his wooden desk, Secretary of State Ben W. Fortson Jr. seemed as solid and unchanging as the statues that commemorate Georgia's history, except that you could lounge in a chair and talk to him about all he had seen. And that was a lot.

Now he is gone, and a colorful, vibrant chapter in the state's political past grows dimmer.

He was born in the Wilkes County village of Tignall, the eldest of eight children, and spent some early years in Arlington, where his father was a bank cashier.

At 15 he entered Emory at Oxford, transferring to Starkes University in Montgomery, Ala., after a year, and in 1923, entered Georgia Tech, where he was a light heavyweight boxer.

In 1929, while working in Washington, Fortson was involved in an auto accident that injured his spine and left his legs paralyzed. He would never walk again.

Nine years later he entered politics, elected without opposition for two terms in the state House of Representatives from Wilkes County. In 1945, as World War II drew to a close, he was elected Secretary of State, a job he never left.

"As long as I live, I'll wear the flag," he once said, and he stuck to that promise even when patriotism seemed to go out of style and school children visiting the capitol giggled when he talked about the country and what it meant.

He felt the same way about the state and its Capitol and the other mementoes of Georgia's past. He kept the Great Seal of the state in his coat pocket so he could show it to school groups and explain what is was all about.

He had grown close to that seal over the years. In 1947, when three men were trying to control the governor's office after a disputed election—Herman Talmadge, M.E. Thompson and Ellis Arnall—Fortson sat on the seal and refused to let anyone touch it.

From offices scattered through the Capitol and the city, Fortson administered Georgia's elections, kept track of corporations and preserved history at the state archives and in the Capitol corridors.

[From the Atlanta Journal, May 21, 1979]

MR. BEN'S BODY LIES IN STATE IN ROTUNDA

(By Marcia Kunstel)

Flags waved at half-staff in Georgia Monday while mounrers paid their final Capitol visit to Secretary of State Ben Fortson, a political legend whose presence permeated the statehouse for 33 years.

Fortson's body was to lie in state in the Capitol rotunda from 11 a.m. till 4 p.m. Monday, not far from the office where the 74-year-old politician maintained an open-door policy and a reputation as one of the state's most accessible, gregarious and patriotic figures.

A memorial service was to be in the rotunda at 5 p.m. Tuesday for Fortson, who died Saturday night of a heart attack. Burial will follow at 11:30 a.m. Wednesday at Rest Haven Cemetery in Washington, Ga.

A public servant for most of his life, Fortson was hailed Sunday in tributes that extended from Atlanta to the White House.

"The death of Ben Fortson is a loss to all Georgians," said President Carter, one of the former governors who served with Fortson during his long tenure. "He loved his state and its people and acted on that love through a lifetime of public service.

"The people of Georgia shared his affection and repeatedly returned him to his post as secretary of state through an era of profound political, social and economic change."

"Georgia has lost one of her true giants," said Gov. George Busbee, who directed the flag tribute. "Although bound to a wheelchair, Ben Fortson stood tall as a living monument of courage, integrity and morality.

"During his long years of service, he set the standard for others in public office to follow. A state Capitol without Ben Fortson is hard to imagine."

Sen. Herman Talmadge, D-Ga., called the death of Fortson "a tremendous blow to the state of Georgia.

"He was probably the most beloved citizen in the state. He was a remarkable man."

Fortson, who traveled in a wheelchair since an automobile accident in 1929, was known by multitudes of Georgia friends as "Mr. Ben."

He was appointed to the job of secretary of state, after serving in both the Georgia Senate and House.

"I called him in Washington, Ga., where he lived, and told him to come to Atlanta, that I had to see him," Arnall remembered. "When he walked into the governor's office I said, 'Ben, hold up your hand, I'm going to swear you in as secretary of state."

"The state will be much poorer without him."

Former Gov. Marvin Griffin, recuperating from surgery, recalled one conversation with Fortson: "I once told him, 'Ben, you can be secretary of state until the day you die, or you can get up out of that wheelchair and win a 100-yard dash, and then you can get elected governor of Georgia, and then nobody will ever hear of you again.'

"He'd laugh and say, "I don't believe I want to.' He'd say, 'I'm happy where I am.'"

Georgia Sen. Sam Nunn, described Fortson as a man who "combined intellectual wisdom with common sense. He accepted his handicap, but never deviated from his duty and his devotion to the state and the nation."

Several officials recalled one of Fortson's more celebrated Capitol battles—with unrelenting starlings which the secretary of state vowed to chase from their roosts in Capitol trees.

"He had an awful time trying to get those birds out of the trees there at the Capitol," said state Rep. Joe Mack Wilson, D-Marietta. "He put stuffed owls up there in those trees, and those starlings toted the owls off. He put tin cans up there and would pull the strings up to those cans.

"That didn't work. I don't know how he got rid of those birds. Maybe they left when they were ready."

"Ten times as many people saw him as any of the other state officials," said House Speaker Thomas Murphy. "He liked to see people, and he liked to talk to them.

"That was his way of politickin', I guess. No question he was successful at it. He never had any serious opposition."

[From the Atlanta Constitution, May 21, 1979]

'MR. BEN' FORTSON: GEORGIA'S MOST-PUBLIC OF PUBLIC SERVANTS

(By Beau Cutts)

Over the years, tens of thousands of adults—Georgians and Yankee tourists alike—would hear the warm greeting "hello" through the open door of Georgia's most-public public servant.

Ben W. Fortson Jr. maintained his office by a busy thoroughfare on the second floor of the state Capitol. His open-door policy was literal.

Visitors to the Capitol would be treated to a loud, gregarious voice coming from a man in a wheelchair. His message was historical and patriotic, and he could talk about love of state, country, and fellow human beings as few people could.

"The Georgia State Capitol will seem a far more lonely place without Mr. Ben," reflected President Jimmy Carter, who worked in the Capitol with Fortson while the president was governor and state's senator.

"Ten times as many people saw him as any of the other state officials," said Georgia Speaker of the House, Thomas Murphy. "He liked to see people, and he liked to talk to them. That was his way of politickin', I guess. No question he was successful at it. He never had any serious opposition."

Fortson became Secretary of State shortly after World War II. His popularity—not only with visitors to the capitol but also with soldiers to whom he sent Georgia flags, as well as with voters throughout the state—was never seriously challenged at the polls.

Marvin Griffin, Georgia's governor from 1955 to 1959, commented: "I once told him, 'Ben, you can be Secretary of State until the day you die, or you can get up out of that wheelchair and win a 100 yard dash, and then you can get elected governor of Georgia—and then nobody will ever hear of you again.'

"He'd laugh and say, 'I don't believe I want to.' He'd say, 'I'm happy where I am.'"

Assistant Secretary of State Ann Adamson joined Fortson in 1952. "He enjoyed it. He enjoyed being with people. He enjoyed being with young people. That's how he stayed in tune with what's going on. He was Secretary of State seven days of week," she said.

Several years ago, during dissention in this country over the Vietnam war, the well-known Secretary of State was going down a sidewalk when someone stopped him and asked, in a critical tone, about the American flag lapel pen he was wearing.

Mr. Ben politely informed the questioner on some of the fundamental elements in American history and advised that Americans ought to appreciate their heritage.

"He wore that American flag all the time," said Assistant Secretary of State Adamson. "He came in one day and said he would be buried with it on—and he will."

Fortson also had a reputation of helping out the newcomers to Capitol politics, remembered former Fulton County Commission Chairman Charlie Brown, who also was a state senator from Atlanta before running for county office.

Brown, who also spent four decades in public office, recalled that when he was first elected to the Georgia Senate in 1956, Fortson was the first state official to offer him assistance.

"He was the most gracious of all the public servants," Brown said. "He was a real help when I first came to the Senate."

Fortson's reputation for honesty was widely appreciated. He also had a famous name, partly through his own practice of having "Ben W. Fortson, Jr." printed at every opportunity. *Millions* of State brochures, information packets, signs, poll instructions and other printed matter coming from his office bore the name of the Secretary of State.

"Every school kid in Georgia for the last 25 years has seen his name," commented one veteran politician.

Atlanta Mayor Maynard Jackson offered his sympathy Sunday afternoon.

"Death has silenced a unique and admired voice in state politics and state pride. The people of Atlanta join Valerie and me in our praise of Secretary of State Ben Fortson and our prayers for his family and friends," the mayor said.

Recently, Fortson and the mayor had gotten into public squabble. Fortson had accused the city administration of allowing the Cycleorama, the large painting depicting the Civil War of Battle of Atlanta to fall into disrepair. Jackson vehemently denied the secretary of state's charge.●

THE ARMENIAN PEOPLE

● Mr. DOLE. Mr. President, on May 28, 1918, the Armenian people at last came to the end of their long quest for self-determination. The persistence of the

Armenian people in pursuing this goal is proof of its cogency. In order to better appreciate the importance of this historic occasion, I would like to cite some of those enormous obstacles the Armenian people overcame in order to gain independence.

Armenia has been subject to foreign domination almost continuously since the days of the Roman Empire. It was subjugated by many different nations, and in the 16th century was enslaved by the Ottoman Empire. This domination became particularly invidious when the Turks began a genocidal campaign against the Armenians in 1894. This brutal massacre, steeped in history, reached its peak in 1915, when 1,500,000 Armenians were slaughtered.

On May 28, 1918, realizing it was the only way to escape Turkish oppression, the Armenians proclaimed themselves free and independent. Fighting bravely, the Armenians succeeded in driving out the oppressors. The Treaty of Sevres, signed by Turkey and the allies in 1920 enlarged the new nation to include most of historic Armenia.

Mr. President, lamentably, this treaty was never adhered to. In November of the same year, Armenia was invaded from the west by Turkey and from the east by Russia. Caught in the jaws of this huge vise, the young nation was crushed and divided between the oppressors.

I have no doubt that one day Armenia will again be a free and independent nation. A people that can retain their national identity, despite the kind of suffering the Armenian people have endured, possess the strength of will to guarantee their eventual freedom.

Mr. President, I call on the Senate to join in commemorating such a courageous people as the Armenians. In this manner, we can continue to draw inspiration from the Armenians' courageous struggle for freedom and self-determination. The determination of these peoples should serve as a beacon of hope to all struggling for their freedoms under the dark pale of oppression.

Mr. President, may our defense of freedom be as unyielding as the Armenians' quest for it.●

GETTING THE MOST FOR OUR RESEARCH AND DEVELOPMENT DOLLAR

● Mr. BAYH. Mr. President, at a time when all of us are greatly concerned about Government spending, I have become convinced that we are not getting the most out of the billions of dollars that we spend each year for research and development.

The Senate Judiciary Committee received testimony on Wednesday, May 16, 1979 on my bill, S. 414, the University and Small Business Patent Procedures Act. This bill would allow small business and nonprofit organization researchers to retain patent rights to inventions that they make under Government-supported research and development. S. 414 also protects the legitimate rights of the funding agency to use for itself the inventions that it helped to fund while providing that whenever one of these inventions reaches a certain level of success in the marketplace, the Government would be paid back for its investment in the research project.

Many witnesses from the small business community and from nonprofit organizations told us that the present Government policy of retaining patent rights to inventions arising out of federally supported research and development was stifling innovation by providing no incentive to the inventor to try and undertake the risk and expense of developing and marketing a new invention. The Comptroller General of the United States, Mr. Elmer B. Staats, confirmed this situation in his excellent statement to the committee.

The General Accounting Office has been studying the effects of the present policies on innovation since last fall. Mr. Staats told the committee that a previous study had concluded in 1971 that in order to get the maximum return from our research dollar private contractors should be allowed to retain title to inventions as an incentive for commercialization, while provisions should be made to protect the legitimate rights of the funding agency. Mr. Staats said that the situation has gotten worse in the last 8 years, and concluded by saying that S. 414 was a necessary step toward implementing an efficient patent policy. I have placed some excerpts from Mr. Staat's statement at the conclusion of my remarks. I hope that my colleagues will take the time to read this important testimony.

I have recently read an excellent article which appeared in Time magazine on May 14, 1979, entitled "Connecting For Innovation" by Mr. Marshall Loeb. Mr. Loeb points out in this article the contribution that our universities could make toward boosting our productivity and innovation if only the shackles of the present patent policy were removed. As Mr. Loeb says:

> Our problem . . . is that the Daddy Warbucks of university research is the Government. Washington is dandy at ordering up explosive missiles and exotic miscellany, but it rarely has its eyes on the marketplace. If potentially commercial discoveries are made, the feds are often reluctant to part with the rights. But with an exclusive license, companies are unwilling to risk the daunting expense of trying to convert basic research to products that serve people.

This is exactly the point. The agencies have a very poor track record at commercializing the 30,000 patents that they now retain. Only 4 percent of these are ever licensed to be developed by private industry. It is time to implement a policy which applies uniformly to every agency, allowing the inventor of important discoveries to develop them to their full potential, while protecting the rights of the agencies to enjoy the fruits of their research. S. 414 is such a policy and is now being supported by 27 of my Senate colleagues.

I would also like to point out that one of the supporters of S. 414, my good friend Senator JACK SCHMITT, is today introducing legislation that would also address the problems of large business contractors. I have certainly valued the experience that Senator SCHMITT brings into this area of science policy, and I am looking forward to working with him to enact the best possible legislation to deliver the full benefits of Government-supported research and development to the marketplace where they can benefit the public.

I submit excerpts from the Comptroller General's testimony and Mr. Loeb's article to be printed in the RECORD at the conclusion of my remarks.

The articles follow:

EXCERPTS FROM THE TESTIMONY OF MR. ELMER B. STAATS

EXECUTIVE AGENCIES PROCEDURES AND PRACTICES

The need for legisaltion is also supported by our review of current patent procedures and practices at selected agencies. We expect to report the details of our findings to this Committee by the end of June. We found that the Presidential policy has not been implemented uniformly. Agencies, in establishing procedures for determining rights to inventions, are often free to move in almost any direction.

The most notable recent changes have taken place at the Department of Health, Education, and Welfare and the Department of Defense with respect to nonprofit organizations. These two agencies follow the policy established by the Presidential Memorandum and Statement as revised in in 1971. During fiscal year 1978 they provided over 60 percent of Federal R&D funding for colleges and universities.

We will also discuss the Department of Energy and the National Aeronautics and Space Administration, both of which operate under policies established by statute.

Department of Health, Education, and Welfare

Administrative developments during the last 2 years at the Department of Health, Education, and Welfare (HEW) appear to be leading to a reversion to policies and practices followed at the Department prior to GAO's 1968 report to the Congress.

At that time we reported that HEW was taking title for the Government to inventions resulting from research in medicinal chemistry. This was blocking development of these inventions and impeding cooperative efforts between universities and the commercial sector. We found that hundreds of new compounds developed at university laboratories had not been tested and screened by the pharmaceutical industry because manufacturers were unwilling to undertake the expense without some possibility of obtaining exclusive rights to further development of a promising product.

To correct this, we suggested to the Secretary that HEW expedite determinations of rights and use Institutional Patent Agreements (IPAs) which would permit universities with approved technology transfer programs to retain title. HEW followed our suggestions and, as of October 1978, had implemented agreements with 72 institutions. The National Science Foundation, another major agency supporting R. & D. at colleges and universities, began using these agreements in 1973. IPAs were endorsed for Government-wide use by the Committee on Government Patent Policy in 1975 and Federal Procurement Regulations on IPAs were issued in 1978.

In July 1978 HEW's Office of General Counsel circulated for comment a patent policy draft report recommending that the Department's use of IPAs be reconsidered because IPAs delegate to grantee institutions power over the desirability, method, and pace of development of inventions. This, the report stated, was conceptually inconsistent with any HEW objective other than rapid commercialization.

Beginning in November 1977, the HEW Assistant General Counsel for Business and Administrative Law had begun delaying review of case-by-case determinations of rights

prepared by the Patent Branch. In a statement issued August 15, 1978, the General Counsel acknowledged that a backlog of cases existed and said it resulted from a more careful review. The purpose of this review, according to the General Counsel, was to make sure that assignment of patent rights to universities and research institutes did not stifle competition in the private sector in those cases where competition could bring the fruits of research to the public faster and more economically.

We found that the Assistant General Counsel's review of draft determinations during this time was averaging 6 months. We examined four cases in some detail. In three, the review affirmed the correctness of the Patent Branch's determination to grant title to the contractor. These reviews took from 8 to 15 months to complete. Review of the fourth case took about 14 months, reversing the determination of the Patent Branch and retaining title for the Department.

The Pharmaceutical Manufacturers Association is concerned about HEW's delays in processing individual cases, reevaluation of patent policy options, and possible reversion to patent practices and procedures used prior to our 1968 report. In a recent letter to the Secretary of HEW, the Association stated that the research-based prescription drug industry feels more strongly than ever that an exclusive interest is essential if Government-financed new drug compounds are to enter clinical programs funded by the private sector. The Association argued, "In our view, HEW's patent policy should not be structured so as to 'restrain or regulate' the availability of inventions resulting from HEW research. This strikes us as truly an attempt to suppress technology to the detriment of the public."

Department of Defense

The policies and regulations of the Department of Defense are based on the Presidential policy. Most Defense contracts allow contractors with an established commercial position to retain title to their inventions.

Because nonprofit institutions generally lacked an established commercial position, Defense interpreted the Presidential policy as requiring the use of a deferred determination clause—where rights are determined after an invention has been identified. However, for many years the Department got around this by using a "special situations" section of the Presidential policy to put a title-in-the contractor type of clause in contracts with certain qualifying universities and nonprofit organizations.

In August 1975 Defense, with no advance notification, revised its regulations, discontinuing use of the "special situations" exception. Instead, it required universities which wanted a title retention clause to furnish information to the contracting officer for determining whether the work to be performed was in a field of technology directly related to an area in which the university had an effective technology transfer program or an established commercial position.

Because of the additional administrative burden, many research institutions subsequently elected not to submit the information Defense required for the title retention clause. As a result, there was an 80 percent increase in the use of deferred determination clauses by Defense during fiscal year 1976. Our review of cases processed during that year showed that, although contractors' requests for greater rights in identified inventions were approved in all cases, the Department took from about 1 to more than 7 months to make those determinations.

The University Patent Policy Subcommittee of the Committee on Government Patent Policy reported that it appeared that a deferred determination often acts against the expeditious development and utilization of inventions by delaying a decision that could have been made at the time of funding. Administrative costs of both the Government and universities are unnecessarily increased by the need to prepare, review, and respond to requests for rights on a case-by-case basis.

The Navy noted in February 1976 that not only had an additional administrative burden been placed on universities, but that the time necessary for contracting and patent officers to make a determination on the appropriate patent clause had increased drastically. In 1977 the Air Force, after conducting a thorough review of the revised policy, determined that the practice of qualifying institutions for each contract was moving in a direction counter productive to a cost effective, reasonably acceptable policy.

To date, Defense has not implemented the use of Institutional Patent Agreements. This inaction and HEW's reconsideration of the use of IPAs are particularly difficult to understand because they run counter to the 1975 Committee on Government Patent Policy study and the considerations which led to the regulations issued in 1978.

Department of Energy

The Atomic Energy Act of 1954 and Section 9 of the Federal Nonnuclear Energy Research and Development Act of 1974, as amended, govern Department of Energy (DOE) patent policy. Section 9 is probably the most detailed, comprehensive individual statute enacted to date. It provides that, normally, the Government will take title to inventions. But, it also gives the DOE Secretary discretionary authority to waive the Government's rights in favor of the contractor if certain criteria are met.

The results of operations under the Nonnuclear Energy Act of 1974 are significant because, as I noted previously, the same language has been incorporated by reference in other statutes. DOE appears to be functioning adequately under its legislated patent policies. However, there are problems. Our review of a recent year's cases showed that the time for determining rights to identified inventions was lengthy, averaging about 13 months. DOE recognizes that its policy creates problems for both the Department and its prospective contractors. Delays in the R&D contracting process are caused by the substantial burdens created by petitioning, negotiating, and determining waivers.

We feel that a patent policy that provides for Government ownership places a burden upon the Department to see that the resulting technology is utilized. It becomes the Government's responsibility to obtain domestic and foreign patents, to advertise their availability for licensing, to negotiate licensing agreements, to develop related technology packages, and to enforce the patents against unlicensed users. Since the Department has only limited resources to carry out these functions, it is likely the commercial potential of some DOE funded inventions may never be realized.

DOE's mission is to work in a cooperative relationship with industry to develop commercial energy alternatives. It works, therefore, in areas with high commercial sensitivity. In this respect, the Department noted that there are contractors which refuse to work with it because of its patent policies.

One other problem we noted is that DOE has taken the position that Section 9 does not allow it to use Institutional Patent Agreements whereby a contractor or grantee with an approved technology transfer program has first option to principal rights. It is possible that other agencies governed by the same statutory language may not adopt patent policies in line with the IPA approach. The proposed Act we are considering today (S. 414) will eliminate the uncertainty by authorizing the IPA approach.

CONNECTING FOR INNOVATION

One reason for America's lag in productivity and gap in balance of payments is that the U.S. has lost much of its lead in innovation. Not in a long time have Yankee tinkerers produced an invention to rival nylon or the transistor. U.S. scientists and engineers have brought forth some fascinating new products, including talking toys and maybe the Moodymobile, but the ingenious Europeans and Asians are being granted an ever increasing share of the patents.

This deeply troubles John Hanley, a soap supersalesman who rode the Tide to the top at Procter & Gamble and in 1972 floated over to become chief executive of one of its major chemical suppliers, Monsanto Co. Now Hanley, 57, is hard-selling a provocative idea: that technology could leap ahead if two basic but often distant institutions would join forces. Those two are U.S. universities and U.S. corporations.

In a promising pilot, Hanley's firm has committed $23 million to a joint project with the Harvard Medical School to find new means of combatting cancer. For four years, at both Boston and Monsanto's campus-like home in suburban St. Louis, scientists from the college and the company have been unwinding the secrets of "molecular messengers," which control the growth of tumors. Besides money, Monsanto, like many another firm, has quite a bit of technical expertise to offer. Says Hanley: "We can, in fact, bring something to the party."

Its own biochemical research has taught Monsanto to manipulate cells. The making of ingredients for simple toothpaste has unlocked some mysteries of dental cavities. Thus the company's scientists are also working with those at the Harvard Dental School to find ways of controlling diseases of the teeth and gums.

Of Monsanto's Harvard connection, Hanley says, "A lot of people in both education and business are watching this project. Exxon, for example, is looking at it. They have some fledging arrangements with M.I.T., and I gather that they want more. There isn't a month that goes by that some paper shuffler like me doesn't inquire. 'How're you coming along?' David Rockefeller was in my office a few weeks ago and asked if we could make the same kind of deal with Rockefeller University."

Harvard and Monsanto are aiming at a tough scientific target, but Hanley figures that it is equally significant that they are demonstrating a means for working together to increase the effectiveness of the research under way in U.S. universities. Compared with cash-short colleges, companies have far larger resources to invest in basic research, and they are much more expert in managing that research, directing it to the market and recruiting scientists. "The transferral of technology from the university to the marketplace is a very flawed mechanism in this country," says Hanley. "It doesn't work worth a damn."

One problem, in his view, is that the Daddy Warbucks of university research is the Government. Washington is dandy at ordering up explosive missiles and exotic miscellany, but it rarely has its eyes on the marketplace. If potentially commercial discoveries are made, the feds are often reluctant to part with the rights. But without an exclusive license, companies are unwilling to risk the daunting expense of trying to convert basic research to products that serve people. Hanley argues that companies should be allowed to buy such licenses by paying the Government whatever it has put up to finance the research, plus royalties. And, he contends, private corporations should do much more to supplement public officials as the bankrollers of campus scientists.

Beyond just putting up cash, he says, com-

panies should combine broadly with universities on specific projects, sharing scientists, pooling knowledge. Now Hanley surveys the university horizon for joint ventures. He wants, among many other things, to find means of reducing noise in factories and ways of using recombinant DNA to produce new products. As he says: "In just about any field—you name it—there is potential for a university and an industrial concern to work together." ●

THE CIVIL DEFENSE PROGRAM

● Mr. GARN. Mr. President, one of my constituents, Prof. John R. Christiansen of Brigham Young University, has written a particularly cogent analysis of the U.S. civil defense program. Since the 1960's, the United States has had only the bare bones of a civil defense program. In fact, this most serious issue has to often been treated in a simplistic and derelict fashion.

I think that the American public and Government officials need to recognize the importance of civil defense in the overall defense posture of this country. That is why I would like to bring Professor Christiansen's article, "Our Nation's 98-Pound Weakling: Civil Defense in the 70's," to the attention of my colleagues. Mr. President, I ask that Professor Christiansen's article be printed in the RECORD.

The article follows:

OUR NATION'S 98-POUND WEAKLING: CIVIL DEFENSE IN THE 70'S

(By John Christiansen)

Does anybody think about civil defense anymore? The answer to that question is an unsettling "Yes" and "No." A recently completed nationwide study by Professor Jiri Nehnevajsa of Pittsburgh University showed that less than 5 percent of Americans are aware of current civil defense issues. On the other hand, this study revealed that the last months of 1978 saw more publicity concerning civil defense than had appeared in the whole past decade. What has sparked this recent flurry of concern and debate in the news media that has not found its counterpart in general conversations? It is the conclusion by many rational and knowledgeable people in the United States that nuclear war is *not* unthinkable anymore.

Most people—if they think about nuclear war at all—either hope it will never occur or believe it will be over in a flash. Few assume that anything they can do, or that purposeful planning can do, will diminish the nightmare. On the other hand, many military strategists have been thinking a lot about civil defense lately. To them, planning for the worst may prevent a nuclear exchange in the first place, or secondly, ameliorate the situation, should one occur.

The major factor in rethinking the unthinkable is the increasingly obvious fact that leaders of the Soviet Union and other countries have been thinking about it for a long time and acting accordingly.

If over all Soviet military spending has not been worrying strategists enough—it has exceeded by 25 to 50 percent the U.S. expenditures each year for many years—the civil defense budget has. In this category the Soviets have been out-spending the U.S. at a 10-to-1 clip. The result of thes expenditures has given the Soviet Union parity with the U.S. in offensive nuclear capabilities and clear superiority in defense.

Vast defensive programs were launched by the Soviets in the 1960s. These are designed to protect people and industry from the effects of nuclear conflict. The Soviets have built shelters near apartments and offices to accommodate their urban population during emergencies in which there is little warning. Factories and industrial plants have likewise been distributed throughout the country so as to minimize the likelihood that they would be damaged during a nuclear war. Additionally, new plants are "hardened" so as to withstand considerably more blast effect than normal. Interestingly enough, the Soviets are not the only ones involved in such programs. The People's Republic of China has constructed underground cities that can protect their populations in a nuclear damage. Likewise, Sweden and other European countries have relatively sophisticated plans for "short-warning" nuclear emergencies, and plans for relocating entire urban populations into the countryside if extended warnings are given.

The building of underground cities in China, plans for relocating populations in Russia and Sweden, compulsory training of all workers in Russia, equating civil defense staff positions with offensive ones in the Soviet military hierarchy, and continued high-level funding for civil defense in China and Russia all diminish the prevailing myth in the U.S.—that a nuclear war would result in the end of the world. This myth was refuted in 1958 by future-thinker Herman Khan in The Rand Corporation's unclassified "Report on a Study of Non-Military Defense," and later in Khan's *On Thermonuclear War*, Free Press, 1960. Yet, most governmental leaders and the public in the U.S. still do not recognize the significance of the essential finding of Khan's study and book:

". . . for at least the next decade or so, any picture of total world annihilation appears to be wrong, irrespective of the military course of events." (*On Thermonuclear War*, p. 22.)

* * * * *

If we have a viable civil defense, then the Russians may begin to respect us as not complete fools. And what's more they may get the idea that, instead of relying on a first strike in desperation, we rely on reasonable defense.

What concerns the strategists most regarding the build-up of civil defense in other countries, therefore, is the vast imbalance developing between the U.S. and those countries having adequate civil defense systems, and the possibility of intimidation resulting therefrom. The Mutually Assured Destruction (MAD) policy which governed the balance of power between the Soviets and the U.S. is now antiquated. That policy was based on the proposition that the two nuclear superpowers ought to have equally powerful offensive weapon capabilities. That way, each could destroy the other's population even though one country might attack the other first. The ICBM's were protected so that even with the population virtually wiped out, an equally destructive attack could be made in return. Under this policy the SALT and other agreements have allowed the Soviets and the U.S. to achieve virtually equal destructive capabilities.

Today, however, while the Russians still have the power to destroy as many as 60 percent of the U.S. population, they have protected their population with an effective civil defense system. The MAD policy seems to be badly out of kilter. Indeed, the possibility for intimidation has become acute. As Wigner has said:

Let me say finally . . . what I am most afraid of. It is not a first strike by the Russions. It is not that the cities of the Soviet Union would be evacuated and that this would be followed by a first strike. It is that the cities would be evacuated and then would be told that "we cannot stand this aggressiveness and imperialistic tendency of the United States any more. We must demand something like the evacuation at least of West Berlin or the return of Alaska. . . . If you don't do this tomorrow 60% of your people will be destroyed."

This is called "nuclear blackmail." It is something similar to what Hitler did at the Munich meeting. . . .

Support of the views of Khan, Wigner, and Teller may be seen in the Federal Fiscal Year Budget of 1980, and some reorganization plans involving civil defense. The FY 1980 budget increases the appropriations for civil defense by $109 million. Despite this increase, however, the loss of buying power requires even the proposed budget to be joined with the budgets of 1976 and 1977 as among the lowest in U.S. history. Compared with the Soviets' expenditure of over $1 billion annually for the past 10 years, the proposed U.S. budget is puny. However, another significant change has been proposed by President Carter.

The Carter administration has proposed that a new governmental agency, the Federal Emergency Management Agency (FEMA), be organized to deal with emergency preparedness and all national disasters, whether natural, manmade, or from nuclear attack. Three existing govenmental agencies will be abolished and be consolidated into the one agency. There appears to be some reason to believe that the new agency will upgrade the priorities for civil defense in the United States.

Justifying his low-key support for a defense plan similar to the Soviet's for relocating civilian populations during nuclear emergencies, President Carter said:

And the fact that we are assessing how we would go about partial evacuation of our major cities if war became possibly imminent is, I think, not a radical thing. It's not designed for propaganda purposes. It's not designed to influence Congress to approve SALT. It's just a routine matter that is being pursued by me.

As a matter of fact, low-key efforts to provide comparable protection to that of the Soviet and Chinese civil defense systems have been going on in the United States for more than 10 years, although badly handicapped by lack of public and governmental support and budget. During these years, evaluations have been made of not only potential enemies' civil defense, but the adequacy of civil defense in the United States. As a result, plans for accommodating the U.S. population in fallout shelters except in a unique emergency have been abandoned. The reasons for scrapping the fallout system included the following:

The rapidly increased Soviet potential for destruction of lives and property by blast and heat through using many very powerful intercontinental ballistic missiles.

The total number of fallout shelters in the U.S. could accommodate less than half the population;

The majority of the public is unaware of the location of those shelters;

Nearly all of the fallout shelters lack sufficient food and water supplies owing to lack of funds for stocking;

Demonstrations that people could easily be shown how to determine the suitability of own homes as fallout shelters, and that they would voluntarily share suitable homes with others;

Further research demonstrations that people were also willing to travel from threatened areas to safer places during nuclear crises, and that nearly all of those in the safe areas would welcome evacuees into their communities and even homes if necessary; and

Demonstrations that the postattack environment would not only support life, but that life styles could be normalized for those adequately protected in a year or two at most.

A coordinated research and demonstration program by the Federal agency charged presently with civil defense, the Defense Civil Preparedness Agency (DCPA), and other agencies has resulted in plans to provide protection in times of nuclear emergencies.