

RELATED CORRESPONDENCE

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Maple City, Mich 49664
October 3, 1983
83 OCT -7 A10:37

Peter B. Bloch, Esquire
Dr. Oscar N. Paris
Mr. Frederick J. Shon
Administrative Judges
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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Testimony and Documents for the Oct. 24-Nov. 6th Hearing

Docket # 50-155-01A

Dear Judges:

Enclosed is my list of witnesses and documents to be relied upon, with attachments.

I am slightly confused about the revelations that must be made concerning cross-examination. I have submitted a few documents with which the witnesses should be familiar when I cross-examine them, though I understand that this is a courtesy and not a requirement. But I have made no attempt to list all the documents that I might cite when making my arguments in findings of fact and conclusions of law. If I am in error concerning this, please correct me.

Also, please note that I have attached none of the testimony of Arthur J. Schwartz, Ph. D. His prefiled testimony is already in the docket, and the bulky deposition of June 1982 is in the possession of many of the parties. In an effort to contain costs I have made no further copies. But I will send copies to any party on the service list that does not have a copy. Please contact me regarding this if necessary.

This submission is dated October 3, 1983, with Judge Block's indulgence. I have fulfilled the condition that he laid upon me, that is I have not read my mail in the last three days.

Sincerely for safe energy,

John O'Neill II

John O'Neill II
intervenor pro se

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all parties served JONA

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LIST OF WITNESSES AND DOCUMENTS FOR THE OCT 24-NOV 6 HEARINGS

BIG ROCK SPENT FUEL POOL MODIFICATION

DOCKET # 50-155-OLA

O'Neill Contention II D (Air crash)

Witnesses:

Testimony of Victor McManemy	attached
Testimony of Christa-Maria	attached to C-M's testimony list
Testimony of John O'Neill II	attached

Testimony of Arthur J. Schwartz, Ph.D.
prefiled testimony, May 17, 1982 previously served
deposition of Dr. Schwartz, taken June 3, 1982 in
Ann Arbor, Michigan, at which Philip P. Steptoe
of Isham, Lincoln & Beale represented Consumers
Power, and Richard G. Bachmann and Richard J.
Goddard represented the NRC Staff. This deposition
already in possession of most on the service list.
Copies available upon request.
evidential deposition that may be taken at a date to be
agreed to by the parties.

Dr. Schwartz has informed me that his teaching
schedule does not allow him to appear at the
Petoskey hearings. He will soon be writing
a letter to the Board addressing this. He
has expressed his willingness to submit to an
evidential deposition in the Ann Arbor area
before the hearing. Thus I am proffering his
prefiled testimony and the first deposition as
testimony. I trust that with licensee and Staff
I can work out some stipulation about the status
of these documents and agree to a convenient time
to depose Dr. Schwartz.

I have been attempting to reach Colonel Rajewski of the
Bayshore Airforce Tracking Base. I expect to call him
to testify on matters that include continued operation
of the base, routes and errors. I may have to
supeona him. If needed, this will be requested within
a few days.

Documents:

I expect to offer into evidence the documents, already
served in this proceeding by other parties, concerning
plant overflights and military operations.

"The Story Behind the Pentagon's Broken Arrows," by Gary
Hanauer, Mother Jones, April, 1981. Attached.

Letter from the Federal Aviation Authority, identifying
the helicopter spotted by Christa. This will be submitted
when received.

A video tape of the May 4, 1980 demonstration may contain
footage of the biplane overflight. If this is the case it
will be put into evidence.

Christa-Maria Contention 8 & O'N II E 2 & II E 3

I expect to use the NRC documents detailing the life-time exemption from the single failure criteria granted to Big Rock's Emergency Core Cooling System.

O'N II A

I will rely upon the annual inspection reports conducted by the Institute of Nuclear Power Operations, (INPO) reports). These, I believe, are regularly docketed.

C-M 9(9)

I am in the process of tracking down testimony presented in the hearings before the U.S. Environmental Protection Agency that concerned the "Proposed Federal Radiation Protection Guidance for Occupational Exposures." I will submit these as soon as possible.

My name is Victor McManemy. I live at 10836 Center Road, Traverse City, Michigan.

On May 4th, 1980 I was in the vicinity of Elzinga Park, Lexalite Corp., and the entrance Road to Big Rock Point Nuclear Power Plant on highway M-31, four miles north of Charlevoix.

I was there taking part in a non-violent, peaceful demonstration against the continued operation of the "experimental" reactor owned by Consumers Power Co. We walked to Elzinga Park from the outskirts of Charlevoix, held a prayer circle there and then proceeded to the entrance area to the plant on Big Rock Road.

From the time we walked by the entrance road (on the way to the park), until we were arrested by State Police and Sherriffs, I'd say about two hours elapsed.

while walking back to the plant gate (after the prayer service) a low flying aircraft approached rapidly from the north, and once overhead proceeded to do a series of corkscrew turns (possibly called "barrel rolls"). To my recollection this "exhibition" was repeated while we gathered at the entrance road carrying out our attempt to contact officials at the plant about our concerns and questions.

At the time I thought it incredible that someone would behave in such a careless, reckless manner over a crowd of people, and especially in the immediate vicinity of an experimental nuclear reactor known for its inadequate containment shield.

I was very upset at the time, as it was perceived by me and others to be an act of defiance to what we were doing...a sort of nose-thumbing gesture towards our actions on the ground.

Name?

John O'Neill II

Address?

Route 2, Box 44
Maple City, Michigan 49664

Where were you May 4, 1980?

I was participating in a demonstration at the entrance of the Big Rock Reactor site, on M 31. I was on foot and spent several hours in the vicinity.

What did you see?

I saw a small, bright red, single engine biplane flying overhead.

How low?

It flew quite low, between 50 and 100 feet. The plane buzzed the crowd. I was alarmed.

Describe the plane's behavior.

It was performing acrobatic stunts. Most noteworthy were some spectacular loop de loops.

The pilot appeared to be acting irresponsibly, given the large crowd beneath him and the nuclear reactor near by. His stunts were taken by many people to be a hostile display directed against the demonstration.

Did the plane fly over the plant?

This was all close to the plant, a matter of seconds for a plane flying that fast. I could not see the airspace over the plant, so I can not say that it did not fly over Big Rock.

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The Story Behind The Pentagon's Broken Arrows

An arrow is a nuclear weapon. A broken arrow is a nuclear disaster.

By Gary Hanauer

ON SEPTEMBER 15, 1980, A B-52 bomber caught fire at Grand Forks Air Force Base in North Dakota. Although the Air Force quickly imposed a news blackout on the incident, North Dakota Disaster Emergency Services Director Ron Affeldt said he heard a message over the special radio channels his office monitors that included the words "broken arrow." Those words meant that the accident at the base involved not only a bomber . . . but nuclear weapons. The bombers have a capacity for 32 nuclear missiles; best estimates are that four were on board that day.

Only four days later, early on September 19, an explosion rocked an underground Titan II nuclear missile silo near Damascus, Arkansas. Everyone within a five-mile radius of the silo was evacuated; one worker was killed and 21 others were injured.

Although the Pentagon has still not officially conceded that the North Dakota fire involved nuclear missiles, that incident and the huge Titan II ICBM explosion in Arkansas are the first two "broken arrows" the government has admitted since a plane carrying four H-bombs crashed in Greenland in 1968. It is probably safe to say that since we dropped the bomb on Hiroshima in 1945, there have been hundreds of incidents involving nuclear weapons and missiles around the world, all of them caused by those few countries with atomic death stockpiled in

their arsenals—the United States and the Soviet Union chief among them.

One always has to say *probably* when discussing weapons accidents because it is impossible to know for sure. Ever since the first controlled nuclear chain reaction took place at the University of Chicago during World War II, nearly everything to do with nuclear weapons—not only their design but accidents involving them and the severity, frequency and consequences of those accidents—has been top secret, classified under provisions of the Atomic Energy Act. What we do know about broken arrows is what the Pentagon is willing to tell us and what a few knowledgeable sources can risk divulging.

The official government position on nuclear weapons accidents has never been that they are impossible, but in the early 1960s the Pentagon shifted its position semantically. In 1958, the government maintained: "It is considered that the possibility of the accidental nuclear explosion of a nuclear weapon is so remote as to be negligible."

Interestingly, by 1962, only four years later, the Department of Defense (DOD) had redefined the situation this way: "Nuclear weapons are designed with great care to explode only when deliberately armed and fired. Nevertheless, there is always a possibility that as a result of accidental circumstances, an explosion will take place."

What happened?

Well, Goldsboro happened. An acci-

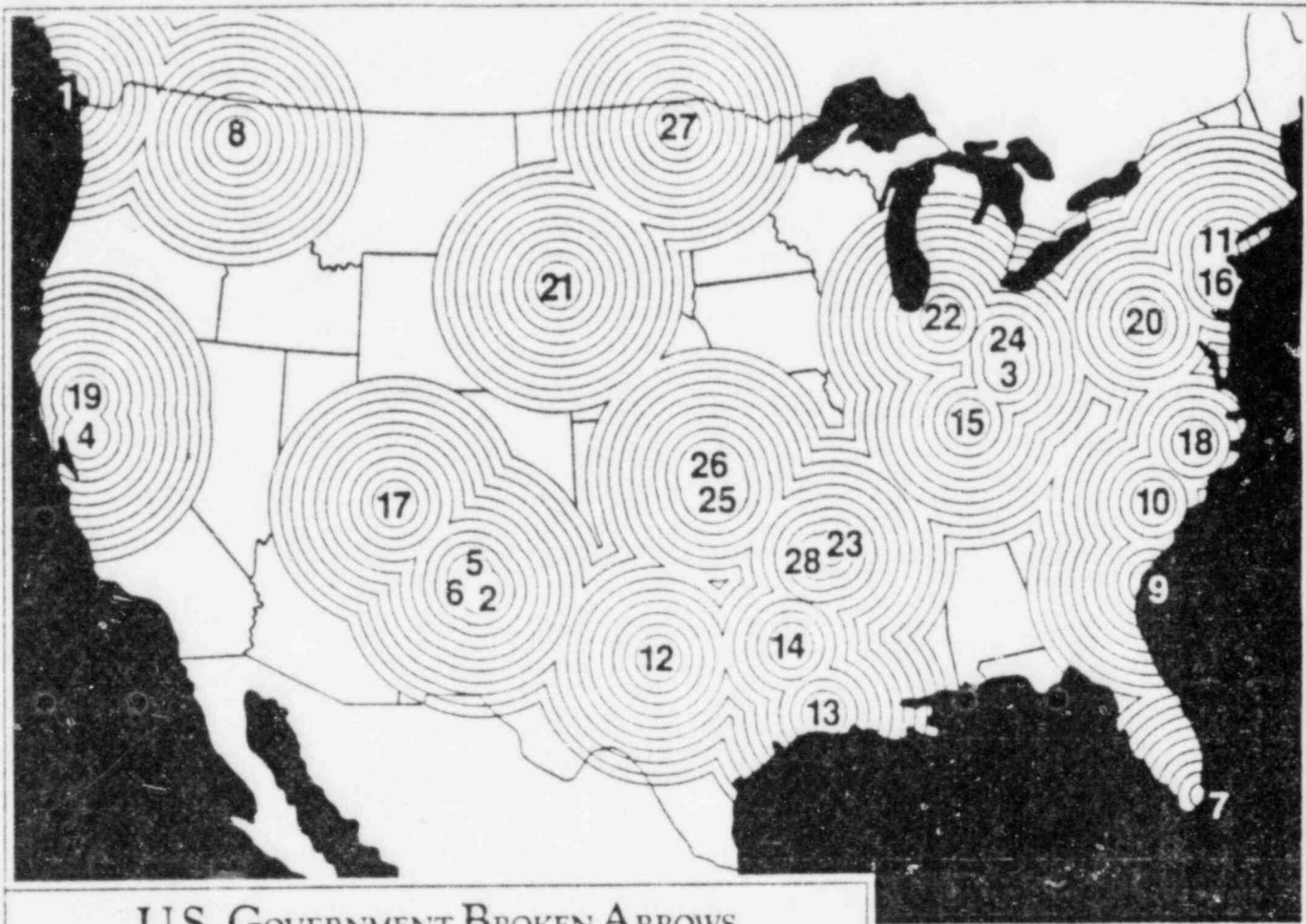
dent took place outside of Seymour-Johnson Air Force Base near Goldsboro, North Carolina, which threw the defense establishment into a panic. The accident remains the closest the U.S. has come, so far, to an atomic disaster resulting from a weapons accident on home territory. The Stockholm International Peace Research Institute (SIPRI) called Goldsboro "perhaps the single most important example [of an atomic] accident which nearly resulted in a catastrophe."

Two decades later, much information about it remains classified. Still, it seems clear that on January 24, 1961, in the backwoods of North Carolina, a 24-megaton A-bomb came one step away from detonating.

FIRE IN THE SKY

EUGENE PRICE, THE MANAGING editor of the *News Argus*, the local newspaper in Goldsboro, had revenue agent friends on a stake-out in the hills of Wayne County, North Carolina, hoping to arrest a moonshiner. After midnight, they called Price and told him that an Air Force plane had gone down near the town of Faro, about 12 miles from the stake-out. Price drove out to the crash site.

"The whole thing was eerie as hell," he remembers. "Part of the fuselage was lying in the middle of the road. I was told that one of the crewmen had been impaled by a tree and that a big box was found attached to a parachute



U.S. GOVERNMENT BROKEN ARROWS

DATE	PLACE	WEAPONS SYSTEM
1. Feb. 13, 1950	Pacific Ocean, Off Puget Sound, Wash.	B-36
2. April 11, 1950	Manzano Base, New Mexico	B-29
3. July 13, 1950	Lebanon, Ohio	B-50
4. Aug. 5, 1950	Travis AFB (SW of Sacramento, CA)	B-29
5. — 1956	Kirkland AFB (S of Albuquerque, NM)	B-36
6. May 22, 1957	Kirkland AFB (S of Albuquerque, NM)	B-36
7. Oct. 11, 1957	Homestead AFB, Florida	B-47
8. Dec. 12, 1957	Fairchild AFB (Spokane, Wash.)	B-52
9. Feb. 5, 1958	Savannah, GA (5 miles off coast)	B-47
10. March 11, 1958	Florence, South Carolina	B-47
11. May 22, 1958	Leonardo, New Jersey	Nike missile
12. Nov. 4, 1958	Dyess AFB (Abilene, Texas)	B-47
13. Nov. 26, 1958	Chennault AFB (Lake Charles, LA)	B-47
14. July 6, 1959	Barksdale AFB (Shreveport, LA)	C-124
15. Oct. 15, 1959	Glen Bean, Kentucky	B-52 & KC-135
16. June 7, 1960	McGuire AFB (Wrightstown, NJ)	BOMARC missile
17. Jan. 19, 1961	Monticello, Utah	B-52
18. Jan. 24, 1961	Goldsboro, North Carolina	B-52
19. March 14, 1961	Yuba City, California	B-52
20. Jan. 13, 1964	Cumberland, Maryland	B-52
21. Dec. 5, 1964	Ellsworth AFB, South Dakota	LGM 30B (Minuteman ICBM)
22. Dec. 8, 1964	Grissom AFB (Evansville, Indiana)	B-58
23. August 9, 1965	Searcy, Arkansas	Titan missile
24. Oct. 12, 1965	Wright-Patterson AFB (Fairborn, Ohio)	C-124
25. Aug. 24, 1978	Rock, Kansas	Titan missile
26. April, 1980	Wichita, Kansas	Titan missile
27. Sept. 16, 1980	Grand Forks AFB, North Dakota	B-52
28. Sept. 19, 1980	Damascus, Arkansas	Titan II ICBM

Sources: U.S. Defense Department, Center for Defense Information, Stockholm International Peace Research Institute

Map by John Williams

hanging from another tree."

The plane crashed on the farm of Ellen and Buck Tyndall. "It lit up the sky," Ellen remembers. Indeed it did. Firemen reported that water behaved like gasoline on the flaming aircraft; they were unable to put out the fire until the Air Force arrived with foam to extinguish it.

The flight that ended in the Tyndall's backyard started as a standard B-52 airborne alert training mission from Seymour-Johnson. But at some point during the flight, the bomber's right wing developed what the DOD euphemistically called "a structural failure." In other words, it began to break apart. The crew started to burn off excess fuel to lighten the plane in preparation for an emergency landing. Five of the eight crewmembers parachuted to safety; the three others were killed in the crash.

The plane carried two of what the Air Force then and still maintains were "unarmed nuclear weapons." According to Dr. Ralph Lapp, a well-known atomic scientist, former executive director of the DOD's Atomic Research and Development Board and an advocate of

nuclear power, the weapons on board were both 24-megaton bombs. Like other nuclear bombs transported aboard military planes at the time, they were in protective crates. Each warhead, according to Lapp, in his book *Kill and Overkill*, "was equipped with six interlocking safety mechanisms, all of which had to be triggered in sequence to explode the bomb."

When the wing came apart, the bombs automatically jettisoned, says the Pentagon. "In one bomb, the parachute deployed, and the bomb received little damage," Pentagon press representative Lt. Col. Mark Foutch told me. That bomb apparently was the one by the tree.

Ralph Lapp, who had left government service (he was also head of the nuclear physics branch of the Office of Naval Research), says he got an entirely different story about Goldsboro from "someone in the military."

"When Air Force experts rushed to the North Carolina farm to examine the weapon after the accident," Lapp writes, "they found that five of the six interlocks had been set off by the fall. Only a single switch prevented the 24-megaton bomb from detonating and spreading fire and destruction. . . ."

Daniel Ellsberg, the former deputy secretary of defense who is best known for leaking the Pentagon Papers in 1971, was working at the Pentagon at the time of the Goldsboro crash.

Ellsberg says that he, too, saw "a classified document" reporting the incident as Lapp tells it. "At the time, the authors of the report [about the incident] were pretty disturbed by it," Ellsberg insists.

The Pentagon says there was no actual chance of the Goldsboro bomb exploding. Without confirming the total number of safety switches, DOD spokespersons said at the time that two of the six switches remained untriggered. Lapp, now a consultant in the nuclear power plant field, recently told me: "I stand by my story [that five of the six failed]."

THE CAPSULE

ANOTHER TWIST WAS ADDED IN 1969, when a DOD spokesperson told a different story to United Press International reporter Donald May. "The bomb that fell was unarmed," he said. "That is, a crucial piece of fissionable material, necessary for a nuclear explosion to occur, was not in it. This piece was called 'the capsule.' The capsule was not on board the plane."

Why did the Pentagon wait eight years to discuss "the capsule"?

Milton Leitenberg, author of the nuclear weapons accidents chapter of SIPRI's *Yearbook of World Armaments and Disarmament* for 1968-69, questions the government's crucial clarification of the Goldsboro story. "It seems reasonable to believe," Leitenberg

wrote, "that if the statements on the capsule had been released in 1961, fears of weapons accidents might have been diminished."

Leitenberg is not the only one who questions the capsule story. "It doesn't make sense," argues Lapp. "First of all, if the crew is on an airborne alert training mission and isn't carrying that part of the bomb, why were they carrying the rest of the bomb? I don't understand their use of the word *capsule*. If, as they say, the bomb could not be fired, then why even talk about the number of switches that held?" Lapp and Leitenberg wonder why the military didn't just tell everyone concerned at the time that even if *all* the switches had failed, the Goldsboro bomb would not have detonated . . . if, in fact, it wouldn't have.

Today, the Pentagon has changed its version further. No longer is there any mention of a capsule being aboard. "To trigger the bomb, the crew would have had to perform a vital operation," says the Pentagon's Foutch.

Does that mean the bomb was armed or unarmed? "It's like talking about a gun that isn't cocked," says Daniel Ellsberg. "Everybody knows that you can drop an uncocked gun on the ground and it will sometimes go off. *Unarmed* can be a misleading word."

THE SECOND BOMB

AT THE TIME OF THE GOLDSBORO accident, editor Eugene Price believed it standard procedure that Air Force personnel ordered the crash site sealed off as soon as they arrived. "They told me they were trying to find a seat," Price remembers. "It seemed pretty believable. I thought they were just trying to piece everything together."

Piecing everything together proved quite a feat. Bits of metal and debris were everywhere, and those that were found were put in a pickup truck and hauled away. Charles T. Davis, a local shopkeeper who owns the land the Tyn-dalis' farm is on, says, "They asked everybody who found any parts to turn them in, and people did. People from miles around had parts. To this day, some people probably have parts." Davis wondered what the Air Force was looking for so intently, but the government would not tell him.

After the wreckage was cleared, men with Geiger counters searched not only

—Continued on page 52

LIMITING THE THREAT

The Disarmament Working Group of the Coalition for a New Foreign and Military Policy is launching a national campaign to stop the MX missile and is lobbying members of Congress on the system's dangers. The group is also working for renewed SALT talks. The group makes available information on the issues of first-strike capabilities and the Soviet Union as a military threat. Contact Gene Carroll for the name of a coalition member in your area. Write: 120 Maryland Avenue NE, Washington, D.C. 20002; (202) 546-8400.

The Nuclear Information and Resource Service (NIRS) is known primarily as a gold mine of information on nuclear power, but it has files on nuclear weapons as well. You can call NIRS toll-free between one p.m. and five p.m. EST at (800) 424-2477, or you can write 1536 16th Street NW, Washington, D.C. 20036.

Catholic Action of Hawaii is a secular group fighting to end that state's role as "the nuclear command center and weapons stockpile of the Pacific." Direct action against nuke storage and radioactive waste dumping by the military is one focus of the group's activities. The newly published *Dark Side of Paradise: Hawaii in a Nuclear World* is available for \$3.95 (includes postage) by writing CAH at 1918 University Avenue, Honolulu, Hawaii 96822; (808) 946-6303.

The Center for Defense Information is a great source for independent information about military expenditures and weapons systems. The center publishes *The Defense Monitor* ten times yearly. CDI is at 122 Maryland Avenue NE, Washington, D.C. 20002; (202) 543-0400.

—Deborah Branscum

The Pentagon's Broken Arrows

—continued from page 28

the cordoned-off zone but an area for two or three miles around as well, according to Buck and Ellen Tyndall. In fact, the Air Force searched for five months, inspecting and reinspecting the farm and the land around it.

One day, Buck Tyndall saw some of the men looking at a piece of what was apparently the second bomb, though Tyndall didn't know it at the time, nor did anyone else in Wayne County. "It was lying on top of the ground," Tyndall says. "It was cracked. They felt that something had poured out of it." Later, when Ellen Tyndall asked one of the men if what they were looking for was harmful, the man replied, "There's nothing here that could hurt you, but it could hurt your grandchildren."

A special engineering group was flown to North Carolina from Fort Ord, California, to continue the hunt. Using what Charles Davis remembers as "tractors with pans in a dragline-type system," the soldiers dug an immense hole that covered almost three acres and was 35 feet deep. (Other estimates, including the Pentagon's, put the depth at 50 feet.) In all, more than four million cubic feet of soil were piled onto the surrounding property. Ground water samples were taken for testing.

"One day," says Davis, "they told me they found what they were looking for and were going to cover up the hole. They just piled it back from where they had dug it." Davis was later paid an undisclosed sum, estimated at \$7,000, for damages to the property and for the Air Force to purchase a permanent easement to his land.

The truth of the matter is, as even the Pentagon now admits, the object of the search was never found. That object is officially described as "a piece of the bomb containing uranium." Pentagon spokespersons will not reveal how large a piece is missing, how much was recovered, how much or what kind of uranium is involved, or even exactly what the word *piece* means.

An official account of the incident explains that after the wing of the bomber broke apart, the craft exploded, presumably on impact, possibly due to a fuel leak. The parachute deployment of the second bomb was be-

lieved to have been severed by debris from the explosion. "The bomb fragmented into pieces," says the Pentagon's Mark Foutch.

"It is our opinion that since we looked so thoroughly and could not find the missing part, the likelihood of anybody else finding it is nil," says Foutch. "But if somebody were to find it, the material could be harmful to that person." Radioactivity from the part "would be above acceptable levels," he adds. This description of the missing part seems to conflict with an earlier report from "official sources" carried in *U.S. News and World Report* in April 1968, which stated that the search was discontinued "because there was no danger of radiation."

It is interesting to note that the military does not use phrases like "most of the bomb" or "nearly all of the bomb" to describe what was found; it says only that "pieces were recovered." One factor that may have raised eyebrows is what investigators found when they pieced together what was left of that second bomb.

All Ralph Lapp will say about it is that "there were problems involved at the site that I still don't feel comfortable talking about." When pressed further, Lapp said, "I don't think the problems had to do with [radioactive] spillage."

One person says he knows what the unreported problem was, and that's Daniel Ellsberg. The "daily report" Ellsberg saw at the Pentagon stated that "on one of the bombs, five of the six safety devices had failed, but when the other bomb was included, *all six kinds* of safety devices had failed."

When asked specifically about Ellsberg's charges, Ralph Lapp in a second interview said: "You can't get that out of me."

"Are you denying that this failure [all six types of switches] is what happened?" I asked.

"No," he said. "But you won't get anything out of me."

"Then was the problem at the site something else?" I pressed.

Lapp paused a moment and then replied, "I can't tell you."

The Pentagon will tell you there have been very few nuclear weapons accidents. In fact, those who know how many broken arrows there have been

are not saying.

In January 1968, the DOD issued a press release listing 12 nuclear weapons accidents, which took place between February 5, 1958 and January 1966. Until Stephen Talbot, a San Francisco-based reporter for PBS, forced the government (with the help of the Center for Defense Information) to release a new list last December, this was the only record of broken arrows made public by the Pentagon.

The new list, which Talbot released to the press, showed there had been a total of 27 nuclear weapons accidents, 15 of them during the period in which the DOD previously claimed there had been 12.

In addition, Talbot said the Pentagon and the Defense Nuclear Agency told him there had been "less than ten" other broken arrows they wouldn't describe at all, because of "national security" reasons.

Even with the information provided by the new list, the Pentagon would have us believe there were no accidents involving nuclear weapons between the Greenland plane crash in 1968 and last September's Titan II explosion in Damascus, Arkansas. The government says this startling record is the result of additional safety procedures, limited Air Force training missions with weapons and new reliance on ICBM systems. Before 1968, there were an average of three accidents yearly and five in 1958 alone. This dramatic improvement in the government's accident record, however, may depend on how one defines *accident* and who's counting.

For example, from news reports, journals and unofficial sources, 138 broken arrows may have occurred in the 12 years from 1968 until 1980, a period during which Washington claims there were none. In the past six years alone, there have been at least 123 unspecified Titan nuclear fuel leaks, but the Pentagon does not count these "incidents" as accidents, and they are, therefore, not on nuclear accident lists.

Past accident counts can be just as confusing. A National Security Program research paper published by Ohio State University in 1960 put the number of broken arrows at 50 for the 1945-1960 period; the DOD claims 18.

Another account, this one carried in *Newsweek* on May 5, 1969, indicates that a board of inquiry, ordered after

the Goldsboro accident, told then President John Kennedy that more than 60 broken arrows had occurred up through the North Carolina near-disaster.

Using these figures—including the Titan fuel leaks and incorporating the Pentagon's list—one comes up with close to 200 broken arrows since we ushered in the atomic age. At least 404 casualties related to nuclear weapons fires, explosions, accidents or cleanups have also occurred—89 deaths and 87 injuries in missile or aircraft mishaps and 228 fatalities in ships lost at sea while carrying nuclear weapons.

SNOWFALL FALLOUT

THE PUBLIC HAS NEVER BEEN TOLD about most of these incidents for one simple reason. The Air Force does not disclose them. When Captain Richard McNally, the information officer at Grand Forks Air Force Base, was asked about last fall's B-52 fire in North Dakota, he said the public would never know whether the bomber was carrying nuclear weapons. "I cannot confirm it to you," McNally explained. "It's Air Force policy to neither confirm nor deny the presence of nuclear weapons."

It is apparent though, from reports by various sources, that broken arrows have occurred in many parts of the world and in every part of the country (see map, page 24).

The most recent accident which the Pentagon has officially confirmed, last September's explosion at the Titan II base in Arkansas, resulted when a worker dropped a wrench on the missile, rupturing part of the first stage section, which spewed volatile fuel into the silo. Several hours later, after the silo had been flooded with water because of fire indications, the facility was rocked by a blast that pulverized a 50-foot-wide, 750-ton concrete door, turning the housing into a crater of rubble. The blast lit up the night "like daylight," according to Tommy Graham, an official of the Arkansas Office of Emergency Services. Some 1,500 persons living near the site were evacuated; 18 of the 21 injured workers had to be hospitalized.

Air Force spokespersons, as usual, denied that the Damascus explosion resulted in any radioactive leakage or posed any other threat to residents nearby the silo. But Benny Mercer, mayor of the town of Guy, Arkansas, five miles away from the base, has a

different story. According to Mercer, a "light snow" blew into town an hour after the explosion. The "snow" caused nausea and burning noses, throats and lungs for at least two dozen residents of the tiny community.

Air Force Sgt. Larry Vales later confirmed that people near the silo experienced signs of "being exposed to combustible materials," but he denied the exposure had anything to do with the Titan accident. "It could have been anywhere by any fire," Vales said of the symptoms that residents of Guy suffered, though this seems wishful thinking on the part of the Air Force.

One of the more infamous of history's broken arrows took place on January 17, 1966, when an American B-52 and a KC-135 refueling tanker collided in midair near Palomares, Spain, causing the plane's four, unarmed hydrogen bombs to separate from the aircraft and fall to the ground. One bomb landed intact in a dry riverbed. Two of the remaining three bombs, however, released their radioactive material in the middle of a populated area.

At the time, U.S. government sources claimed that "with the type of

radiation involved, even if a person standing in a cloud of plutonium dust inhaled the radioactive material, it would result in a radiation dose that is less than the yearly amount permitted for absorption by U.S. atomic industry workers."

This statement, even 15 years ago, was so misleading as to be insulting to the people of Palomares. Few scientists could argue that inhaling a "cloud of plutonium dust" was risk-free. No matter what the whole-body "radiation dose," which the government refers to here, inhaling plutonium particles can easily and effectively cause lung cancer.

Wisely, the Spanish government insisted the U.S. try to remove contaminated soil from Palomares. A total of 4,900 barrels—1,100 tons of it—were shipped to the federal radioactive waste dump in Aiken, South Carolina.

It took 80 days to find the missing fourth bomb. Aided by fishermen who saw the bomb fall into the sea, a two-man midget submarine discovered the device on a steep slope 2,500 feet below the surface and used mechanical arms to nudge the weapon from its perch and attach a cable to the bomb, which was

then recovered.

A similar incident took place in January 1968, two years later, when a B-52 carrying four H-bombs crashed into the ice off Greenland while trying to make an emergency landing at Thule Air Force Base. One crewmember was killed and six others parachuted to safety. Military teams using dogsleds and helicopters spent weeks combing the area for the missing bombs.

Today, DOD spokespersons say all four bombs were found. More than 700 military and support personnel were used to remove 237,000 cubic feet of contaminated snow and debris from the crash site. Later, the Eskimo village council of Thule demanded to know what the U.S. government meant when it assured them there was "probably" no radiation danger in the area. Probably the government meant it did not really know what happened to all the radioactive material from all four bombs; probably some of it melted into the ice and snow around the Eskimo village and was swallowed by the soil of Greenland—not to return again, it is hoped.

If little is known of nuclear accidents caused by U.S. weapons, even less is known about mishaps caused by other countries' atomic warheads. Nikita Khrushchev supposedly told then Vice President Richard Nixon about an errant Soviet missile which had to be destroyed by a signal from the ground after it started heading toward Alaska. Another Soviet accident is thought to have damaged a missile base near Alakurtti, close to Finland.

ACCIDENTAL WAR

THE UNITED STATES CURRENTLY has about 25,000 nuclear weapons deployed around the world, and more are made every day. Most are deployed at military bases in this country and elsewhere. Some 7,000 of them are in Europe. No one knows for sure how many atomic weapons are either in place or in storage throughout the U.S.

What is known is that nuclear bombs are kept not only on military bases but also in urban areas, near population centers. The Concord Naval Weapons Station, for example, sits 35 miles east of San Francisco in rapidly growing Contra Costa County, an area with 620,000 residents. When Stephen Talbot tried to find out if nuclear weapons are kept at Concord, he was told by the

government it could neither confirm nor deny it. Talbot did confirm it, though, by talking with present and former base employees. Nuclear weapons are regularly sent in and out on trucks, ships and planes, through an area with a population of several million.

For several years, Catholic Action of Hawaii has been trying to force the government to remove the nuclear warheads that are stored in military bungalows next to the runways at Honolulu International Airport. If a commercial airliner struck the bungalows, the crash could result in radiation spillage, according to An injunction against storing additional warheads in the bungalows is pending.

As Daniel Ellsberg has "We cannot live with a few explosions every few years or even one in a hundred years. The first actual explosion that happens will be the worst thing ever to happen."

In addition to the outright death and destruction that would result from an atomic mistake, an accidentally detonated nuclear weapon could lead to an even bigger mistake—accidental nuclear war.

As SIPRI's Milton Leitenberg points out, "This could happen if one country detonated a bomb by accident on the territory of a nuclear power or a nuclear power's ally. It might also happen if it dropped a bomb on its own territory and another country was suspected."

Ellsberg adds to these accident scenarios: a war could begin if an accident "happened during a crisis and destroyed, say, a military base. We might think we were under attack. Lots of weapons get moved around during alerts, and it is the movement of weapons from one spot to another that increases the chance of accident." Alerts to accidents to wars. It could happen.

It is ironic that the Defense Department chose the term *broken arrow* to an accident with a nuclear weapon. The phrase comes from American culture, and in that world—the of reliance on earth and spirit—*broken arrow* means *peace*.

Gary Hanauer, a freelance writer based in Oakland, California, has written for New West, Business Week, Penthouse and other publications.