emergency Communications and the National Weather Service. Additional radio reports followed from other REACT teams, from Omaha police cruisers, and from county sheriff patrols.

It was time to act.

At 4:14 PM a tornado warning was issued. Radio and TV stations broadcast the warning, giving appropriate actions to be taken by listeners. Factories,

Part of the May 6 Omaha tornado through an Omaha residential district. Property damages amounted to over $125,000,000.

shops and offices closed. People responded en masse, hurriedly seeking shelter.

At 4:29 PM a tornado was sighted on the ground within Omaha's city limits. Sirens immediately wailed.

The tornado hit. Buildings vanished. Cars, semi-trailers, heavy equipment and other debris took to the air.

Ruins of Omaha's Westgate Elementary School — where a short time before the tornado 400 children had been dismissed for the day — testify to the storm's wrath. The rebuilt school contains disaster shelter for the entire school population.

By 5:00 PM it was all over. An incredible scene of wreckage along the 8-mile tornado path greeted those who came out of hiding.

"One thing that helped," says Bill Noyes, "was a mini-tornado that hit the southwest section of Omaha on March 27th, just six weeks before the big one. Tornadoes don't usually come that early around here, so it really caught us by surprise. The Weather Service had been expecting possible heavy snow. Conditions for tornadoes just weren't in the picture. It taught us a lesson that kept us on edge for the May 6 affair. That was luck. It was luck too that schools were out by the time the tornado hit. Students at Westgate Elementary School, for instance, would have had very little shelter. Their building was completely demolished. In the rebuilt school, there is a reinforced concrete room large enough to house the students in the event of disaster. During the year it will be used for community meetings and other activities."

Perhaps Bill overrates luck. The "worst tornado in U.S. history" failed to produce impressive casualty figures not due so much to luck but because people like Bill Noyes wrestled for years with the nuts and bolts of planning, obtaining funds, and putting together without fanfare (and often with criticism) a system of disaster survival that would work.

And work it did! The list of only three dead is proof of that.

Of paramount interest is the fact — the one we started with — that the Omaha disaster team put its whole warning show on the road within a time frame of 15 minutes.

A 15-minute warning time then is not impossible to work with. Not by any means. With competent leadership, political support and down-to-earth planning any disaster — and this includes nuclear attack — can be cheated of its kill potential.

This was dramatically demonstrated in Omaha. □

EDITORIAL . . .

AMERICA THE GULLIBLE

The emasculation of the 1976 U.S. civil defense budget described in Jerry Strope's "Capital Commentary" (inside cover) and the ignoble demise of ABM revealed in John Fisher's letter (p. 1) contrast strangely with Ruby Thurmer's Moscow report (p.6). In it she focuses on a major new emphasis on civil defense training in all Soviet schools — which already had programs that far outclassed any in the United States. Americans, however, seem to have no trouble reconciling these stories.

We can also swallow renewed reports of newsmen and legislators, in the wake of the Ford China visit, that China's answer to the Soviet threat is to build massive networks of tunnel shelters under their cities — *all* their cities. We smile. We've come to look upon shelters as odd-ball pursuits for odd-ball people. It's easier that way. It doesn't spoil our week ends.

And we can momentarily wonder at the words of Kissinger and others who say that the USA and the USSR can destroy one another 17 times over with nuclear weapons now on hand. Which is a convenient lie to scare the pants off of us and freeze us to inaction. Which it does.

Ruth Comitz reports on page 5 that during her December-January trip to the USSR she was duly impressed by extensive Russian subway shelter and warning sirens "every few blocks" in every city. So what? America has more electric carving knives.

And then there's deterrence. A February *Atlas* report from the Stockholm International Peace Research Institute says: "Nuclear deterrence, a genocidal doctrine, has become an article of faith. And mutual assured destruction, the most morally indefensible strategy ever devised, is the established policy of the big powers — an official ideology legalized by treaties. Policies designed to guarantee 'security' are more likely to guarantee nuclear suicide. . ."

What does Sweden use for security? A tough home defense — which includes today a tough civil defense. More grist for American smiles. But the policy has brought peace to beleaguered Sweden for over 160 years.

Can a defensive strategy which includes a full accent on true *defensive* measures — shelter, evacuation, ABM, SAM, etc. — be so naive? If China, the USSR, Sweden, Switzerland and many other nations exploit it so doggedly and desperately why don't we? Is it because we are brainwashed and must banish disagreeable thoughts from our minds?

The lead article in the January issue of *Foreign Affairs,* says CD-analyst friend Bill Marty, "compresses the landscape of détente, strategic stability and civil defense with clarity and directness, is an extraordinary piece of work." The article, "Assuring Strategic Stability in a Era of Détente," is by Paul H. Nitze, erstwhile SALT negotiator. We quote one paragraph of his 26-page analysis:

"As to the civil-defense aspect, the absence of a U.S. capability to protect its own population gives the Soviet Union an asymmetrical possibility of holding the U.S. population as a hostage to deter retaliation following a Soviet attack on U.S. forces. Although the most economical and rapidly implementable approach to removing this one-sided instability would be for the United States to pursue a more active civil defense program of its own, such a program does not appear to be politically possible at this time. Its future political acceptability will be a function of the emerging threat and its appreciation by U.S. leadership and by the public."

Not "politically possible"? Mr. Nitze is of course right. Politicians have much more important things to do than to provide us with our basic birthright as American citizens: protection and security.

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- Reactor Anatomy — Part II
- Realist John E. Bex takes civil defense "back to the drawing board"