

THE DIRECTOR OF CENTRAL INTELLIGENCE

WASHINGTON, D.C. 20505

Deputy Director for National Foreign Assessment

1 December 1981

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NOTE FOR: Deputy Director for National Foreign Assessment

FROM:

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Special Assistant for Nuclear Proliferation Intelligence

SUBJECT: Monitor Series on Nuclear Proliferation

The attached article--the first of five by the C.S. Monitor--is a fairly accurate representation of some of the key aspects of the Pakistan nuclear story

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[Redacted] very knowledgeable on many of the specific aspects of the Pakistani nuclear program.) I plan to prepare a general summary of the author's findings, FYI, after all of the articles are published. Could be that the articles might help the "world" decide "just how important stopping the spread of nuclear weapons actually is" (see top, p.2).

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cc: Chrmm, NIC

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CONFIDENTIAL

ARTICLE APPEARED
ON PAGE 1THE CHRISTIAN SCIENCE MONITOR
30 November 1981

ON THE TRAIL OF THE A-BOMB MAKERS

Ambitious third-world states are learning to make nuclear weapons. Today's exclusive "nuclear club" could double in the next decade. Safeguards to stop the spread of nuclear weapons are under attack. This is the first of five articles examining the current dangerous trend.

Pakistan: crash program, secret bids for nuclear technology

By David K. Willis

Staff correspondent of The Christian Science Monitor

Vienna, Austria, and Karachi, Pakistan

A military-ruled Muslim country, sandwiched between powerful rivals, so undeveloped it cannot manufacture even a television tube or a radio set, has just made several dramatic, covert bids to buy cables and computers to help it build and test a nuclear device.

This newspaper has learned that the country — Pakistan — has secretly tried to get highly sensitive diagnostic coaxial cable from US and European suppliers.

The cable is used for monitoring underground nuclear tests. It runs from a test shaft in which a device is exploded to a monitoring center a safe distance away. Pakistan has dug just such a shaft in remote Baluchistan's Chagai Hills near the Afghan border, intelligence sources confirm.

Hearing about the attempts to buy the cable, alarmed United States officials jumped into action. They exerted enough pressure, direct and indirect, on the US and European firms to stop the sales.

But the very bid itself, reportedly made through "front" companies, indicates to officials how far toward a nuclear blast Pakistan has advanced after a clandestine crash program over the last decade.

They believe Pakistan will try again and again, under different covers. They estimate that Pakistan could have its first device built by the end of next year.

Islamabad has also tried to buy two big US computer systems. The first, it claimed, was for high-altitude atmospheric research. The second was said to be for analyzing crop rotation results.

When the US Commerce Department demanded that the Pakistanis sign a statement promising not to use the computers for any nuclear purposes whatsoever, peaceful or otherwise, they fell silent. Curious, US officials asked questions. Pakistani officials replied blandly, "What computers? We didn't want to buy any computers."

These developments, plus other more successful efforts to acquire nuclear technology (see below), are profoundly disturbing for diplomats, officials, and scientists around the world who oppose the spread of nuclear weapons to often unstable third-world countries.

The developments illustrate the lengths to which pride, vulnerability, ambition, fear, and internal struggles can push small nondemocratic leadership elites toward acquir-

ing nuclear devices as a way to gain power and status.

Pakistan is just one of 10 countries on the nuclear threshold. Among the others are India, which exploded a nuclear device in 1974, Israel, and South Africa. None of these have signed the 1970 nuclear Nonproliferation Treaty (NPT).

Thus only part of their nuclear fuel cycles are subject to inspections by the International Atomic Energy Agency (IAEA) in Vienna. Other parts are not. All four have the know-how, the special skills, and the political incentives needed to build nuclear weapons. Right behind them are:

- Iraq, determined to push on with its nuclear program despite Israel's bombing of its nuclear reactor in June.

- Argentina and Brazil, the giants — and rivals — of Latin America.

- Taiwan and South Korea, skilled, determined, each with a fractious relationship with a communist neighbor.

- Libya, in a special, dangerous category of its own. Undeveloped but oil-rich and erratic, Libya tried to buy a nuclear bomb from China in 1970. It has been selling uranium to Pakistan and giving it money.

This correspondent set out three months ago on the trail of the atom bomb makers. It began in an idyllic open-air restaurant in a valley outside Geneva, where a top nuclear scientist provided a thorough briefing on technical data.

It was to lead through 12 cities in eight countries in the Middle East, Europe, and Africa, as well as in the US.

As a result, this newspaper has amassed new evidence to show that atomic devices, and the ability to detonate them, are spreading to volatile areas of the world where ambition and insecurities are high but safeguards are low.

Frequently questions put to officials in these nations about nuclear matters met with closed doors. But a number of thoroughly alarmed diplomats, scientists, and officials were willing in private to share details of the rush to nuclear weapons. They hoped they might slow it down by directing public attention to its dangers.

The nuclear trail leads through some of the deepest impulses of the human mind — from fear to moral outrage, from hope to a passionate commitment to nuclear power as cheap energy for the future.

This series is an effort to bring to light some of the maneuverings of would-be atom bomb makers. Two of them, Israel and South Africa, deny any nuclear tests so far, but have the diplomatic status that results from an almost universal belief that they already possess atomic weapons, either assembled or in pieces.

The series looks at the state of inspections, safeguards, and the IAEA. It looks at the flow of uranium and skilled technicians, and it looks at ideas for the future.

Should Pakistan or any of the other states on the threshold actually detonate a bomb, the nuclear club would expand for the first time since India let off an atomic blast in the Rajasthan Desert in 1974.

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The number of hydrogen-bomb powers has remained at five since 1964: the US, the Soviet Union, Britain, France, and China. Neither France nor China has signed the NPT.

If a state like Pakistan detonates a nuclear device, or if it becomes widely known that it has an undetonated bomb, other threshold states could be emboldened. Prospects for a rapid spread of nuclear weapons would grow as this century nears its end.

Regional rivalries in the Middle East, in Latin America, in Africa, and in Asia would be more dangerous. Other countries well able to build their own nuclear weapons - Italy, Australia, even West Germany and Japan - might announce a new willingness to look at their nuclear options. International fears would grow.

Even now the world must decide just how important stopping the spread of nuclear weapons actually is. Is it just one policy objective among others? Or is it a paramount issue ranking with inflation, oil prices, and foreign expansionism. Is it the issue of today?

Is it urgent now to draw up what is dramatically lacking in today's world: a list of agreed embargoes and other punishments to be taken against any country that makes or explodes a nuclear device?

The most urgent case today is Pakistan. President Zia ul-Haq could have a nuclear device - at least one - by the end of next year. He could decide to explode it in a desperate bid to hang onto personal power, or to defy and impress India, or to warn the Soviet Union, or to exert diplomatic blackmail against the United States.

There are four big reasons why Pakistan is in fact a crucial test case:

1. Pakistan has 83 million people and aspirations to lead the Muslim world. It has accepted money and bought uranium from Col. Muammar Qaddafi of Libya. Israel fears that the rich, unpredictable, terrorist-supporting Qaddafi could extract nuclear technology from a Pakistan that needs his cash and political support.

The US is also deeply concerned. Other Arab states could learn nuclear secrets from Pakistan. So Pakistan is part of global concern about the Middle East arms race.

2. Pakistan has fought three wars with its bitter rival, India. "How can we tell Pakistan to stop building a nuclear weapon when India detonated one in 1974?" one US official asks despairingly. "We can ask - but is Pakistan listening?" If Pakistan lets off a blast, Indian Prime Minister Indira Gandhi will be under severe pressure to respond in kind.

American, Israeli, and other experts say the logical Indian response - despite Indian denials - would be a hydrogen bomb. It is within India's capacity. It would expand the H-bomb club to six nations. It would alarm the superpowers. The subcontinent arms race, heating up again with Pakistan obtaining 40 ultrasophisticated US F-16 jets and India reported to be going after 150 French Mirage 2000s after buying Soviet MIG-23s, would take the most ominous of turns: a nuclear turn.

3. Pakistan is closely involved with the three superpowers. It is allied with the United States, opposed to Soviet troops next door in Afghanistan, and on fairly good terms with China. Any tilt on the subcontinent affects all three. A nuclear tilt would alarm all three. Consequences would be grave. The superpowers would try to contain a nuclear arms race. Pressures on them would be intense.

Right now, the clandestine Pakistani rush toward an atomic device is an embarrassment to the Reagan administration in Washington. It sees Pakistan as a key ally against Moscow. News of the bid to buy diagnostic cable and large computers for nuclear use has been tightly held in Washington, partly because so many members of the House and Senate are deeply suspicious of Pakistan.

The Senate has agreed to the first stage of a \$3.2 billion economic-aid and military-sales package over the next six years. The House is considering it. Subcommittees in both chambers gave a green light to the sale of 40 F-16 jets. The sale is now approved.

The Senate says all aid will be suspended if Pakistan detonates a nuclear device, without the President being able to override the cutoff. The House may allow presidential discretion to remain, subject to two-thirds majority votes in both House and Senate.

Democrats will be angry if Pakistan does detonate. Knowledge that the aid may stop may make him wait until he has such aid before he pushes the button in Baluchistan.

4. Pakistan is also vital because any new nuclear test would inevitably weaken the framework of precautions against the spread of nuclear weapons.

So far, the framework has worked remarkably well, given the number of countries (Canada, Japan, and Australia) that could make weapons if they chose.

But now the framework is under fire. The system of safeguards, inspections, treaties, talks, export controls, and intelligence surveillance was jolted when Israel found it inadequate to prevent Iraq from building a bomb. Israeli F-16 jets streaked to Baghdad June 7 and bombed the Osirak reactor being built by France.

Many Israelis I talked with agreed with Prime Minister Menachem Begin's basic rationale. To sit in a living room in Jerusalem, and to be told in quiet, cultured tones that India should now bomb Pakistani nuclear installations is a chilling experience.

The Israeli raid has set a precedent of one state's taking direct action long before another state's nuclear capacities grow. The LAEA, along with US and other experts, says Iraq was six to seven years away from making a nuclear device.

Israeli officials say Israel would bomb again if necessary to keep nuclear weapons out of Arab hands. They don't answer a direct question on whether they would bomb Pakistani nuclear sites as they did Iraq's. Israeli intelligence keeps close tabs on Pakistan's progress.

"You're not talking about democracies here," says an Israeli official in Tel Aviv, on the sunny shore of the blue Mediterranean. "You're talking about states ruled by individuals. One bullet can change everything. Or a coup." Take Iran. If the Shah had lived five more years and acquired a bomb, what would (Ayatollah) Khomeini have done with it?"

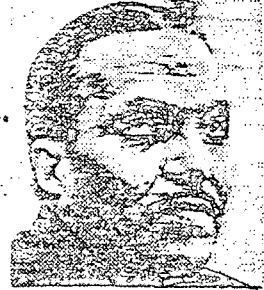
Said another Israeli source: "We acted. Now it's time for other powers to stop this proliferation."

One of the questions this series will examine is: how? By 1990 Iraq may be able to explode a small device, since France is apparently planning to rebuild Osirak (insisting on strict safeguards and a lower-grade uranium fuel).

Libya is training unusually large numbers of engineers in the US (see next article in this series), Western Europe, and the Soviet Union.

Argentina and Brazil will also be on the verge of nuclear weapons in the 1990s. So will South Korea and Taiwan.

Some strategic thinkers, such as Indian government adviser K. Subramaniam, see world nuclear proliferation as a force for stability. They believe that just as the US and the Soviet Union have a nuclear stalemate, so subcontinent and Mideast rivals would balance into a standoff with nuclear weapons. World peace would not be threatened.



Zia wants a bomb

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But a far more widespread view is that when one side in a regional rivalry obtains nuclear weapons, its enemies will be under enormous pressure to stage preemptive strikes, as Israel did against Iraq.

Israeli Prof. Ya'ir Evron told me in Jerusalem, for instance, that the spread of nuclear weapons in the Middle East would be highly dangerous.



For many a thoughtful analyst, the ultimate nightmare is a scenario outlined to me by a veteran European nuclear expert in Vienna:

"What worries me is the unknown, the end of the road, the system coming apart.

"If Pakistan gets a bomb, or Brazil, or Argentina, well, that's bad, but it's largely a regional matter.

"But it could lead, if world events continue to be as unstable as they are now, to South Africa being encouraged to warn black Africa to keep its distance. Or Israel might quarrel with the US, or vice versa.

"Then something terribly serious might happen: Western Europe might see the US as unreliable. Can you imagine the consequences if the world discovered West Germany was building a bomb — which it could do very quickly indeed?

"Or Japan?"

Experts almost literally shudder as they contemplate the Soviet reaction to intelligence about any West German move toward its own nuclear weapons. Moscow's overriding concern at the International Atomic Energy Agency in Vienna, sources report, is maintaining safeguards on the Germans. Moscow neither forgets nor forgives the Hitler invasion, which cost some 20 million Soviet lives.



Dangers take other forms as well.

The era of fast-breeder reactors, which produce more nuclear material (plutonium) than they consume, is beginning. Larger quantities of uranium than ever before will be ferried between reactors and extraction plants. They will be targets for hijackers and terrorists.

The US and the Soviet Union have thousands of nuclear warheads in Europe. Experts at the IAEA and elsewhere worry that a Baader-Meinhof-style gang or a Libyan-financed Arab terrorist group might steal one, decipher the trigger mechanism, and hold a city for ransom.

The paperback thriller, "The Fifth Horseman" by Larry Collins and Dominique Lapiere, imagines Libya has blackmailed H-bomb secrets from French scientists and threatens to blow up New York City unless the US forces Israel to yield Palestinians a homeland. So far, it's only a novel.

Israel derides the ultimate effectiveness of inspections of nuclear plants carried out by the IAEA, the only international agency responsible for inspections. Two former IAEA inspectors, Americans Robert Richter and Emanuel Morgan, have issued widely quoted criticisms.

Many believe the IAEA is unique and irreplaceable, for all the faults inherent in a multinational organization.

Israel and South Africa accuse Arab and black states of playing politics with the IAEA. Developing nations demand the technical assistance (free nuclear technology) promised by the NPT in exchange for inspections. They also demand that the US and the Soviets cut their nuclear weapons stockpiles.

A growing number of developing countries argue that the nuclear club just isn't keeping its promises.

IAEA members have censured Israel for the Iraq raid. And they have expelled South Africa.



Exclusive evidence amassed by this newspaper includes the Pakistani bid to buy the diagnostic coaxial cable for underground tests. The cable relays data from the blast site vital for scientists to know how efficient the fission process is and how to plan for the next test.

So far, the effort to stop the sale of the cable has succeeded. It is just one part in a long series of highly classified actions officials won't discuss in public. It is aimed at choking the flow of sensitive technology to countries like Pakistan. But Pakistan has been astonishingly successful in acquiring such technology from a dozen industrial countries.

(Officials were amazed and chagrined to discover that, even as they were squelching the sales, full details of an improved, late-model diagnostic cable, made with fiber optics, were splashed in full color across 11 pages of the September edition of Energy and Technology Review, published by the Lawrence Livermore National Laboratory in California.

(Title: "Optical Fibers in Nuclear Test Diagnostics." "Government dollars pay the salaries of officials stopping the sale," a source groans, "and tax money also finances a magazine telling everyone how to make the cable.")

(Any embassy could do what I did: telephone Livermore and ask for the publication to be mailed. It was.)

But it is clear that President Zia does not intend to stop assembling a nuclear device and the means to test it.

Pakistan-watchers in Washington see President Zia playing a clever game. To Mr. Reagan he stresses the threat from Moscow. In fact, he has different reasons for wanting both the nuclear device and US aid. He wants to shore up Pakistan against its arch rival, India, and to hold onto power inside Pakistan.



Other parts of new Monitor evidence that zeros in on Pakistan:

• Confirmation from a variety of intelligence and other officials that although the Baluchistan tunnel is empty so far, its size and configuration leave no doubt about its ultimate use.

An underground test would be harder to detect and more convenient than an atmospheric test, which would scatter radioactivity into India, Afghanistan, and perhaps China.

• Confirmation that Pakistan is working hard to complete a plutonium bomb trigger: a set of curved neutron reflectors and explosives to wrap around a plutonium core and compress it — "implode" it — into a detonation.

• Details of how Pakistan has orchestrated dummy companies, private individuals, and authentic trading corporations in Canada, Turkey, West Germany, Italy, Britain, the US, and elsewhere to provide parts for enrichment and reprocessing plants.

The parts include a West German fluoridation plant to convert uranium into a gas used by an enrichment plant; vacuum valves, evaporation and condensation systems, and filters from Switzerland; and special electrical inverters that keep steel "cascade" vessels spinning at unvarying speeds during the centrifuge enrichment process from Britain, Canada, and the US. Also, dissolvers, evaporators, and other equipment from France.

Clandestine suppliers have gone on trial in Canada and West Germany.

As recently as Oct. 31, a retired Pakistani Army officer reportedly tried to smuggle from New York 5,000 pounds of zirconium required to make fuel rods in large wooden crates labeled as mountaineering equipment.

• The US State Department's stern cables to US embassies in Ankara, Rome, Bonn, and a dozen other capitals that order diplomats to tell their host countries of the grave concern with which the US regards the Pakistani efforts to buy sensitive items.

Turkey replied that it had little power over private companies and their dealings in items such as inverters, which are also in wide use for textile plants. Other countries answered in the same way.

• Pakistan's secret agreement with Turkey promising certain amounts of nuclear technology in return for help in acquiring the parts Pakistan needs. Pakistan and Turkey are both Muslim countries. Their respective officer corps have developed close links.

Thus Turkey, as well as Pakistan, presents a difficult problem for the US.

• Pakistan's success in buying the natural uranium it needs for its Karachi plant. Some is channeled via Libya. Niger's President Seyni Kountché said in April, "If the devil asks to sell him uranium today, I'll sell it to him."

This newspaper has learned that the US discounts speculation that China may offer a nuclear test site to Pakistan. Intelligence and other analysts don't believe China would do it, since it preaches the doctrine of "self-reliance" to other countries.

Nor do they believe President Zia wants to be seen by the Pakistani military as having to rely on a neighbor to carry out a test.

Nor do analysts think, some press reports notwithstanding, that either Libya or Saudi Arabia has provided Pakistan with vast sums for its nuclear program.

Intelligence sources told this newspaper the Pakistanis are spending only \$50 million a year on its nuclear weapons program — some \$250 million over the last five years.

US analysts believe Pakistan's decision to make a bomb was not made dramatically, on the spur of the moment, as the BBC's 1980 documentary "The Islamic Bomb" suggested.

Rather, American experts say the decision was almost certainly a more gradual process — "as irreversible," said one expert, "as US policy to strengthen its defenses. Zia can no more repudiate it — given Pakistan's inferiority complex toward India, the loss of Dacca and Bangladesh, and his own need to hang onto power among his own military caste — than any American president could suddenly stand up today and proclaim total disarmament."

Will President Zia actually push the nuclear test button in the Baluchistan Desert?

No one yet knows. But experts looking on around the world are extremely worried.

"All we have is time," sighed one senior policymaker. "We're trying to buy as much time as we can. No one really believes we can stop him if he is determined. We can slow him down, and make his job much more expensive. That's about all."

Indian sources, highly suspicious of everything Zia does, nonetheless agree with US intelligence analysts on one point: Whether Zia decides to push or not to push will depend on his own hold on power.

If he feels that the US F-16s have bolstered his own political grip on the Pakistani military and elite, he may continue to prepare for a nuclear blast, but hold off. His progress toward a blast is itself one key stratagem he uses to impress his military elite.

An Indian diplomat said gloomily, "If he holds off, he will acquire 40 of your F-16 planes over the next five years. Then he can detonate his device. He'll have had time to make it into a smaller bomb, and he'll have the F-16s to deliver them. He will be even more dangerous."

An American official wrestling with the problem commented, "Yes, but he knows if he detonates, he'll get no more spare parts for the F-16s. He must have those parts to keep them flying."

"Maybe so," says another US expert with a frown, "but if we give him 40 F-16s, he can fly 20 and use the other 20 for spares."

Much depends, of course, on what happens in and around Pakistan.

Pakistani officials told this newspaper they needed the F-16s because they suspected the Soviets would force the Afghans to launch a limited strike across the Afghan-Pakistan border, using Soviet Central Asian troops dressed in Afghan uniforms, and Soviet MIG-25 jets flown by Soviet-trained Afghans or (more likely) Soviet pilots in Afghan uniforms.

When pressed, Reagan administration officials say that, of course, stopping the spread of nuclear weapons is important. President Reagan announced July 16 it was a "fundamental national security and foreign-policy objective." But all he said about a state's detonation of a nuclear device for the first time was that he would view it with "grave concern."

The Reagan administration's idea is to try to remove from countries the fears and insecurities that lead to the desire for nuclear weapons.

The urgent test case is Pakistan. So far the evidence is inconclusive.

The President also stresses that countries will be tempted to test unless the US and other advanced countries show themselves reliable suppliers of technology and material for peaceful nuclear reactors. That's a sharp break with the Carter approach, which tried to deny other countries US know-how unless they committed themselves to international inspections and safeguards on all their nuclear facilities.

"Unless you lay out a clear set of guidelines — breaking relations, cutting off trade, suspending other links — states like Pakistan will continue on with their bomb programs, figuring no one will really penalize them," complains an IAEA official in Vienna.

So far, no major government has yet done this.

Terrorism remains a threat. Authors Larry Collins and Dominique Lapierre claim their research revealed President Gerald Ford had considered clearing Boston in 1974 because of an alleged Palestinian nuclear threat to the city.

It is also said that the FBI maintains an around-the-clock nuclear terrorist alert desk at its headquarters in Washington.

According to Paul Leventhal, former staff director of the Senate Nuclear Regulation Subcommittee and founder of the Nuclear Club, Inc., in Washington, peaceful uses of nuclear energy already generate enormous amounts of plutonium. It is a byproduct when natural or low-enriched uranium is burned in a power reactor.

A typical plant produces a quarter of a ton of plutonium a year. This, reprocessed, is enough to make as many as 50 bombs the size of the one dropped on Nagasaki. Mr. Leventhal estimates.

Reckoning that a bomb can be made with 10 pounds of plutonium (the IAEA uses 17.6 pounds, or eight kilograms), Mr. Leventhal says the world's nuclear power plants today produce enough plutonium to make 7,700 atomic bombs every year.

By 1990, he estimates, the world will possess 760 tons of plutonium (167,200 bombs). By the year 2000, it will be 2,650 tons, or 591,800 bombs.

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Nuclear power is like the Chinese characters for "danger" and "opportunity" that combine to mean "crisis." It arouses intense fear, intense hope, an almost religious awe.

The word "uranium" comes from the Greek, meaning, in part, "heaven." The word "plutonium" comes from another Greek word that can mean "hades" or "hell."

Until 1941, plutonium existed only in traces connected with natural uranium deposits. The Manhattan Project in World War II produced the first manmade quantities.

Now hundreds of manmade tons exist. The IAEA in Vienna in 1980 safeguarded 83 tons — that's 83,000 kilograms, enough for 10,000 bombs. The world's plutonium consists of traces in the atmosphere from the bombs dropped on Hiroshima and Nagasaki and from nuclear tests, and of byproducts of the operations of nuclear reactors. Plutonium is produced when uranium fuel rods irradiated in the cores of nuclear reactors. Much of it remains locked up in spent (used) fuel rods in deep storage pools of water. Much of it has been extracted ("reprocessed") to make nuclear weapons in the US, the Soviet Union, Britain, France, and China.

A large reactor can produce eight kilograms (17.6 pounds) of plutonium every two weeks or so. Eight kilograms is the size of a large orange — enough to make a bomb as big as the one dropped on Nagasaki.

Plutonium retains its radioactivity for a quarter of a million years. Writing in Harvard's Divinity magazine, professor of religion and scientist Albert Blackwell says that if plutonium had been stored in the Great Pyramids of Egypt, it would still be 90 percent as lethal as it was then. It will remain lethal for 50 times as long as any civilization has yet endured on earth.

Scientists like him believe that by producing plutonium, the world is asserting self-interest without regard to future generations. They conclude that a more universal good is required. Nuclear disarmament and energy conservation and efficiency take on for them "the urgency of religious obligations."

Not everyone agrees. Other scientists see nuclear power as necessary to generate energy and keep the peace. They dismiss "ban the bomb" marches and antinuclear demonstrations.

The debate is intense. Scramble the letters that make up the word "nuclear" and you get "unclear." Humans grapple in search of a higher wisdom.

Next: Trying to stop countries from edging over the nuclear threshold.