Statement from Vova Malofienko:
Chornobyl survivor, 11 years old

Dear Mrs. Clinton, and Dear Mr. Vice President:

I am very happy to be here today, to thank the American people for all they have done for me and for all the children who may be sick because of the Chornobyl nuclear disaster.

I especially want to thank Dr. and Mrs. Matkiwsky who helped to bring my family to the United States, to actor Paul Newman and to all the wonderful people in Boston and Connecticut and New Jersey who made me feel at home. When I first came here I did not speak much English, but there were many people at the Hole-In-The-Wall-Gang Camp, the Children of Chornobyl Fund and at Deerfield School who became my friends and who helped me get through the hard times in my life.

America is a very special country and the American people are very lucky to have such excellent hospitals and such a strong medical system.

In the city of Chernihiv, where I come from, ~~the hospitals are in very bad shape and~~ there are many children and old people ~~who do not have the medical care they need.~~ Chernihiv was in the path of radiation from Chornobyl and today, many children there have thyroid cancer and leukemia because their environment was poisoned.

I wish that all of them could have the kind of medical care that I received. My doctors - Molly Schwenn in Boston and Dr. Kamalaker at Beth Israel in Newark were really fantastic. My treatment was very hard, but they had the right training and all the medicine and all the equipment they needed to make me better. In Ukraine, there are many wonderful doctors and nurses too, but they don't have the materials they need to treat their patients properly.

I want to thank you, Mrs. Clinton because you and the President did not forget the children of Ukraine and Belarus. You have reminded us that many children here in the United States and many children around the world are in danger, and they need protection. In your book, you say "It Takes A Village" to raise a child. It also takes a village to HEAL a child. We should not forget the many children who need our help, who are not as lucky as I have been.

I want to thank all the people in this room and all the people who could not be here but deserve the honor. PLEASE do not forget Chornobyl. This accident did a lot of damage and there could be much more damage on the way because some of these diseases do not show up for ten years. Doctors and scientists need to stay alert. We cannot close our eyes to what is happening.

I know that you have worked hard. You may be tired and you may want to work on other problems, but your help cannot stop now. Let us make sure that an accident like Chornobyl never happens again and let us do all we can to make this world a safer, healthier place.

Remember all the young people and the old who will need your help in the years to come and continue your work so that more children like me can win their fight and lead a normal life.

Thank you, and God Bless You.

14TH STORY of Level 1 printed in FULL format.

The Associated Press

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January 15, 1994, Saturday, PM cycle

SECTION: International News

LENGTH: 330 words

HEADLINE: Mrs. Clinton Tours Hospitals, Sees Ballet

BYLINE: By ALAN COOPERMAN, Associated Press Writer

DATELINE: MINSK, Belarus

BODY:
Hillary Rodham Clinton watched soldiers unload a shipment of U.S. medical supplies and walked through a ward of sick youngsters wearing Boston Celtics caps during a visit today to a children's hospital.

The first lady, accompanying her husband on a visit to this former Soviet republic, met children suffering from rheumatoid arthritis, heart disease and other illnesses during her tour of Pediatric Hospital No. 4.

She sat at the bedside of a seven-year-old boy awaiting an operation for a heart problem, turning the pages of a Russian children's book and pointing out characters.

On her way out, she passed by a ward where children were wearing some of the 300 caps donated by the Boston Celtics basketball organization.

Outside the hospital, she watched soldiers unload boxes of blankets, bandages and medicine, part of a $ 700,000 shipment of American medical supplies donated by Operation Provide Hope, an organization that ships surplus medical supplies to the former Soviet republics.

The hospital has a partnership with the Children's Hospital of Pittsburgh, Pa., and three doctors and a nurse have visited Pittsburgh. "I think that's very exciting and its exactly the kind of cooperation my husband is trying to promote," she said.

The hospital does not deal directly with illnesses resulting from the 1986 explosion at the Chernobyl nuclear plant across the Belarus border in Ukraine.

But deputy Chief doctor Yelena Kolupaeva said: "We have seen that since Chernobyl there has been an increase in children who suffer from rheumatoid arthritis and other diseases. Even children with ordinary illnesses seem to stay sick much longer."

Nearly a quarter of Belarus territory was contaminated by the nuclear disaster.

Mrs. Clinton was then joined by daughter Chelsea for a performance of the ballet Carmina Burana. At the conclusion she presented the dancers and musicians with eight bouquets of lilies put together by the White House florist and flown over.

LANGUAGE: ENGLISH

LOAD-DATE: January 15, 1994

3RD STORY of Level 1 printed in FULL format.

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Arkansas Democrat-Gazette

January 16, 1994, Sunday

SECTION: NEWS; Pg. 16A

LENGTH: 577 words

HEADLINE: BOY WITH BAD HEART CAPTURES FIRST LADY'S

BYLINE: The Associated Press

BODY:

MINSK, Belarus -- If you're 7 years old and your heart doesn't work quite right and you've been lying in a hospital for three months, it's hard to have a good day. But Alyosha Popovich had one Saturday.

A woman in a chocolate-brown suit came in and sat on the edge of his bed and started to turn the pages of his storybook. Alyosha knew right away who it was -- the wife of the president of the United States.

All 290 children at Pediatric Hospital No. 4 in Minsk, the capital of Belarus, had been told that Hillary Rodham Clinton would visit while her husband was holding a summit.

And almost all of them clamored to be noticed. One sang, others wore green Boston Celtics caps, still others presented homemade gifts of paper and straw. But it was Alyosha, bedridden and feeble with a congenital heart defect, who caught most of her attention.

Hillary Clinton pointed at a character in his book of children's tales and said, "Dragonfly," a word he did not understand.

He sat up in his blue pajamas and his blue eyes shone. He started to speak, perhaps to explain about Mukha-Tsokotukha, the friendly fly that found a coin, bought a samovar and invited all the other insects over for tea.

With TV cameras and doctors and Secret Service agents crowding around, Alyosha didn't get very far. Too shy or excited to talk, he fell silent. But he was still smiling when she moved down the ward.

The first lady visited hospitals in both Moscow and Minsk to demonstrate her concern about health care. Doctors in both cities complained about periodic shortages of medicine and equipment.

In Minsk, they also said there had been a sharp rise in some childhood illnesses, such as thyroid disorders and cancers, since the 1986 Chernobyl nuclear disaster in neighboring Ukraine.

"It's hard to say whether a particular child's illness is traceable to Chernobyl, but in general, children are getting sick more often and staying sick

longer," said Alyosha's doctor, Igor Lazarchuk.

Pediatric Hospital No. 4 was chosen for the first lady's visit because it has been collaborating with Children's Hospital of Pittsburgh. Eight Belarussian doctors and health officials have been to Pennsylvania for training.

After handing out crayons and coloring books to the children, Hillary Clinton watched Belarussian soldiers unload a $ 700,000 shipment of donated U.S. medical supplies.

The crates of blankets, bandages, syringes and medicines came from the U.S. military, which has been sending surplus items to the former Soviet Union under Operation Provide Hope.

Later this year, Belarus is to receive a $ 15 million shipment containing everything necessary for a 500-bed hospital except the building itself.

"A lot of our hospitals can't use this stuff because it's not 1994-hot-off-the-presses. But for these hospitals over here, it's still state-of-the-art and we're putting it to good use," said Maj. Daryl Spencer, a U.S. Army logistics officer.

The supplies "will make a very big difference in the lives of the children in this hospital," Hillary Clinton said.

Chelsea Clinton, 13, did not accompany her mother to the hospital. But later Saturday, they sat together in the presidential box for a performance by the Belarussian state ballet.

Members of the first lady's staff said that Chelsea, a ballet student, was enraptured by the performance and was presented afterward with a book on Russian ballet and a practice leotard.

send to the affected areas. They are raising awareness about Chornobyl, helping all of us understand the disaster's global proportions. And they have flown some of the youngest victims of Chornobyl to Europe and the United States for more advanced treatment.

One of those children ~~was~~ is 11-year old Vova. He came to U.S. from the Ukraine in 1990. Vova will speak to us in the East Room... [more about Vova goes here]

Standing in the grandeur of the White House East Room, under the gigantic portraits of George and Martha Washington, the little Ukrainian boy reminded us all that he and children like him, the children of Chornobyl and children everyhere whose health and lives have been devastated through no fault of their own, were and always will be our common responsibility ~~,~~ members of the human family.

Soviet officials did not notify the general public about the explosion for two days. So for two days after the explosion, citizens living nearby continued to go about their lives, eating food that was radioactive, walking to school, playing outdoors.

###

CHILDREN OF CHORNOBYL RELIEF FUND

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MEMORANDUM

DATE: April 29, 1996

TO: Melanne Verveer, Nicole Rabner

FAX #: 202-466-6244

RE: May 1st Chornobyl Commemoration

COMMENTS:

Dear Melanne and Nicole:

The following is the revised draft of the remarks I'd prepared for Wednesday. I would welcome any comments or suggestions you might have.

I'll be at my Connecticut number today - 203-407-0261.

Wishing You all the Best

Alex Kuzma

COMMENTS OF ALEX KUZMA, Coordinator for Chornobyl Challenge '96

Mr. Vice-President, Mrs. Clinton, Honored colleagues and guests:

It is a very special honor to speak on behalf of the Coalition, Chornobyl Challenge '96, and it is a privilege to be part of the Chornobyl relief community. There are many distinguished organizations and individuals represented in this room. Over the past ten years, we have learned a great deal from one another and we have drawn much inspiration from each other's efforts.

Chornobyl has made us painfully aware of the frailty of the global environment and it has impressed on us the need for international cooperation. We have learned that a disaster on this scale cannot be addressed by one or two countries alone. Chornobyl cannot be overcome by half-hearted or fleeting measures. It requires a long-term, passionate commitment.

This tragedy has provoked a great deal of soul-searching throughout the world. It has brought us face to face with the terrible price of technological arrogance and hubris. It has challenged us to reshape our thinking, to reconsider our prevailing wisdom, to recognize the dangers inherent in ignoring human health or environmental quality.

None of our organizations could have taken on this mission without the help and guidance of others. The huge effort which has been launched to save the lives of Chornobyl's children has mobilized thousands of unsung heroes who could never fit into a room many times this size.

I wanted to cite just a few examples of the kind of creativity and humanitarian spirit which have infused this effort:

I am reminded of a pioneering diabetes clinic in Cherkasy, Ukraine which is run by a young woman from Santa Rosa, California. Andrea Carroll has herself been a diabetic since childhood. She was moved by the plight of diabetic children she met during a cruise on the Dnipro River. Lack of insulin

and basic supplies had turned them into invalids. After returning to the US Andy Carroll secured large donations of insulin, syringes and blood testing strips and she published a book in Ukrainian to teach these youngsters how to use these materials. Her clinic is now helping hundreds of Ukrainian children to lead a normal life.

There are other unsung heroes -- Dr. Mona Mikalsen who was incapacitated by an illness but worked miracles over the phone. Her powers of persuasion and her appeals to company executives helped to secure priceless donations of ultrasounds, expensive leukemia medication and even helped to install an MRI system in Kiev.

There were schoolchildren in Spring Valley, New York, and Orange, Connecticut and Cambridge, Massachusetts who brought their environmental consciousness to a higher level, raising tens of thousands of dollars to save the lives of their counterparts in Belarus and Ukraine.

And I am reminded of a brilliant retired chemist - Dr. Volodymyr Hordynsky, who spent the last four years of his life establishing the finest blood testing laboratory in Eastern Europe, to save the lives of children with leukemia and non- Hodgkins lymphoma.

Although Chornobyl may be an ocean and thousands of miles away, it has brought out the very best in the American spirit.

We are deeply grateful to this Administration for its leadership in bringing Chornobyl back to the attention of the world community. The President's initiative in mobilizing financial assistance from the G-7 nations has been absolutely crucial. Just as crucial will be the effort to help Ukraine replace Chornobyl's reactors with benign and renewable energy sources.

We are equally grateful to the First Lady who has visited children's hospitals in Belarus and Ukraine, to offer her support for the young mothers and physicians who are on the front lines of the battle against soaring infant mortality. Your presence and encouragement were more important than you might imagine.

Vice-President Gore's ongoing advocacy of the global environment has greatly helped to remind caring Americans everywhere that this is an issue which must remain foremost in our policy considerations.

Today marks the tenth anniversary of the infamous May Day parade in 1986, when thousands of children were forced to march through the streets of Minsk and Kiev as the air around them was filled with high levels of radiation.. Today we are seeing the terrible cost of the Soviet government's deceit as children's cancer and thyroid disorders have climbed to unprecedented levels.

We wish that we could say that the worst is over. Unfortunately, many of the health effects and genetic damage will only become manifest in the years to come, and it will be a true test of our maturity as a nation and as a global community if we can sustain this commitment during the next decade. No matter how difficult this struggle may be, we know that it is worth the effort, for in the words of the Talmud, if we have saved one life, then we have saved the world. In some small way, we have helped to safeguard the future.

At this point, I would like to introduce a very brave young person who knows firsthand the effects of Chornobyl.

Vova Malofienko was only 5 years old when he came to the United States in the summer of 1990. He was one of eight children who came under the auspices of CCRF and under the auspices of actor Paul Newman and the Hole in the Wall Gang Camp for children with cancer.

Vova is with us today because of some outstanding treatment he received from Dr. Molly Schwenn in Boston and Dr. Kamalaker at Beth Israel Medical Center in Newark, New Jersey.

Vova is joined today by his parents, Olya and Alexander Malofienko who have been strong supporters of the Chornobyl relief campaign. Although their son has now recovered, the Malofienkos have not forgotten the families and children who remain in the Chornobyl region -- people whose futures are still very much in doubt.

We have grown to love Vova for his courage and his wonderful sense of humour -- for his gentle zeal for life that turned out to be his saving grace. He has enriched ourlives in countless ways, and it is my pleasure to introduce to you our very dear friend -- a true advocate for all the children of Chornobyl -- Vova Malofienko.

Chornobyl Challenge '96

UNITING THE GLOBAL COMMUNITY FOR THE CHORNOBYL 10TH ANNIVERSARY COMMEMORATION

The Legacy of Chornobyl
What is to be Done? Where is the Way Out?

"As we mourn those who lost their lives at Chornobyl and pray for those who still suffer its effects, let us renew our solemn pledge: to promote healing, ensure prevention, and offer hope."

President Clinton

"I believe that mutual support and cooperation, united efforts, and our combined wisdom and intelligence will successfully serve to guarantee that present and future generations of this planet Earth will never again know a similar disaster."

President Kuchma

April 26, 1996 marks the Tenth Anniversary of Chornobyl, the worst nuclear disaster in history. On that day, reactor number 4 at the Chornobyl Atomic Energy Station, located sixty miles from Kylv (Kiev), the capital of Ukraine, exploded, exposing millions of people to radiation which spread across the region, resulting in heaviest radioactive fallout in Ukraine and Belarus.

Total amount of radiation released as a result of the explosion at Chornobyl is estimated at 260 million curies. Total amount of radiation released at Three Mile Island in 1979 is estimated at 15 curies.

The accident in Chornobyl released over 200 times more radiation than was produced by the atomic bombing of Hiroshima.

Soviet authorities did not acknowledge the explosion or warn their citizens until May 2, 1986. Evacuation of residents from the affected areas during the first few days following the accident would have significantly reduced the dosage of their radiation exposure.

In the immediate aftermath of the explosion and fire, 187 people suffered acute radiation illness and 31 of these people died. Although it is difficult to estimate how many more people have died since then as a result of the Chornobyl catastrophe, by comparing mortality rates before and after the accident, Greenpeace Ukraine has estimated a total of 32,000 deaths.

Radiation from Chornobyl contaminated Ukraine, Belarus, Russia, the Baltics, Scandinavia and beyond. Human habitation is forbidden in the 30 kilometer "dead zone" surrounding the power station and over 260,000 square kilometers of land in Ukraine, Belarus and Russia are contaminated with ceslum 137 radiation. Approximately 135,000 people have been permanently evacuated and many more have left their homes.

The World Health Organization reported that thyroid cancer among children living near Chornobyl rose to levels 80 times higher than normal. In Ukraine and Belarus, birth defects have doubled and oncological illnesses among children have nearly tripled since 1986.

Chornobyl has fueled a massive infertility crisis in Ukraine; half of all men between the ages of 13 and 29 have fertility problems — the highest infertility rate in the world. The UN Office on Population reported in 1994 that Ukraine and Belarus are the only two nations in Europe with negative population growth.

According to radiation health experts at the National Academy of Sciences, most cancers that result from radiation exposure do not develop until 10 to 20 years following exposure, and therefore no accurate assessment of Chornobyl's overall impact can be made until this period has expired.

In Ukraine alone, economic losses resulting from the Chornobyl disaster exceed $10 billion. Over recent years, the newly independent Ukraine has had to spend over $800 million per year to solve Chornobyl related problems.

In December 1996, Ukraine and the G-7 countries signed a formal agreement on a cooperative plan to shut down the entire Chornobyl power plant by the year 2000.

Chornobyl Challenge '96 strives through its various activities to raise awareness of Chornobyl's consequences; to inform the public about Chornobyl's continuing threat to human health and the environment. Chornobyl was and remains a disaster of global proportions. We urge the world community to support greater Western involvement in the restoration of Eastern Europe's environment, energy sector and medical infrastructure.

If you would like to make a tax-deductible contribution, please send your check to **Chornobyl Challenge '96**, 3722 48th Street NW, Washington, DC 20016. For further information, please call (703) 549-1544.

Chornobyl Challenge '96 Coalition under the patronage of the Embassy of Ukraine

Children of Chornobyl Foundation • The Chornobyl Committee of Washington, DC
The Harriman Institute at Columbia University • Ukrainian Catholic Church, Stamford Diocese
Ukrainian Congress Committee of America • Ukrainian Orthodox Church of the USA
The Washington Group • World Federation of Ukrainian Medical Associations
World Information Transfer • Yale University

• **MELANNE VERVEER** •

Lissa –

The Ambassador will be at the event. We should speak from here since he is not going to dyk.

SCIENTIFIC AMERICAN

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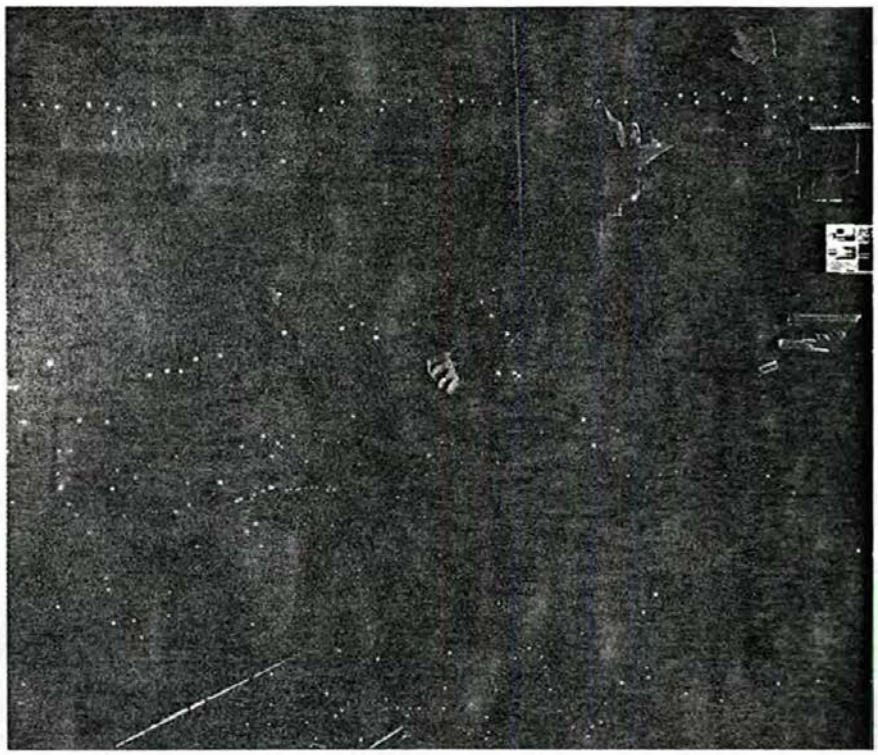
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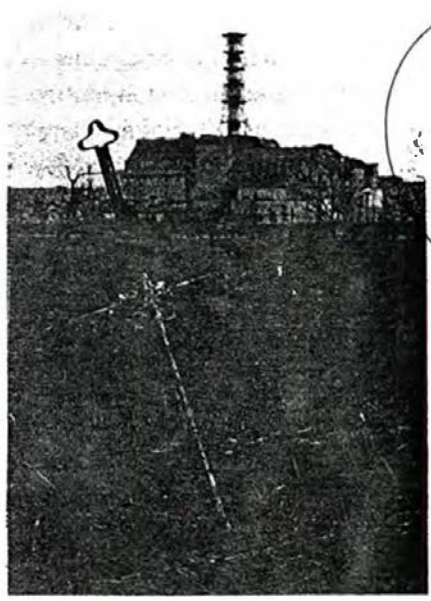
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Smart Rooms 68
Alex P. Pentland

The computer on your desk may soon become part of the walls of your office, the furniture in your home and the clothes on your back. Systems that can track people, recognize their faces, and interpret speech, expressions and gestures have become a reality. Using this technology, researchers are building "smart rooms" in which, free from wires and keyboards, people can browse multimedia displays, play with virtual animals or control programs by sign language.



CONFRONTING THE NUCLEAR LEGACY

Ten Years of the Chornobyl Era 44
Yuri M. Shcherbak

A decade ago reactor number 4 at the Chornobyl nuclear power plant exploded, showering much of eastern Europe with radioactive debris. The Ukrainian ambassador to the U.S., who was a medical researcher in Kiev and one of the first physicians to treat the wounded, looks at the medical aftermath of the accident. He also contemplates what additional technological and political measures need to be taken to contain the lasting danger. First in a series.

Ten Years of the Chornobyl Era

The environmental and health effects of nuclear power's greatest calamity will last for generations

by Yuri M. Shcherbak



GROCHOWIAK/KEPLICZ *Sygma*

"It seemed as if the world was coming to an end.... I could not believe my eyes; I saw the reactor ruined by the explosion. I was the first man in the world to see this. As a nuclear engineer I realized all the consequences of what had happened. It was a nuclear hell. I was gripped by fear."

These words were written to me in 1986 by the head of the shift operating the reactor that exploded at the Chornobyl nuclear power plant in northern Ukraine. The explosion and a resulting fire showered radioactive debris over much of eastern Europe. The author of the words above, along with several others, was later jailed for his role in the disaster, although he never admitted guilt.

Subsequent official investigations have shown, however, that responsibility for this extraordinary tragedy reaches far beyond just those on duty at the plant on the night of April 25 and early morning of April 26, 1986. The consequences, likewise, have spread far beyond the nuclear energy industry and raise fundamental questions for a technological civilization. Before the explosion, Chornobyl was a small city hardly known to the outside world. Since then, the name—often known by its Russian spelling, Chernobyl—has entered the chronicle of the 20th century as the worst technogenic environmental disaster in history. It is an internationally known metaphor for catastrophe as potent as "Stalingrad" or "Bhopal." Indeed, it is now clear that the political repercussions from Chornobyl accelerated the collapse of the Soviet empire.

Because of the importance of this calamity for all of humanity, it is vital that the world understands both the reasons it happened and the consequences. The events that led up to the explosion are well known. Reactor number four, a 1,000-megawatt RBMK-1000 design, produced steam that drove generators to make electricity. On the night of the accident, operators were conducting a test to see how long the generators would run without power. For this purpose, they greatly reduced the power being produced in the reactor and blocked the flow of steam to the generators.

Unfortunately, the RBMK-1000 has a design flaw that makes its operation at low power unstable. In this mode of operation, any spurious increase in the production of steam can boost the rate of energy production in the reactor. If that extra energy generates still more steam, the result can be a runaway power surge. In addition, the operators had disabled safety systems that could have averted the reactor's destruction, because the systems might have interfered with the results of the test.

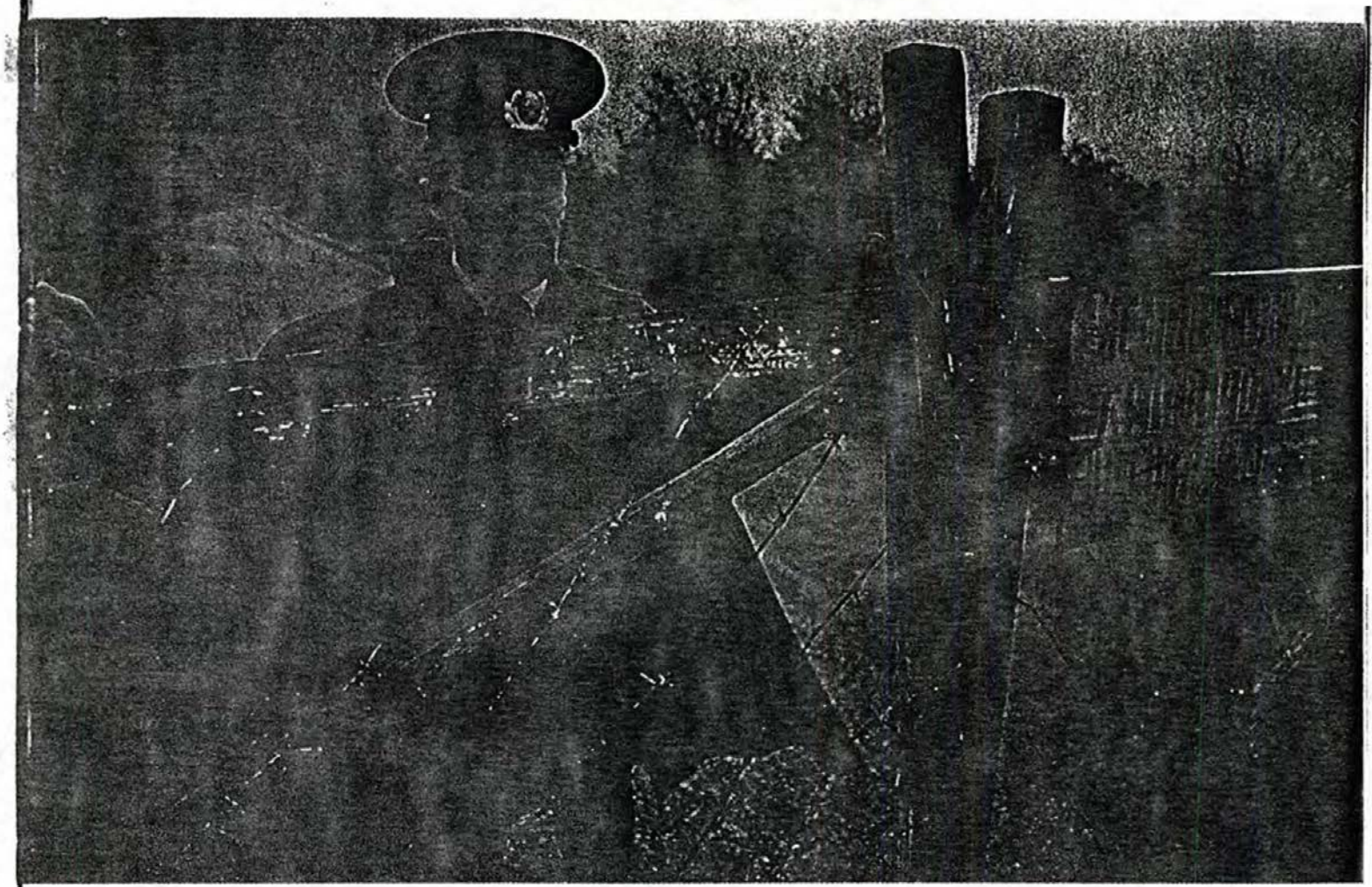
At 1:23 and 40 seconds on the morning of April 26, realizing belatedly that the situation had become hazardous, an operator pressed a button to activate the automatic protection system. The action was intended to shut the reactor down, but by this time it was too late. What actually happened can be likened to a driver who presses the brake pedal to slow down a car but finds instead that it accelerates tremendously.

Within three seconds, power production in the reactor's core surged to 100 times the normal maximum level, and there was a drastic increase in temperature. The result was two explosions that blew off the 2,000-metric-ton metal plate that sealed the top of the reactor, destroying the building housing it. The nuclear genie had been liberated.

Despite heroic attempts to quell the ensuing fire, hundreds of tons of graphite that had served as a moderator in the reactor burned for 10 days. Rising hot gases carried into the environment aerosolized fuel as well as fission products, isotopes that are created when uranium atoms split apart. The fuel consisted principally of uranium; mixed in with it was some plutonium created as a by-product of normal operation. Plutonium is the most toxic element known, and some of the fission products were far more radioactive than uranium or plutonium. Among the most dangerous were iodine 131, strontium 90 and cesium 137.

A plume containing these radioisotopes moved with prevailing winds to the north and west, raining radioactive particles on areas thousands of miles

IGOR KOSTIN/IMAGO *Sygma*



IGOR KOSTIN/IMAGO Sygma

FORBIDDEN ZONE: militiaman controls access to a town in the district of Narodichi, a region evacuated after the explosion and fire at the nearby Chornobyl plant caused a shower of dangerously radioactive fallout across eastern Europe.

away. Regions affected included not only Ukraine itself but also Belarus, Russia, Georgia, Poland, Sweden, Germany, Turkey and others. Even such distant lands as the U.S. and Japan received measurable amounts of radiation. In Poland, Germany, Austria and Hungary as well as Ukraine, crops and milk were so contaminated they had to be destroyed. In Finland, Sweden and Norway, carcasses of reindeer that had grazed on contaminated vegetation had to be dumped.

Widespread Effects

The total amount of radioactivity released will never be known, but the official Soviet figure of 90 million curies represents a minimum. Other estimates suggest that the total might have been several times higher. It is fair to say that in terms of the amount of radioactive fallout—though not, of course, the heat and blast effects—the accident was comparable to a medium-size nuclear strike. In the immediate aftermath of the explosion and fire, 187 people fell ill from acute radiation sickness; 31 of these died. Most of these early casualties were firefighters who combated the blaze.

The destroyed reactor liberated hundreds of times more radiation than was produced by the atomic bombings of Hiroshima and Nagasaki. The intensity of gamma radiation on the site of the power plant reached more than 100 roentgens an hour. This level produces in an hour doses hundreds of times the maximum dose the International Commission on Radiological Protection recommends for members of the public a *year*. On the roof of the destroyed reactor building, radiation levels reached a frightening 100,000 roentgens an hour.

The human dimensions of the tragedy are vast and heartbreaking. At the time of the accident, I was working as a medical researcher at the Institute of Epidemiology and Infectious Diseases in Kiev, some 60 miles from the Chornobyl plant. Sometime on April 26 a friend told me that people had been arriving at hospitals for treatment of burns sustained in an accident at the plant, but we had no idea of its seriousness. There was little official news during the next few days, and what there was suggested the danger was not great. The authorities jammed most foreign broadcasts, although we could listen as Swedish radio reported the detection of high levels of radioactivity in that country and elsewhere. I and some other physicians decided to drive toward the accident site to investigate and help as we could.

We set off cheerfully enough, but as we got closer we started to see signs of mass panic. People with connections to officialdom had used their influence to send children away by air and rail. Others without special connections were waiting in long lines for tickets or occasionally storming trains to try to escape. Families had become split up. The only comparable social upheaval I had seen was during a cholera epidemic. Already many workers from the plant had been hospitalized.

The distribution of the fallout was extremely patchy. One corner of a field might be highly dangerous, while just a few yards away levels seemed low. Nevertheless, huge areas were affected. Although iodine 131 has a half-life of only



VLADIMIR SYOMIN

AWAITING A THYROID EXAMINATION, a young patient and her mother sit anxiously at the Kiev Institute of Endocrinology. In the days and weeks following the 1986 accident at Chornobyl, an estimated 13,000 children inhaled aerosols containing high levels of iodine 131, which collects in the thyroid. Among Ukrainian children, thyroid cancer rates have increased roughly 10-fold.

eight days, it caused large radiation exposures during the weeks immediately following the accident. Strontium 90 and cesium 137, on the other hand, are more persistent. Scientists believe it is the cesium that will account for the largest radiation doses in the long run.

All told, well over 260,000 square kilometers of territory in Ukraine, Russia and Belarus still have more than one curie per square kilometer of contamination with cesium 137. At this level, annual health checks for radiation effects are advised for residents. In my own country of Ukraine, the total area with this level of contamination exceeds 35,000 square kilometers—more than 5 percent of the nation's total area. Most of this, 26,000 square kilometers, is arable land. In the worst affected areas there are restrictions on the use of crops, but less contaminated districts are still under cultivation.

The heavily contaminated parts of Ukraine constitute 13 administrative regions (oblasts). In these oblasts are 1,300 towns and villages with a total population of 2.6 million, including 700,000 children. Within about 10 days of the accident, 135,000 people living in the worst-affected areas had left their homes; by now the total has reached 167,000. Yet it is clear that the authorities' attempts to keep the scale of the disaster quiet actually made things worse than they need have been. If more inhabitants in the region had been evacuated promptly during those crucial first few days, radiation doses for many people might have been lower.

The region within 30 kilometers of the Chornobyl plant is now largely uninhabited; 60 settlements outside this zone have also been moved. Formerly busy communities are ghost towns. The government has responded to this unprecedented disruption by enacting laws giving special legal status to contaminated areas and granting protections to those who suffered the most. Yet the repercussions will last for generations.

Multiple Illnesses

The medical consequences are, of course, the most serious. Some 30,000 people have fallen ill among the 400,000 workers who toiled as "liquidators," burying the most dangerous wastes and constructing a special building around the ruined reactor that is universally referred to as "the sarcophagus." Of these sick people, about 5,000 are now too ill to work.

It is hard to know, even approximately, how many people have already died as a result of the accident. Populations have been greatly disrupted, and children have been sent away from some areas. By comparing mortality rates before and after the accident, the environmental organization Greenpeace Ukraine has estimated a total of 32,000 deaths. There are other estimates that are higher, and some that are lower, but I believe a figure in this range is defensible. Some, perhaps many, of these deaths may be the result of the immense psychological stress experienced by those living in the contaminated region.

One medical survey of a large group of liquidators, carried out by researchers in Kiev led by Sergei Komissarenko, has found that most of the sample were suffering from a constellation of symptoms that together seem to define a new medical syndrome. The symptoms include fatigue, apathy and a decreased number of "natural killer" cells in the blood.

Natural killer cells, a type of white blood cell, can kill the cells of tumors and virus-infected cells. A reduction in their number, therefore, suppresses the immune system. Some have dubbed this syndrome "Chornobyl AIDS." Besides having increased rates of leukemia and malignant tumors, people with this syndrome are susceptible to more severe forms of cardiac conditions as well as common infections such as bronchitis, tonsillitis and pneumonia.

As a consequence of inhaling aerosols containing iodine 131 immediately after the accident, 13,000 children in the region experienced radiation doses to the thyroid of more than 200 roentgen equivalents. (This means they received at least twice the maximum recommended dose for nuclear industry workers for an entire year.) Up to 4,000 of these children had doses as high as 2,000 roentgen equivalents. Because iodine collects in the thyroid gland, these children have developed chronic inflammation of the thyroid. Although the inflammation itself produces no symptoms, it has started to give rise to a wave of cases of thyroid cancer.

NOTE:
POTUS to attend
Nuclear Safety
Summit in Moscow
4/19 – 4/21

The numbers speak for themselves. Data gathered by the Kiev researcher Mykola D. Tronko and his colleagues indicate that between 1981 and 1985—before the accident—the number of thyroid cancer cases in Ukraine was about five a year. Within five years of the disaster the number had grown to 22 cases a year, and from 1992 to 1995 it reached an average of 43 cases a year. From 1986 to the end of 1995, 589 cases of thyroid cancer were recorded in children and adolescents. (In Belarus the number is even higher.) Ukraine's overall rate of thyroid cancer among children has increased about 10-fold from preaccident levels and is now more than four cases per million. Cancer of the thyroid metastasizes readily, although if caught early enough it can be treated by removing the thyroid gland. Patients must then receive lifelong treatment with supplemental thyroid hormones.

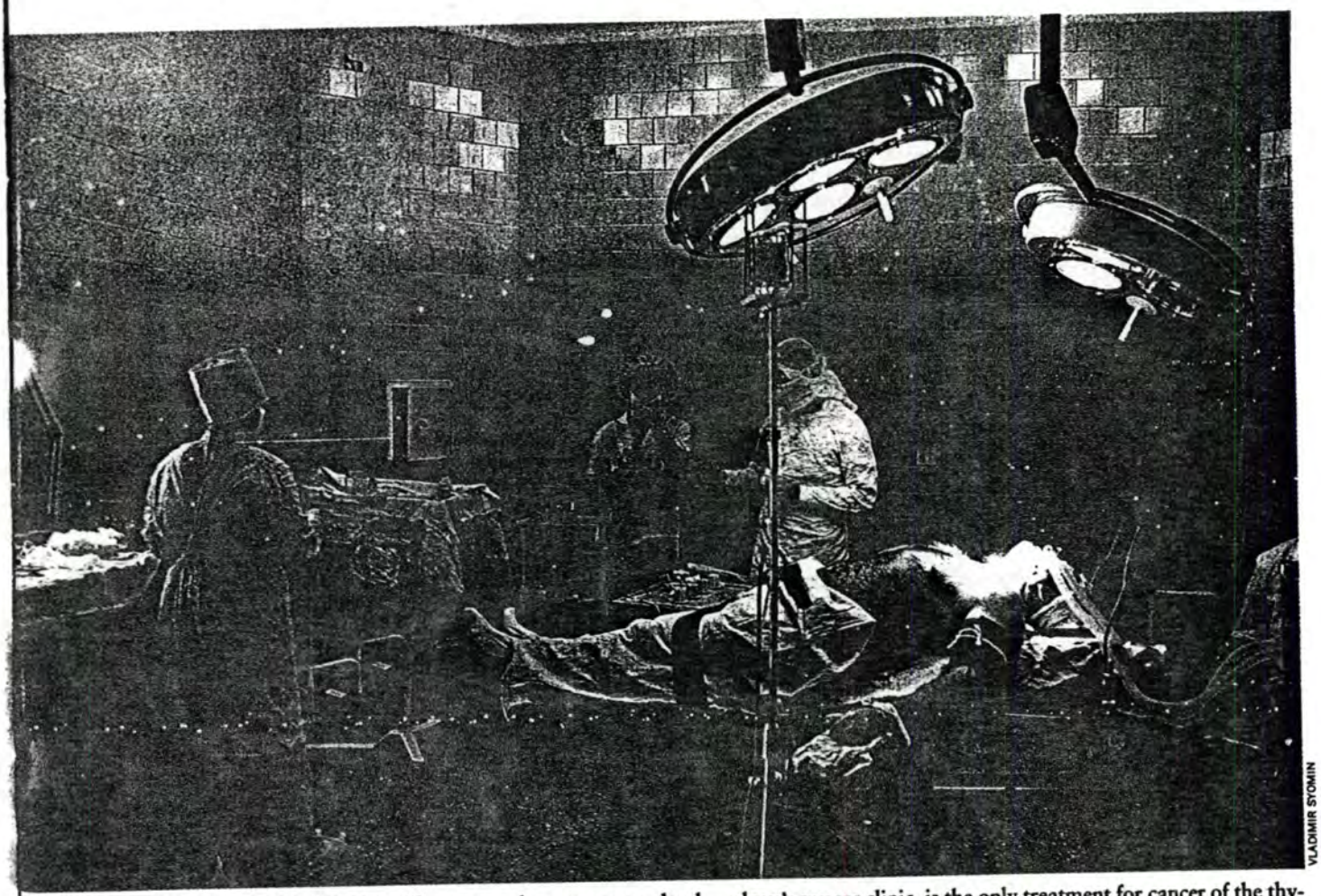
Other research by Ukrainian and Israeli scientists has found that one in every three liquidators—primarily men in their thirties—has been plagued by sexual or reproductive disorders. The problems include impotence and sperm abnormalities. Reductions in the fertilizing capacity of the sperm have also been noted. The number of pregnancies with complications has been growing among women living in the affected areas, and many youngsters fall prey to a debilitating fear of radiation.

The optimists who predicted no long-term medical consequences from the explosion have thus been proved egregiously wrong. These authorities were principally medical officials of the former Soviet Union who were following a script written by the political bureau of the Communist Party's Central Committee. They also include some Western nuclear energy specialists and military experts.

It is also true that the forecasts of "catastrophists"—some of whom predicted well over 100,000 cancer cases—have not come to pass. Still, previous experience with the long-term effects of radiation—much of it derived from studies at Hiroshima and Nagasaki—suggests that the toll will continue to rise. Cancers caused by radiation can take many years before they become detectable, so the prospects for the long-term health of children in the high-radiation regions are, sadly, poor.

The hushing up of the danger from radiation in Soviet propaganda has produced quite the opposite effects from those intended. People live under constant stress, fearful about their health and, especially, that of their children. This mental trauma has given rise to a psychological syndrome comparable to that suffered by veterans of wars in Vietnam and Afghanistan. Among children evacuated from the reactor zone, there has been a 10- to 15-fold increase in the incidence of neuropsychiatric disorders.

The catastrophe and the resulting resettlement of large populations have also caused irreparable harm to the rich ethnic diversity of the contaminated areas, particularly to the so-called *drevly-*

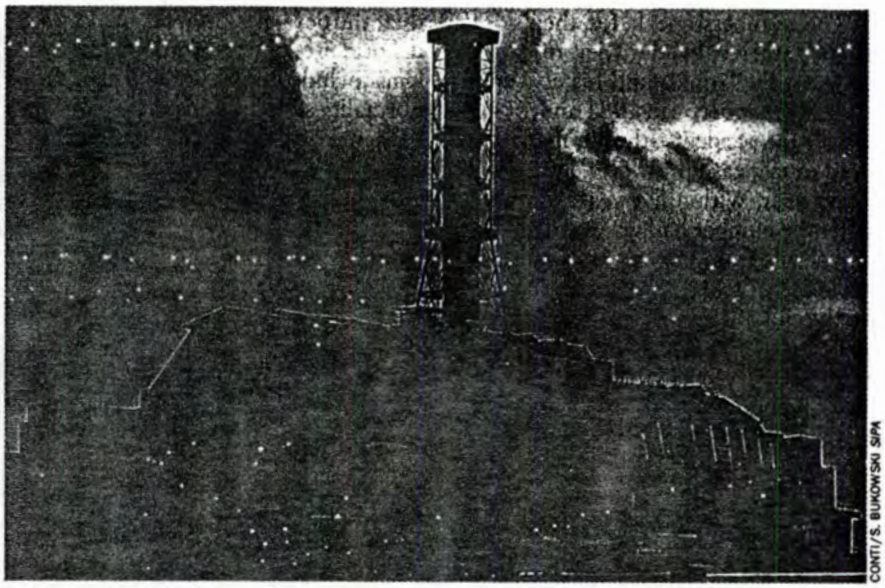


VLADIMIR SYOMIN

THYROID OPERATION will remove the cancerous gland from a patient in an attempt to prevent the spread of the disease. The operation, carried out at the Kiev Institute of Endocrinology's cancer clinic, is the only treatment for cancer of the thyroid. The patient will then have to take thyroid hormones for the rest of his life to replace those no longer produced in his body.



IGOR KOSTIN/IMAGO *Sygma*



CONTI/S. BUKOWSKI *SIPA*

BURNED-OUT REACTOR was photographed from the air not long after the disaster (*left*). A concrete-and-steel sarcophagus was hastily built (*right*) to contain dangerous radioisotopes; it is now decaying at an alarming rate. An international consortium proposes to surround it with a stronger structure, but construction would cost about $300 million and take five years.

ary, woodland people, and *polishchuks,* inhabitants of the Polissya region. Unique architectural features and other artifacts of their spiritual and material culture have been effectively lost as abandoned towns and villages have fallen into disrepair. Much of the beautiful landscape is now unsafe for humans.

The Ukrainian government, which is in a severe economic crisis, is today obliged to spend more than 5 percent of its budget dealing with the aftermath of Chornobyl. The money provides benefits such as free housing to about three million people who have been officially recognized as having suffered from the catastrophe, including 356,000 liquidators and 870,000 children. Ukraine has introduced a special income tax corresponding to 12 percent of earnings to raise the necessary revenue, but it is unclear how long the government can maintain benefits at current levels.

Today the Chornobyl zone is one of the most dangerously radioactive places in the world. In the debris of the ruined reactor are tens of thousands of metric tons of nuclear fuel with a total radioactivity level of some 20 million curies. The radiation level in the reactor itself, at several thousand roentgens per hour, is lethal for any form of life. But the danger is spread far and wide. In the 30-kilometer zone surrounding the reactor are about 800 hastily created burial sites where highly radioactive waste, including trees that absorbed radioisotopes from the atmosphere, has been simply dumped into clay-lined pits.

These dumps may account for the substantial contamination of the sediments of the Dnieper River and its tributary the Pripyat, which supply water for 30 million people. Sediments of the Pripyat adjacent to Chornobyl contain an estimated 10,000 curies of strontium 90, 12,000 curies of cesium 137 and 2,000 curies of plutonium. In order to prevent soluble compounds from further contaminating water sources, the wastes must be removed to properly designed and equipped storage facilities—facilities that do not yet exist.

Cost of Cleanup

The two reactors that are still in operation at the Chornobyl plant also pose a major problem (a fire put a third out of action in 1992). These generate up to 5 percent of Ukraine's power; the nuclear energy sector altogether produces 40 percent of the country's electricity. Even so, Ukraine and the Group of Seven industrial nations last December signed a formal agreement on a cooperative plan to shut down the whole Chornobyl plant by the year 2000. The agreement establishes that the European Union and the U.S. will help Ukraine devise plans to mitigate the effects of the shutdown on local populations. It also sets up mechanisms to allow donor countries to expedite safety improvements at one of the reactors still in use. In addition, the agreement provides for international cooperation on decommissioning the plant, as well as on the biggest problem of all: an ecologically sound, long-term replacement for the sarcophagus that was built around the ruin of reactor number four.

The 10-story sarcophagus, which is built largely of concrete and large slabs of metal and has walls over six meters thick, was designed for a lifetime of 30 years. But it was constructed in a great hurry under conditions of high radiation. As a result, the quality of the work was poor, and today the structure is in need of immediate repair. Metal used in the edifice has rusted, and more than 1,000 square meters of concrete have become seriously cracked. Rain and snow can get inside. If the sarcophagus were to collapse—which could happen if there were an earthquake—the rubble would very likely release large amounts of radioactive dust.

In 1993 an international competition was held to find the best long-term solution. Six prospective projects were chosen for further evaluation (out of 94 proposals), and the next year a winner was selected—Alliance, a consortium led by Campenon Bernard of France. The consortium's proposal, which entails the construction of a "supersarcophagus" around the existing one, unites firms from France, Germany, Britain, Russia and Ukraine. The group has already conducted feasibility studies. If the project goes forward, design work will cost $20 million to $30 million, and construction—which would take five years—upwards of $300 million. Final disposal of the waste from the accident will take

30 years. One possibility being explored is that the waste might be encased in a special glass.

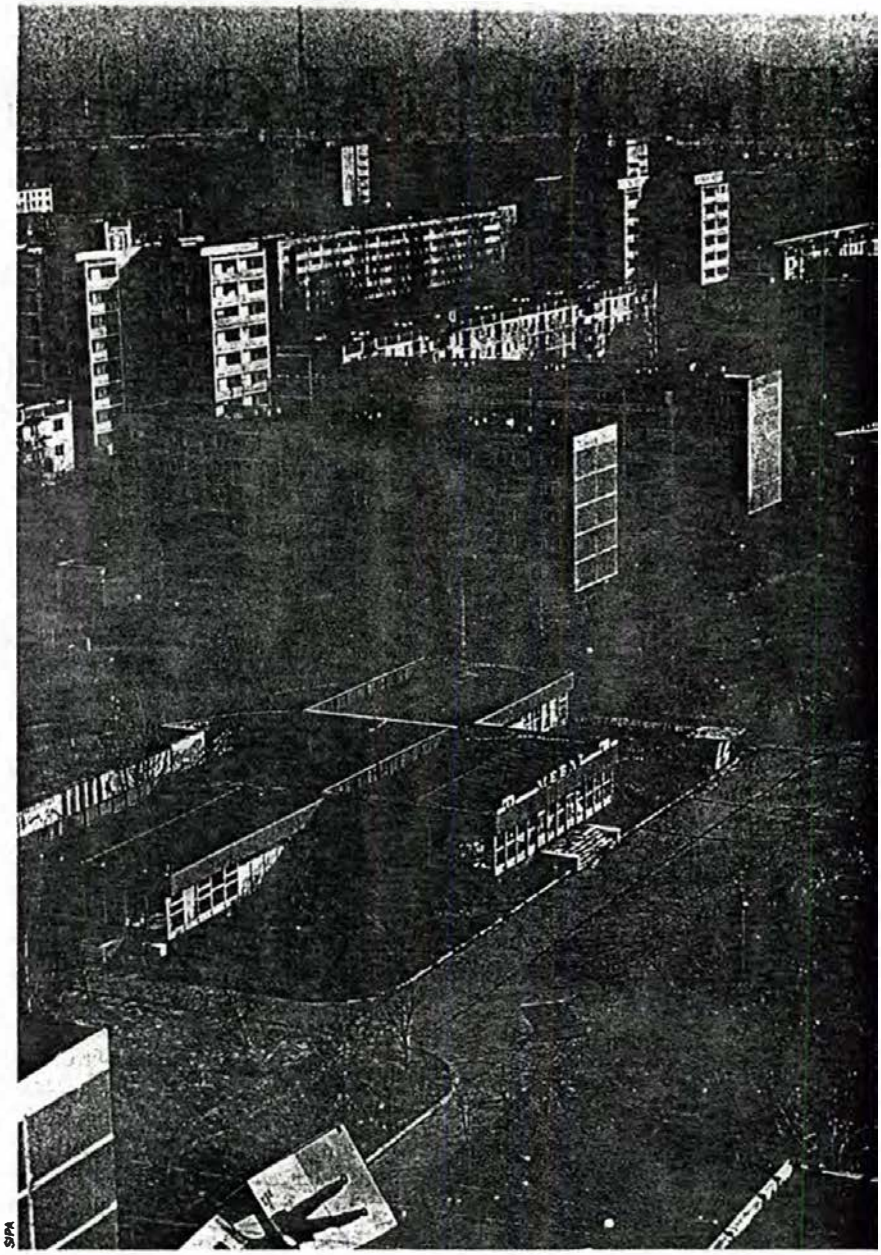
Chornobyl was not simply another disaster of the sort that humankind has experienced throughout history, like a fire or an earthquake or a flood. It is a global environmental event of a new kind. It is characterized by the presence of thousands of environmental refugees; long-term contamination of land, water and air; and possibly irreparable damage to ecosystems. Chornobyl demonstrates the ever growing threat of technology run amok.

The designers of the plant, which did not conform to international safety requirements, are surely culpable at least as much as the operators. The RBMK-1000 is an adaptation of a military reactor originally designed to produce material for nuclear weapons. There was no reinforced containment structure around the reactor to limit the effects of an accident. That RBMK reactors are still in operation in Ukraine, Lithuania and Russia should be cause for alarm.

The disaster illustrates the great responsibility that falls on the shoulders of scientific and other experts who give advice to politicians on technical matters. Moreover, I would argue that the former Soviet Union's communist leadership must share the blame. Despite then President Mikhail S. Gorbachev's professed support for glasnost, or openness, the regime hypocritically closed ranks in the aftermath of the tragedy in a futile and ultimately harmful attempt to gloss over the enormity of what had occurred.

The event offers a vivid demonstration of the failures of the monopolistic Soviet political and scientific system. The emphasis under that regime was on secrecy and on simplifying safety features in order to make construction as cheap as possible. International experience with reactor safety was simply disregarded. The calamity underscores, further, the danger that nuclear power plants could pose in regions where wars are being fought. Of course, all such plants are potentially vulnerable to terrorist attack.

Chornobyl has taught the nations of the world a dreadful lesson about the necessity for preparedness if we are to rely on nuclear technology. Humankind lost a sort of innocence on April 26, 1986. We have embarked on a new, post-Chornobyl era, and we have yet to comprehend all the consequences.



GHOST TOWN: Pripyat, a once vibrant city of 45,000, was home to many of the workers from the Chornobyl plant. It was evacuated after the accident and remains deserted.

The Author

YURI M. SHCHERBAK is ambassador of Ukraine to the U.S. He graduated from Kiev Medical College in 1958 and has advanced degrees in epidemiology. Besides having published extensively in epidemiology and virology, he is the author of 20 books of poetry, plays and essays. In 1988 Shcherbak founded and became leader of the Ukrainian Green Movement, now the Green Party. In 1989 he won a seat in the Supreme Soviet of the U.S.S.R., where as an opposition leader he initiated the first parliamentary investigation of the Chornobyl accident.

Further Reading

CHERNOBYL: A DOCUMENTARY STORY. Iurii Shcherbak. Translated by Ian Press. St. Martin's Press, 1989.

CHORNOBYL: LIVING WITH THE MONSTER. Mike Edwards in *National Geographic*, Vol. 186, No. 2, pages 100–115; August 1994.

RADIATION AND HUMAN IMMUNITY [in Russian]. Sergei Komissarenko. Naukova Dumka, Kiev, 1994.

CARING FOR SURVIVORS OF THE CHERNOBYL DISASTER: WHAT THE CLINICIAN SHOULD KNOW. Armin D. Weinberg et al. in *Journal of the American Medical Association*, Vol. 274, No. 5, pages 408–412; August 2, 1995.

• MELANNE VERVEER •

To Lissa —

We also need to
have a sound
bite intro
of Gore

April 26, 1996 2:42PMPM/Spalter

MELANNE -- AS PROMISED:

Remarks by Vice President Al Gore
10th Anniversary of Chornobyl Memorial
The White House
April 30, 1996

Let me begin by thanking you, Mrs. Clinton, for that nice introduction and for your moving words. We are all in your debt for all the hard work you do to ease the pain and lift the lives of so many people around the world. Your deep concern for the future of the peoples of Ukraine, Belarus and Russia as well as all those who were affected by this tragedy has touched the hearts of all of us here today.

(ACKNOWLEDGMENTS FROM ADVANCE)

Ten years ago, when reactor #4 of the Chornobyl nuclear power plant disintegrated in blast of steam, flaming graphite, and deadly radionuclides, the promise of spring gave way to long, sad winter of unspeakable suffering that still remains with us to this day.

From that moment on, life for all of us around the world would never be the same.

The Chornobyl tragedy caused the complete social disintegration of whole communities. It caused dangerous radiation exposure of over half million courageous men and women involved in the clean-up and medical care of survivors. In all, well over 50 million curies of radioactivity were released during the accident. This is more than one hundred times the radiation emitted by the atomic explosions over Hiroshima and Nagasaki -- about one million times as much as the Three Mile Island accident of 1979.

And the effects are still with us today. They are measured in the anxiety of young Ukrainian and Belarusan and Russian parents who hope and pray that their newborns will grow healthy and whole. They are measured by the degraded natural resources that trace a poisoned arc across Ukraine, through Belarus, into Russia, and reaching as far as Scandinavia. They are measured by the uncertainty that we all share about whether another Chornobyl someday might explode.

But as Mrs. Clinton so eloquently reminded us, out of this mire of tragedy also has emerged great stores of hope, and deep reservoirs of resolve. Selfless men and women -- thousands and thousands of them -- risked their lives to protect those of others. And courageous leaders like you here today are working tirelessly to relieve suffering. We salute you, and we honor you for your heroic efforts.

Let there be no doubt: all Americans stand with you. President Clinton is determined to do whatever we can to overcome this tragedy, and to ensure the that all reactors everywhere are

safer, cleaner, and forever free from the sort of catastrophe we remember on this important anniversary.

That's why in the past two years, the United States has delivered one hundred of tons of medical supplies to the hospitals of Ukraine, Belarus and Russia. In cooperation with several visionary private voluntary organizations, we've launched Operation Provide Hope to send critical supplies to maternity hospitals and cancer wards throughout the region. We've also launched through USAID innovative partnerships between American and Ukrainian health providers to improve the efficiency and quality of health care in Ukraine. And our National Cancer Institute, together with the Nuclear Regulatory Commission and the Department of Energy are hard at work examining the health effects of the accident on children and clean-up workers so that treatment and care might be improved. And just a few days ago, on April 26th, we delivered over twelve million dollars in additional aid and medical relief, including a mobile laboratory to enable Ukraine's government to monitor radiation and environmental contamination throughout the country.

But that's not all. Only a few weeks ago, we watched proudly as President Clinton joined his G-7 and Russian counterparts at the nuclear summit in Moscow to work towards the day when no Chornobyl can ever happen again. During this summit, President Kuchma announced his commitment close one of the two remaining Chernobyl reactors by the end of this year. Already we've provided $61 million in direct assistance to Ukraine to help promote greater nuclear safety. As we speak, our experts are working side by side with their colleagues in

Ukraine to improve the safety of their nuclear plants and to strengthen its nuclear regulatory body.

And as importantly, as part of a broader energy efficiency initiative now underway, we've also been working with the great industrial nations -- known as the G-7 -- to help Ukraine honor its commitment to close and clean-up the Chornobyl reactor sites, and to reduce its fuel bill by $1 billion every year by the year 2000. I am pleased to note that at the Moscow nuclear summit, President Kuchma pledged to close one of the two Chornobyl reactors by the end of the year which is well ahead of schedule. But we still have much work before us.

Can we meet these goals? I believe we can, but there is great deal of funding still required. And there are numerous logistical details to work out. Yet underlying all these efforts is our strong belief that the people of Ukraine have the resilience, the will, and the fortitude to get the job done, and throw off the yoke of their Soviet legacy once and for all.

One just needs to look at the breadth and pace of economic reform underway in Ukraine, at the extraordinary spirit of the Ukrainian people, and at the steady leadership of President Kuchma to know Ukraine, perhaps as no other country with Soviet-era reactors, can sustain the effort needed to modernize its energy system and face the future free from the burdens of its Soviet past.

Chornobyl, after all, wasn't simply mistake of science. It was caused first and foremost by man. It was product of closed authoritarian system that had little concern for the welfare of its people. The Soviets failed to design safe nuclear plant. They failed to operate it safely. When it disintegrated, they failed to contain the damage, and failed to evacuate and decontaminate promptly. And in the end, they failed utterly to be honest about what happened.

In retrospect, I think it was no surprise that just like the faulty nuclear reactor it created, the Soviet system also imploded into ash and dust. Chornobyl -- perhaps more than any other symbol of Communist era, exposed the weakness and corruption of the Soviet system. As Secretary of State Christopher rightly said when he visited Kiev last month, and I quote, "one of the surest safeguards against another Chornobyl is skeptical, open, democratic, questioning society."

This, perhaps, is the most enduring lesson of Chornobyl -- a lesson we'd do well to remember on this anniversary: that only in freedom can people claim their rightful destiny to live in safety and security. Only in freedom can people insist on public health systems that work and on natural resources that are safeguarded and protected. Only in freedom can people say and mean "no" if arrogant bureaucracies of the sort that ran rampant in the Soviet Union ever again try to make dangerous decisions about dangerous technologies.

Today, at long last, the people of Ukraine and Belarus and Russia have enormous opportunities before them. The promise of democracy and reform burns brightly, and the dream

of a Europe no longer at risk of nuclear disaster slowly is becoming reality. But the future of reform is not certain. A grand struggle is underway between those who would move forward, and those who would retreat back. President Clinton and I -- and each of us here today -- are not neutral bystanders. We know which forces we want to prevail. And we have a stake in their prevailing. We have the capacity through economic assistance, through the generous private and voluntary efforts, and through rigorous diplomacy, to help them do so. And I know we will not fail, that we shall never waiver.

Thank you all very much.

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY

Washington, D.C. 20451

OFFICE OF
THE DIRECTOR

FAX TRANSMISSION

DATE: 4/3

TO: Melanne Verveer

FAX #: 456-6244

Telephone #: 456-6266

FROM:

Taras A. Bazyluk
Speechwriter and Aide to the Director

U.S. Arms Control and Disarmament Agency
Washington, D.C. 20451

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Office (202) 647-9610
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Comments:

- As discussed.
- Talk to you soon.

This Fax transmission consists of 6 **pages, including this transmission cover sheet.**

4/3/96

Re: Draft Remarks for Chornobyl Event

Melanne -

As you'll see from the attached text -- and footnotes -- I've put a good deal into this. That guarantees nothing. But I would be pleased if this could have nearly the influence on the final product that my draft Presidential Message had on that one (thanks, of course, to the skilled input and stewardship throughout of Carlos, Victoria, and Chip Blacker).

Please take a hard read, see what you think, and pass this on to the First Lady's speechwriter[s] with your considered views.

I remain convinced in my bones that this event, covered and replayed in the community as thoroughly as it will be, can be immensely valuable in bringing Ukrainian-American (and related) voters home to Pappa in November. The policies to merit that are already in place. So what I've focused on here is the music as well as the lyrics -- emotion as well as policy.

Please give particular thought to endnote 2 and the four-word Ukrainian saying that climaxes that section of the speech. I know religious references present special difficulties. But this section as a whole has been crafted to be inclusive and even-handed, and to dovetail with the encompassing themes of the First Lady's recent travels and the reconciliatory spirit of her Bosnia event remarks. And there's no doubt its emotional/political payoff with Ukrainian-Americans throughout the country would be worth the effort -- akin to the President ending his Kiev speech with the words, "Slava Ukrainiy" [Glory to Ukraine]. (I've consulted very discretely on this point with my family and a few trusted sounding boards in the community. And such a move becomes all the more rewarding and advisable if the bandura music is out.)

In any event, please do keep me engaged in the process -- for I tend to be an even better editor than drafter ... and to pay special heed to the "plays well with others" part of the report card. Nor does my usefulness depend on this draft being used as directly as my input for the Presidential Message.

I would have fussed with this draft even more, but time is short (and I must leave early tonight to attend, as it happens, a Passover Seder with friends). So I'll probably fax additional thoughts to you tomorrow or Friday -- and of course will stay in close touch on Alex Kuzma's remarks.

- ***Terry***

Draft Remarks for the First Lady for April 10 Chornobyl Event

Welcome to the White House for our commemoration of the tenth anniversary of the Chornobyl nuclear tragedy.

This is an event of profound mourning -- and also [, of] profound hope. Mourning, of course, because the people of Ukraine, Belarus, Russia and the world have suffered such grievous losses as a result of the explosion and fire at [Unit 4 of the] Chornobyl [Nuclear Power Plant early on the morning of April 26, 1986]. We pray for those who lost their lives at Chornobyl, and for all who still suffer its continuing effects, particularly the children.

But this is also a celebration of hope -- because of all that Americans and people the world over have done over the past decade in response to this unfolding tragedy. They -- you -- have answered the worst of man-made catastrophes with the best in human nature.

Even before the disaster's full magnitude was revealed, offers of humanitarian assistance began pouring in. And in the years since, their efforts have been [no less than] inspiring.

The private voluntary organizations represented in this room have supplied well over 1000 tons of medicines, medical equipment and supplies, valued in excess of $100 million dollars, to the affected people in Ukraine, Belarus, Russia, and elsewhere. They have established special[ized] hospitals for the children of Chornobyl and their elders afflicted with thyroid cancers, leukemia, and other disorders stemming from the tragedy. They have brought doctors to the former Soviet Union and patients to the United States for special care.

Other organizations present tonight have focused on the disaster's environmental consequences. Others still are helping governments address the daunting public health challenges in the affected region[s]. A number have helped study and evaluate the disaster's long-term effects. In these and other ways too numerous to mention, the private volunteer community continues to focus the world's conscience on the consequences and lessons of Chornobyl.

Of course, these private efforts often have spurred and augmented government efforts. They have helped give rise, for example, to constructive U.S. Government programs to supply medicines and treatment for those who continue to suffer, and to study the tragedy's [lasting] effects. Here, as elsewhere, private-public partnerships have leveraged resources and transcended limitations.

You will hear more about the PVO initiatives later -- from the head of a coalition of relief organizations [and

representative of one that itself has [gotten] [moved] more than 700 tons of aid to the children of Chornobyl and their elders].

But first I want to make an overarching point about such efforts. For more important than the tons of medicines and supplies they carry is the compassion they convey -- the healing message in every contact that the world will not forget or forsake the victims of Chornobyl.

This is a message of great importance. For we know that we will never know[,] exactly[,] how much harm has been caused by Chornobyl. Learned debates in the medical and environmental communities will continue to unfold as slowly and unpredictably as the effects of the accident itself.

What is certain is America's role -- not just as a [nation] [government], but as a community. For Chornobyl [, like Bosnia,] reminds us that the world looks to America not just for might but for right -- not just for military strength or economic generosity, but to uphold certain essential values. Democracy. Self-determination. Tolerance. Community. Freedom.

We do this as a country -- but we also do it as a people. America reaffirms her standing as a beacon for the world the same way a mother or father earns the trust of a child: by doing the right thing, even when it is not the easy thing, time after time.

It is our nature and destiny as Americans to do all we can [do] about Chornobyl. For us to do this is for America to be the country that so many of our parents and grandparents and forbears dreamed about when they [sought out] [set sail for] these shores.

And I am particularly proud to be an American when I look out across this room and consider all the diverse talents and noble efforts represented here. Your good works have earned our lasting admiration and gratitude. That so many of them can be attributed to [so-called] hyphenated Americans only underscores our strength as a nation: E Pluribus Unum -- from many, one.

This is a holy season -- for Catholic[s] and Protestant[s], Jew[s] and Orthodox.[1] Throughout the world, Christians are celebrating Christ's resurrection, and Jews are celebrating the Exodus of the Israelites from Egypt.

So this commemoration of Chornobyl's tenth anniversary comes at a particularly apt time. For the decade since Chornobyl has been a time of remarkable rebirth, renewal and emancipation -- for Ukrainians, [among others] [especially]. Having endured the catastrophe as a colony, their homeland has emerged as an independent, sovereign nation -- finally able to make its own decisions about Chornobyl. {{A prime example is President Kuchma's courageous determination to close the plant by the year

2000 -- a decision we all have reason to be grateful for, and to see through to fruition.}} These developments are making believers even of those who never dared dream we would be saying, not just with emotion, but with truth, "Chrisstoss Voskress -- Vosskressne Ukraina."[2]

But [of course,] the breadth of our gathering [here] [tonight] underscores that Chornobyl's meaning has spread far beyond any one [community] [ethnic or interest group]. For just as the disaster respected no borders, the response to it has demonstrated how effective we can be when we ignore arbitrary boundaries. Government to government, private voluntary organization to organization, person to person -- let us keep working toward the day when Chornobyl will be remembered not only as a tragedy, but as a signpost on the road to a safer world.

For the losses we mourn and the works we honor all call us to the same mission: to heal and nurture the victims ... to ensure their tragedy is never repeated ... to always counter fear with hope.

ENDNOTES:

1. For Catholics and Protestants, Easter this year is 3 days before the event; for Jews, Passover will have begun at sundown of April 3rd, and the holiday's 7th day will be the day of the event; for Orthodox Christians (a significant minority in the ethnic audience), Easter will be April 14th. So the event's falling on the 10th creates an opportunity to link the commemoration to very resonant holidays for the audience -- thus turning the event's distance from the actual anniversary of April 26th into the plus.

2. English transl: "Christ is risen -- so too will rise Ukraine."

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY

Washington, D.C. 20451

OFFICE OF
THE DIRECTOR

Lissa –
This just in from Terry Bazyluk – last page is add'l talking pts Nicole

FAX TRANSMISSION

DATE: 4/29

TO: Melanne Verveer
Nicole Rabner

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FROM:

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Comments:

Melanne –

As discussed. I'll be working here late tonight, if there's anything you want to discuss.

Cheers – and Chin up, we're almost there!

This Fax transmission consists of 3 pages, including this transmission cover sheet.

–Terry

4/29/96

Melanne -

Carrie and I thoroughly enjoyed yesterday; thank you. Attached are the three draft pieces of language you wanted, along with a fourth that is unsolicited.

* First, the last (item #4). With Easter and Passover well past, I've been struggling to come up with a winning cultural reference for the First Lady's remarks. Lecia Ukrainka's poem, "Contra Spem Spero," (Hoping Against Hope) has been suggested, but try as I might, it does not translate well. Yesterday's rousing concert finale, prefaced by the conductor's reference to the Ukrainian anthem theme, led me to give the attached item #4 a try. See what you and Alison think. Even if the anthem reference does not work in your judgment, a reference to the theme of endurance in Ukrainian history could be moving.

* Item #1 may be more than Alison wants, but I wanted to supply her with the facts that Shcherbak, an epidemiologist, was literally one of the first doctors on the scene at Chornobyl, and has been writing and speaking out forcefully about it ever since -- in Ukraine, in this country, and throughout the Ukrainian diaspora.

* Re the related (but inane) UCCA letter: Oy! I think you guys are handling just right with Blue Room, formal announcement, etc. If First Lady (and even VP) can convey familiarity with Shcherbak's Scientific American article and OSCE testimony last week, that emotionally is what the man most wants -- to know his ideas have gotten across to America's leaders. My sense of him is that he's a writer at heart (and knows that his English-language performances aren't quite there yet). The bracketed last sentence of item 1 is the essence of his insight to the West, he told me yesterday -- *and, by the way, the note on which he ended both his article and spoken testimony*. So to have the First Lady say this would, I believe, go a long way with him.

I worked up but ultimately rejected the below public words for the First Lady, as I just don't think they work. "Don't explain - don't apologize."

> {{{Had time permitted we would have been privileged to hear from Ambassador Shcherbak and both of his counterparts this afternoon. But I have benefitted nevertheless by reading Ambassador Shcherbak's article in [the current issue of] Scientific American, and his eloquent testimony last week before the Helsinki Commission.}}}

* Items 2 and 3 are self-explanatory; both run a bit long to provide background.

* Do use me for a sanity check of the final written text of the First Lady's remarks -- Alison will find my touch light. And I'll stay in close touch on Alex Kuzma's remarks for himself and Vova.

- Terry

1. Special Acknowledgment of Ambassador Shcherbak

We are [honored] [privileged] to have with us today the Ambassador of Belarus, Serguei Martynov; the Ambassador of Russia, Yuliy Vorontsov; and of course, Ukraine's Ambassador Yuri Shcherbak, a medical doctor who within days of the tragedy made Chornobyl his passionate cause, and has been its forceful advocate not only in Ukraine, where he founded and led the Green Movement, but through his [eloquent] [writing and speaking {out}] [words published and heard] in this country and throughout the world. [I agree with Ambassador Shcherbak's profound observation that with Chornobyl, humanity embarked on a new era -- and we have yet to comprehend all the consequences.]

2. Reference to Interfaith Prayer Service

*** And tonight at 7 o'clock, at St. John's Church just across Lafayette Park [from the White House], there will be a solemn interfaith, ecumenical observance of the 10th Anniversary {, jointly sponsored by Chornobyl Challenge '96, the Embassy of Ukraine, and the American Jewish Committee}.

3. Reference to Outpouring of Events

I think we've all been impressed and heartened over the past month by the outpouring of public [commemoration of] [attention to] the Tenth Anniversary of Chornobyl -- including many major conferences, religious observances and other events not just in this country, but throughout [Europe, South America and Asia] [the world]. That level of public and media attention is a tribute to Chornobyl's historic magnitude -- and [also] to the efforts of the people in this room. {You and your colleagues have helped ensure that Chornobyl will never be forgotten. Now we must ensure it will never be repeated.}

4. Ukraine's History is a History of Endurance

Ukraine's history is a history of endurance. Chornobyl [has] added a terrible [new] chapter. But from that crucible emerged a weakened Soviet Union, and just five years later [, thanks in part to courageous leaders like Ambassador Shcherbak,] an independent Ukraine. This response to adversity is what one would expect of a people whose national anthem sings of perseverance {-- of the dream and now reality of freedom that will never die}.

draft #1

FIRST LADY HILLARY RODHAM CLINTON
COLUMN FOR RELEASE MAY 1, 1996
TALKING IT OVER/CREATORS SYNDICATE

At first glance, Children's Hospital #4 in Minsk looks like many other hospitals I've visited around the world. ~~Doctors and nurses are doing their best to care for seriously ill children under circumstances that are far from ideal.~~ But there's a difference: This hospital treats children who have a variety of unusual illnesses that doctors say are the consequences of the Chornobyl nuclear disaster.

I visited the hospital two years ago and met some of the children whose lives were changed forever after an explosion and fire at the V.I. Lenin Atomic Power Plant in Chornobyl sent a deadly radioactive cloud over Ukraine, Belarus, Russia and parts of ~~northern~~ Europe.

Singing songs and sporting the green Boston Celtics baseball caps we had brought for them, the children greeted me in high spirits, despite their ailments. ~~The bald heads under some of the caps were the only obvious sign of their illnesses.~~ I wondered how many of the children would not have been in that hospital if it weren't for Chornobyl.

This week marks the 10th anniversary of the Chornobyl

disaster, a tragedy that continues to haunt us to this day. In the vast wasteland around Chornobyl, villages remain abandoned, the protective cover around the reactor is ~~leaking~~ crumbling, rivers are contaminated, and rich farmland is still unusable. I remember being warned not to eat ~~a grape~~ fruit in Minsk because the soil it came from might be radioactive.

These are the obvious after-effects of Chornobyl. But what makes this tragedy unique is that so much of the damage is still unknown. It will take years, if not decades, to ~~see~~ discern the explosion's ultimate impact on the environment, the food chain, and human genetics.

Doctors and nurses in Minsk told me that they were seeing increasing rates of respiratory illness, heart disease and birth defects, as well as abnormally-high rates of thyroid cancer and other thyroid diseases in children, diseases that before the explosion, rarely appeared in people so young. Those rates are expected to climb since cancers that result from radiation exposure often do not develop for 10 to 20 years.

At the Left Bank Center for Maternal and Child Health Care in Kiev, about 60 miles from Chornobyl, expectant mothers told me they ~~were~~ worried about whether their children would have birth defects associated with exposure to the radioactive fall-out that reached as far away as Germany and Scandinavia. ~~During my visit~~

there in 1995. I also heard about infertility and other reproductive problems. [Belarus and the Ukraine are the only two countries in Europe that experienced negative population growth, according to a 1994 U.N. study].

If there is any good news from the ten years since the Chornobyl explosion, it is that so many people around the world are helping the people of Ukraine, Belarus and Russia recover.

In Belarus, I met American doctors from Children's Hospital of Pittsburgh who are teaching their Belarusian colleagues new ways of treating their patients. I watched Belarusian soldiers deliver large boxes of blankets, syringes, bandages and medicines through Operation Provide Hope, a U.S. military program that sends surplus medical supplies to the former Soviet Union. I helped pass out crayons and coloring books donated by American companies. They, and many other health and relief workers like them are the brighter half of the Chornobyl story.

As part of Chornobyl Challenge '96, a coordinated effort to commemorate the disaster and to raise money for relief programs, Vice-President Gore and I are hosting a reception in the White House to honor the humanitarian organizations, businesses, doctors, scientists, spiritual leaders, and private citizens who, often at risk to their own health, have spent the last decade aiding the victims of Chornobyl.

Private foundations such as the Children of Chornobyl have raised money, medical supplies and equipment to send to the affected areas. They are raising awareness about Chornobyl, helping all of us understand the disaster's global proportions. And they have flown some of the youngest victims of Chornobyl to the United States for more advanced treatment.

One of those children is 11-year old Vova, who came to the U.S. from ~~the~~ Ukraine in 1990 for medical treatment for ~~xx.~~ leukemia.

"We should not forget the many children who need our help, who are not as lucky as I have been," he says. "Please do not forget Chornobyl."

The little Ukrainian boy reminds us that he and children like him -- the children of Chornobyl and children everywhere whose health and lives have been devastated through no fault of their own --were and always will be our common responsibility.

After all, we are all members of the human family.

###

~~Essay~~

Poem / Silence
Quotes

Russian hospitals so different
I never children as sick as kids in our hosp
Child ≠ Mask, Kiev + Moscow were by
treated for cancer but they didn't look
that sick
Orthodox Jews / They didn't look sick

Opening 6 see row after row ~~big~~ kids
w/ their mothers

Bri supplies
Crayons - ~~Kiev~~

Doctors told us abt # of kids

Obvious + hidden damage
Not like a bomb is Okla + we know
when it's done

This is a slow steady deterioration
of the food chain, genetic stuff.

Ask Pam / WH Photographs of Rose visits

2/2

that, assisted by the Soviet coverup of the accident, it produced a wave of thyroid cancer, especially in children. Various counts record 500 to 600 cases in Belarus, Ukraine and Russia—a rate 100 times greater than before Chernobyl—and researchers have said they expect hundreds more.

The cancer was caused when radioactive iodine from the burning reactor was absorbed into people's thyroid glands. The spread could have been avoided or reduced had Soviet officials immediately confessed the release of radiation and distributed potassium iodide tablets—or simply told parents to prevent their children from drinking milk, which had become radioactive.

More cancer could arise. "A lot of the cancers we fear [such as solid tumors] take longer than 10 years to appear," said Serhei Komissarenko, an immunologist who is Ukraine's ambassador to Britain. "So we don't yet know" what the cancer toll will be.

Komissarenko and others worry especially about the hundreds of thousands of people who have worked in the most contaminated zone over the past decade to clean it up. Some studies have reported increased cancer among groups of such workers, called "liquidators," but many researchers have said the analyses are too limited. The liquidators are scattered across the former Soviet Union, making surveys difficult.

The Role of Fear

It is fear, more than radiation, that clearly has devastated Chernobyl's victims. Doctors report increases in ulcers, high blood pressure and stress-related diseases.

A recently published Dutch study of people in Gomel, a heavily irradiated city in southern Belarus, found that people there had somewhat poorer health than a similar sample from a Russian town unaffected by Chernobyl. But the Gomel residents perceived their health as being much worse. For Chernobyl victims, "minor everyday symptoms have become potential heralds of serious radiation-induced disease," the study said.

A source of fear is that most of Chernobyl's victims have no idea how much radiation they received. The liquidators risked widely varying degrees of exposure. In the early days, when radiation was high, officials sent thousands to work without measuring their exposure, or understated the levels they absorbed.

"I don't know how much I got," said Nikolai Karpenko, who drove a bus around the Chernobyl plant in the months after the accident. Like a person who has been exposed to HIV, the virus that causes AIDS, "I only know that maybe, I could get sick and die," Karpenko said. He snapped his fingers. "Just like that."

The fear of sudden, deadly disease is only one parallel between Chernobyl's ills and those of AIDS. For thousands who absorbed high radiation doses, the syndrome that has been dubbed "Chernobyl AIDS" is medical as well as psychological.

Komissarenko studied Soviet soldiers who suffered radiation doses of up to 25 rems while cleaning up Chernobyl's radioactive debris. "At the time [the Soviet army] thought this was a completely safe dose," said Komissarenko, but it damaged the soldiers' immune systems by killing large numbers of a type of white blood cell that fights off cancers and infections.

The Chernobyl syndrome "is just another kind of acquired immunity deficiency," said Komissarenko. "Only, instead of being caused by a virus, it's caused by radiation."

The psychological stress of Chernobyl's ills is magnified because people were exposed to medical risk not through their own carelessness but through official corruption. The Soviet coverup "greatly magnified the psychology of fear," said Likhtansky. "People saw that they lied about something so enormous. Well, then they could lie about anything."

Chernobyl "has hurt us in just the way that Soviet rule did," said Hanna Prokopchuk, a farmer living in an irradiated village west of Chernobyl. "It made people feel that we can do nothing for themselves—that we must only sit and wait for our fate."

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Nuclear Blight Invades Minds as Well as Bodies

Despair Taking Severe Toll On Chernobyl Survivors

First of two articles

By James Rupert
Washington Post Foreign Service

KIEV, Ukraine—It is April again in the densely forested plains of northern Ukraine. Snow has melted from the fields but still is piled in the backwoods. Long strings of geese fly northward against the overcast sky.

And in softening air and soil, 10-year-old radioactive dust silently decays, poisoning the land. It has been a decade since Reactor No. 4 at the V.I. Lenin Atomic Power Plant in Chernobyl exploded in a ball of flame, blasting its radioactive viscera into the night sky.

For two weeks, the reactor burned, spewing a radioactive cloud that destroyed ecology and economy across a broad swath of Eastern Europe, attacked the health of hundreds of thousands of people—and jolted the crumbling Soviet Union further toward collapse. The radioactivity contaminated food supplies across Europe and sifted to Earth as far away as California.

Chernobyl suddenly became a symbol of the failures of Soviet power, the dangers of nuclear enterprise and a new intimacy of the planet, in which anyone could be touched by the mistakes of a nuclear operator a continent away. The world recoiled from nuclear technology as governments and utilities scrapped scores of planned nuclear power reactors.

Ten years later, here in the lands around Chernobyl, the catastrophe still shapes the lives of millions of people. Dead zones of poisoned farmland and ghost towns stretch across Belarus, Ukraine and Russia like splotches of blight on a leaf. A post-Chernobyl wave of illness is rising, its scale and precise causes still unclear.

It is uncertain just how badly Chernobyl's radiation has hurt the millions it touched—but it is evident that its greatest crippler is in the minds of its victims. As described by victims and witnesses, Chernobyl seems a concentrate of the Soviet experience—paralyzing people with a deep sense of fear, apathy and helplessness.

Intertwined with Chernobyl's radiation, two legacies of Soviet rule immeasurably deepen both fear and despair. They are the poverty left by the Soviet Union's economic collapse and the mistrust left by its coverup 10 years ago of the nuclear fire.

Radiation plus poverty not only destroyed people's homes and jobs, "it snuffed out their desire to live," said Valentina Shpirko, an orderly at a hospital in Narodichy, an irradiated, dying town about 40 miles west of Chernobyl. Most of the patients there last week were elderly people uprooted from their homes and lives by Chernobyl's radiation. Without jobs or families to support them, "a lot of them come here almost daily, just to have some food and talk to someone," said a doctor at the hospital.

"Much more than the radiation, Chernobyl's greatest damage has been to make people feel afraid and lied to," said Henrich Likhtansky, a psychologist from Ovruch, another contaminated district in northern Ukraine. People are afraid that they will get sick, he said, "and ultimately, this makes them sick."

Hopelessness, paralysis and poverty combine, in Chernobyl's footprint, to sap the will just as surely as radiation attacks the body. "This is the worst," said Likhtansky. "They stop even trying" to solve their problems.

Nuclear Negligence

In 1986, Chernobyl was a showcase of the Soviet Union's proud nuclear industry. With four reactors running and two more under construction, it was planned as one of the country's largest power plants. But the design of its reactors, called RBMKs, was deeply flawed. They had relatively few safety systems and tended to be unstable, especially at low power.

After midnight on April 26, 1986, the operating crew of the No. 4 reactor began a scheduled test of the reactor at low power. The shift supervisor, who according to colleagues had little understanding of nuclear reactors or the RBMK's quirks, illegally ordered the reactor's emergency cooling systems shut off to facilitate the test.

The idling reactor suddenly screamed to many times its maximum permitted high power, like a car with its throttle stuck wide open. With no emergency system to cool it, the nuclear core erupted in a fireball, blowing the top off the building and spewing a nuclear plume into a wind that carried it northwest across Europe.

Soviet officials kept the accident a secret until two days later, after Swedish diplomats raised questions. A Swedish nuclear power plant, monitoring its own workers for radiation, had detected contamination from Chernobyl.

Chernobyl-area residents who asked about the fire were told it was not dangerous and that radiation levels were acceptable. When decontamination troops were sent to the city of Pripyat, adjacent to the plant, residents were told it was a training exercise. People went shopping, played soccer and even attended outdoor weddings—all under heavy fallout. They absorbed high doses of radiation for 36 hours before officials began an evacuation. In other areas, protective measures were delayed for days more.

The Uncertain Count

The accident killed 31 people immediately, mostly those who battled the fire in its first hours. Beyond that figure, "it is hard to know, even approximately, how many people . . . have died" from the accident's effects, according to Yuri Shcherbak, a Ukrainian epidemiologist who has studied Chernobyl for years and now is Ukraine's ambassador to the United States.

At recent medical conferences in Belarus, Russia and Ukraine, researchers have placed Chernobyl's total death toll as low as 45. Shcherbak, writing in this month's issue of Scientific American, said a comparison of "mortality rates before and after the accident . . . has estimated a total of 32,000 deaths. . . . I believe a figure in this range is defensible."

The Chernobyl explosion spread 200 times more radiation than the combined atomic bomb blasts at Hiroshima and Nagasaki in World War II—and many medical specialists immediately predicted a massive plague of radiation-induced cancer in this region.

In recent years, the Belarusan and Ukrainian health ministries have reported a broad rise in disease, including respiratory illnesses, heart disease and birth defects. But some researchers say it is unclear which part of the increase is real, and which may be due to more aggressive health monitoring after Chernobyl.

A decade has been too brief and medical research too scattered to show how much of the region's illness is caused by radiation and how much by psychological stress, poorer nutrition, increased alcoholism or other factors.

One of the few clear effects of Chernobyl's radiation is

THE WASHINGTON POST
THURSDAY, APRIL 18, 1996

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10th Anniv

draft/js

FIRST LADY HILLARY RODHAM CLINTON
COLUMN FOR RELEASE MAY 1

Children's Hospital #4 is a lot like other hospitals I have visited in the former Soviet Union. It is a simple concrete building located in a residential neighborhood in Minsk, Belarus. The facilities are modest, with equipment that many American hospitals would call primitive.

Inside, doctors and nurses treat some of the children of Chornobyl. Two years ago, I had the opportunity to meet some of these ~~special~~ patients while my husband was attending a summit meeting. Sporting green Boston Celtics caps, (which had been donated by the basketball team), the children seemed happy. Though some of them had lost their hair to chemotherapy [check?], they did not seem desperately ill. Their apparent health was deceptive.

That is the tragedy of Chornobyl. Few people died instantly after a nuclear reactor in that Ukrainian city exploded, sending 200 times more radiation than the atomic bombs at Hiroshima and Nagasaki combined ~~over the Ukraine, Belarus, and Russia.~~ Yet many are who lived in ~~that~~ area are still suffering from illnesses that many doctors trace to their exposure to radiation from Chornobyl. Many more are still dreading the day when they, too fall ill.

Soviet officials did not notify the general public about the explosion for two days. So for two days after the explosion, citizens living nearby continued to go about their lives, eating food that was radioactive, walking to school, playing outdoors.

No one will ever be able to calculate the human toll of the explosion. Few scientists can agree on how many illnesses, birth defects, and other physical and psychological tragedies can ultimately be attributed to the radiation from the explosion.

In Minsk I met with doctors who told me that they are seeing increasing rates of respiratory illness, heart disease and birth defects, as well as abnormally-high rates of thyroid cancer and other thyroid diseases in children, diseases that before the explosion, rarely appeared in people so young.

I also met with some American doctors who are lending their time and expertise to Ukrainian and Belarussian hospitals....They are the brighter half of the Chornobyl story.

In Kiev last year, I met with many expectant mothers at a childbirth class. They told me of their anxieties about pregnancies and their children. add details here.]

Ten years after the explosion, there are miles and miles of

land that are still and perhaps never will be livable. The great Dnieper River is showing signs of contamination. The 10-story concrete "sarcophagus" built to contain the remains of Reactor # 4 is already leaking.

The Ukraine and Belarus, which have become independent nations in the years since the explosion, are still coping with Chornobyl's legacy. Seventy percent of the radiation from Chornobyl fell over Belarus.

And while the radiation largely befell the people of the Ukraine, Belarus and Russia, many throughout the world and especially here in the United States have realized that the tragedy of Chornobyl befell all of us.

This week, Vice-President Gore and I hosted a reception in the East Room of the White House to honor the humanitarian organizations, doctors, scientists, spiritual leaders, and private citizens who have spent the last decade helping the victims of Chornobyl.

Private foundations such as the [Alex Kuzma's group -- Children of Chornobyl?] have raised millions of dollars and medical supplies and equipment to send to the Ukraine and Belarus. Peace organizations such as xx have been working to "clean up" Chornobyl and devising ways to make sure a tragedy like Chornobyl never happens again -- in the Ukraine, in Belarus, in America, or anywhere. [more about US aid package, VP Gore's announcement at ceremony.]

And doctors from [all over this country?] have volunteered their time and traveled to treat patients in Belarus and the Ukraine. Still other organizations have flown some of the youngest victims of Chornobyl to Europe and the United States for more advanced treatment.

One of those children was 12-year old Vova, who has thyroid cancer. He came to U.S. from the Ukraine in 19xx and now lives in Connecticut[?] Vova spoke to us in the East Room... [more about Vova goes here]

Standing in the grandeur of the White House East Room, under the gigantic portraits of George and Martha Washington, the little Ukrainian boy reminded us all that he and children like him, the children of Chornobyl and children everyhere whose health and lives have been devastated through no fault of their own, were and always will be our common responsibility, members of the human family.

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draft/js

FIRST LADY HILLARY RODHAM CLINTON
COLUMN FOR RELEASE MAY 1

Children's Hospital #4 in Minsk treats about 10,000 sick Belarussian children every year.

I visited the hospital two years ago while my husband was attending a summit meeting. I was greeted by dozens of children sporting green Boston Celtics caps, (which had been donated by the basketball team) and others who sang and presented me with gifts they had made from paper and straw[?].

A special group of patients in the cancer ward moved me tremendously. Many had lost their hair as the result of their treatment. [check with Melanne to make sure she saw cancer patients -- discrepancy with AP story] They were children of Chornobyl.

It's been 10 years since the world's worst nuclear accident took place in Chornobyl, Ukraine. On April 26, 1986, Reactor #4 at the V.I. Lenin Atomic Power Plant exploded. Radioactive debris fell over 32,000 square miles of cities, villages, and rich farmland in the Ukraine, Belarus, and Russia, spreading 200 times more radiation than the atomic bombs at Hiroshima and Nagasaki combined.

Ten years after the explosion, there are miles and miles of land that is still and perhaps never will be livable. The great Dnieper River is showing signs of contamination. The 10-story concrete "sarcophagus" built to contain the remains of Reactor # 4 is already leaking. And doctors are still tracing many of their patients' illnesses to their exposure to the Chorbobyl radiation.

Soviet officials did not notify the general public about the explosion for two days. So for two days after the explosion, citizens living nearby continued to go about their lives, eating food that was radioactive, shopping at the market, playing outdoors.

No one will ever be able to calculate the human toll of the explosion. Few scientists can agree on how many illnesses, birth defects, deaths, and other physical and psychological tragedies can ultimately be attributed to the radiation from the explosion. Belarussian and Ukrainian doctors have reported increasing rates of respiratory illness, heart disease and birth defects, as well as abnormally-high rates of thyroid cancer and other thyroid diseases in children, diseases that before the explosion, rarely appeared in people so young.

In Kiev last year, I met with many expectant mothers at a childbirth class. They told me of their fears for their unborn children --[add details here.]

The Ukraine and Belarus, which have become independent nations in the years since the explosion, are still coping with Chornobyl's legacy. Seventy percent of the radiation from Chornobyl fell over Belarus.

And while the radiation largely befell the people of the Ukraine, Belarus and Russia, many throughout the world and especially here in the United States have realized that the tragedy of Chornobyl befell all of us, who are members of the human family.

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THE WASHINGTON POST
THURSDAY, APRIL 18, 1996

'Life Is Pretty Bad'

Post-Soviet Economic Collapse Traps Survivors in Contamination Areas

By James Rupert
Washington Post Foreign Service

LOZNITSA, Ukraine—Forty miles west of the Chernobyl nuclear power plant, Katya Zimukha shivered in a radioactive breeze outside her home near here last Wednesday. Pregnant, her arms crossed above her belly, she pondered the question: How is she?

Zimukha, in her twenties, lives with her husband and year-old son in this mostly abandoned village, which Ukraine's government says is too contaminated for habitation. But the government has no money to move them elsewhere, and they can't afford to on their own. So, with about 100 other people, the Zimukhas stay.

"We just survive. Life is pretty bad," Zimukha said eventually. She voiced no happiness at expecting another child.

Ten years after a reactor at Chernobyl exploded, spewing radioactive poisons into the air, Zimukha and her neighbors are among an estimated 270,000 people in Belarus, Ukraine and Russia who continue to live on seriously contaminated land, trapped here by the economic collapse of these former Soviet states. Among Chernobyl's millions of victims, they are the most hopeless.

People in this area live a dispirited half-existence that highlights how Chernobyl and the post-Soviet economic collapse have combined to cripple life in the region as much through poverty, fear and apathy as through radiation.

Forced to live where they are told it is dangerous, people have sought escape through their minds. Alcoholism is up. Many simply refuse to believe any longer in the endless warnings about radiation's danger and have stopped taking any precautions against it. Many elderly simply say simply that they are waiting to die.

The most heavily irradiated land, near the reactor, is an area Ukraine calls Zone 1 or "the zone of alienation." Only power-plant personnel and cleanup crews are supposed to enter, although a few hundred people, mostly elderly, have returned to live solitary lives in their old villages.

Surrounding it are somewhat less contaminated areas designated Zone 2—"the zone of guaranteed, obligatory resettlement." In this zone, many villages tucked amid the dense pine and birch forests are now eerie ruins—but others, such as Loznitsa, still cling to a kind of diminished life.

Loznitsa at first seems empty. Once-snug Ukrainian homes, built of squared-off logs, are silent and weed-grown, with only a discarded pair of shoes or a rusted pail to hint that people once lived there.

But here and there, a few wandering turkeys and dogs give evidence of a handful of inhabited homes. Occasionally, someone passes by. A two-room store opens for just a couple of hours each day.

In theory, Ukraine is building homes and schools in clean areas for the residents of irradiated zones. In Zone 2, it bars residents from farming, building or conducting business—activities that could continue to root people here or spread contamination outside the zone. The residents are told to live on state subsidies while they wait for evacuation.

For Zimukha's family, the state living allowance is only $18 a month—and, residents here said, the payments usually do not arrive. The government spends 5 percent of its budget for cleaning up Chernobyl's damage and addressing the needs of victims, but amid Ukraine's post-Soviet economic depression, that simply is not enough.

So residents of Zone 2 illegally grow radioactive gardens to stay alive. Some sell the produce in Ukraine's cities for desperately needed cash, people here said.

On a road east of Loznitsa, Volodya Litvinenko offered directions to a visitor. After a decade of talk, he does not want to hear any more of the government's warnings to stay out of the woods, where radiation is higher, or to avoid the mushrooms and berries to be gathered there. Life is difficult enough without giving up the natural luxuries that his homeland offers. "The mushrooms are there," he said. "I eat them. I eat the fish. If it creates any problem for me, the vodka will flush it out."

Many residents, once evacuated, find life in their new homes even more difficult. There may be no job, no school, no friends or family close by, so they simply move back. In Narodichy district, which includes Loznitsa, about 15,000 people have been evacuated—and about 4,000 have returned, said Svyatoslav Kolomychuk, who heads the district's medical service.

Zimukha has no idea how much radiation her body absorbed in the 1986 disaster, when she was a teenager—or in the decade since. Readings gathered by the government in districts west of Chernobyl indicate that the accumulated doses of radiation found in people here roughly doubled between 1987 and 1994.

In the first years after the accident, Narodichy became famous for hundreds of births of mutant farm animals, including two-headed pigs and an eight-legged horse. "This caused a lot of fear," said Oleksandr Tepletskiy, the pediatrician at Narodichy district's hospital. Government statistics show that in the contaminated zones, birthrates have plummeted to a fraction of Ukraine's norm.

In Narodichy district, analogous to a U.S. county, disease has increased sharply since the accident, Kolomychuk said. "Of 2,100 children in the district, 466 are sick with thyroid disorders," he said, "and we see more anemia and respiratory and infectious disease."

Kolomychuk blamed the wave of illness as much on the fear and poverty here as on radioactivity. "The radiation is bad. As a doctor, I want absolutely to move the people out of this area, especially the mothers and children," he said. But "at least as big a problem is these restrictions" on Narodichy, he said.

"The lack of resources here is going to last . . . for maybe 10 years," he said. "If the government can't move people out, it must lift the restrictions to give them some oxygen [and] let them make a living." He applauded a policy in Belarus that is letting people return to heavily irradiated lands and resume more nearly normal activities.

Oleksandr Misyuk, a Narodichy district administrator, said the town's leaders are lobbying in Kiev to have the town legally shifted to Zone 3, in which resettlement is "voluntary" instead of "obligatory," and economic activity is permitted. "The government simply will never have the means to completely evacuate Narodichy," he said.

FYI

NSCENE REPORT

'The Zone of Alienation'

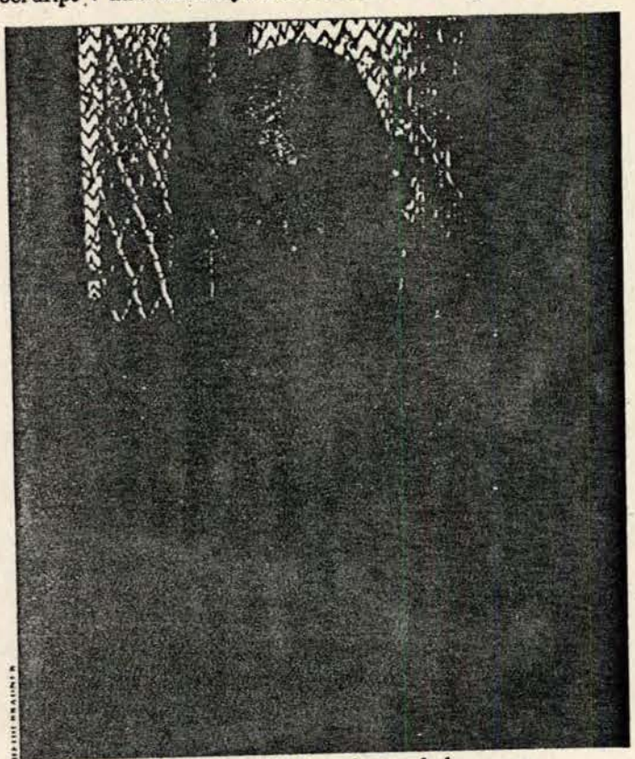
Ten years after the disastrous nuclear accident, people still live and work—and die—in Chernobyl

By Andrew Nagorski

THE MAIN DOOR, NEARLY BLOCKED BY overgrown bushes and weeds, rattles in the cold Ukrainian wind. The former day-care center's rooms are strewn with abandoned dolls, teddy bears, tiny shoes and slippers, shattered glass. Water from melting snow on the roof drips through cracks in the concrete ceiling. Between rows of metal cribs, child-size gas masks peer up from the floor where they fell during the rushed evacuation a decade ago. In the kitchen, beside a desiccated piece of bread, an open notebook displays its last entry, a grocery list dated April 25, 1986. At 1:23 the next morning, two miles away at the Chernobyl nuclear power facility, a test of the plant's emergency system caused a power surge in reactor number four. The resulting explosion and fire lit up the sky and spread a 32,000-square-mile swath of fallout across Ukraine, Belarus and Russia. Today an off-limits area 38 miles in diameter, officially called the "Zone of Alienation," surrounds the day-care center and the rest of the town of Pripyat, which had a population of roughly 50,000.

It was the worst civilian disaster in the history of nuclear energy—and could be repeated. Two of Chernobyl's four reactors remain in use, despite continuing safety problems. Severe cracks have been reported in the concrete sarcophagus that surrounds reactor number four. Yet thousands of people continue to live and work here. Roughly 500 of them have even moved back into their old homes inside the zone. And the Ukrainian government says it can't afford to close the plant and permanently seal the sarcophagus without billions in Western aid.

Would the job be worth such a price? Doctors in the region say the 1986 accident caused thousands of deaths from the lingering effects of radiation exposure. But at a conference in Minsk last month, medical researchers were shocked at the results of a European Union health study that said Chernobyl's toll has been wildly exaggerated. Although 760 children in the contaminated regions have developed thyroid cancer, the study said only three have died as a result. The study found no local increase in cases of leukemia, and one of the researchers dismissed as "very implausible" the notion that Chernobyl's radiation has caused significant numbers of deaths from other diseases.



Health worries: *Yevgeny, 12, from Slavutych, has cancer*

Local scientists insist the deaths—and the danger—are real. Yet in and around Chernobyl, people carry on a semblance of normal life. About 12,000 people work at jobs inside the zone. The nuclear complex's 5,000 employees commute daily from Slavutych, a town just outside the perimeter. Says Nikolai Lebakh, the editor of the local paper: "You can't think too much about the danger or you'll go crazy."

Most of the zone's 500 residents are elderly people who were evacuated but came back; the lure of home can be stronger than the fear of death. "I was born here, and I want to die here," says Maria Shovkuta, 67, who lives in the village of Opachychi. She raises chickens and grows her own potatoes; many villagers gather wild mushrooms in the woods with no apparent fear of the irradiated soil. A neighbor boasts of having traveled all the way to Kiev to sell her harvest there. Vasil Herashchenko, 69, loves the local mushrooms. Yet he points out house after house in Opachychi where returnees have died. More than 100 villagers have come back since 1986, and fewer than half are still alive. Is radiation exposure to blame for so many deaths? No one can be sure, particularly because the returnees tend to be older people.

Local doctors are more worried about the young. "We are seeing a weakening of the immune system in children," says Dr. Oleksandr Urin, the director of Pediatric Hospital 14 in Kiev. At local hospitals the rate of birth defects has more than doubled. Doctors have seen a few small patients suffering from liver and rectal cancer, malignancies not common in the very young. "These are isolated cases so far, but they are warning signals about what may follow," says Dr. Urin. The full magnitude of the problem could take another decade to emerge, he believes.

Some Westerners suspect officials in Ukraine and Belarus of trying to gain more foreign assistance by inflating Chernobyl's damage. Officials and doctors in the contaminated areas accuse the West of trying to minimize its humanitarian obligations—and its cash outlay—by underestimating the problem. At this week's summit in Moscow, the leaders of Russia and Ukraine meet with their counterparts from the world's leading industrial countries, the Group of Seven, to try to hammer out a price for closing Chernobyl completely. The Ukrainians say it will cost more than $4 billion to decommission the two remaining reactors and to seal off the damaged reactor properly. They say the G-7 countries will have to bear almost all of that expense—or the nuclear complex will continue to operate.

In strictly scientific terms, there may be only a shaky web of evidence implicating the Chernobyl accident in thousands of illnesses and deaths over the last decade. But that kind of detachment is a luxury far beyond the means of people who still live and work in the zone.

With Marta Kolomayets *in Kiev and* Betsy McKay *in Moscow*

SCIENTIFIC AMERICAN

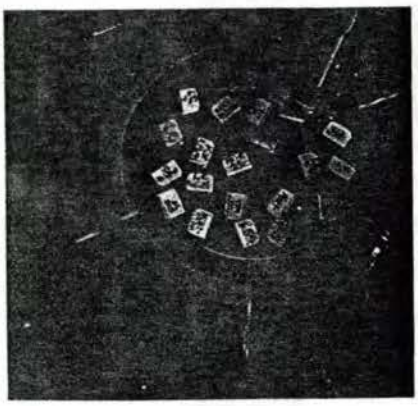
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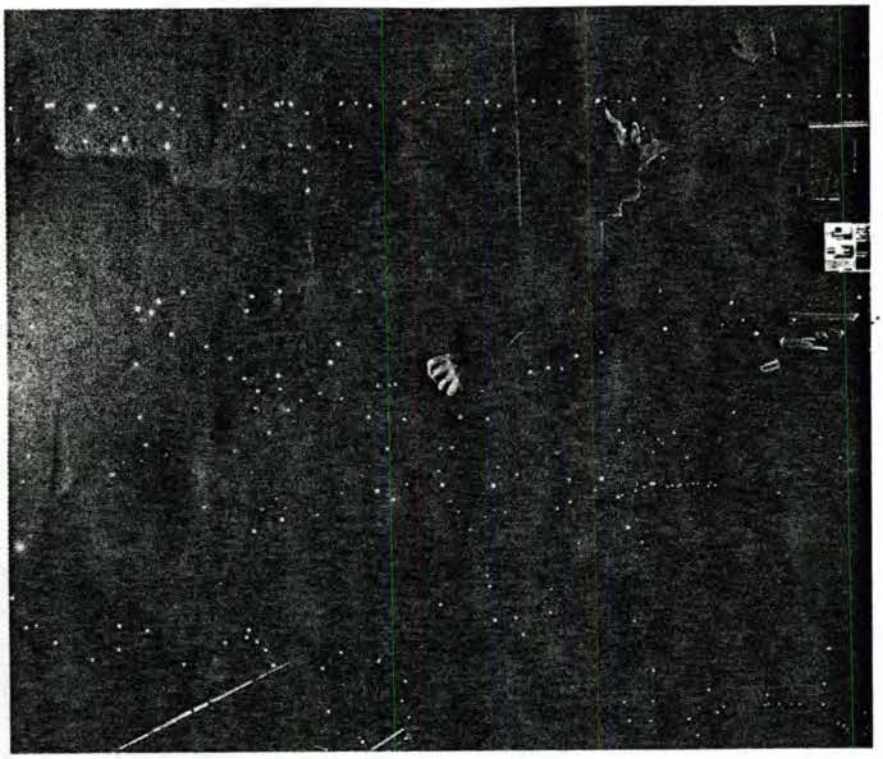
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Smart Rooms 68
Alex P. Pentland

The computer on your desk may soon become part of the walls of your office, the furniture in your home and the clothes on your back. Systems that can track people, recognize their faces, and interpret speech, expressions and gestures have become a reality. Using this technology, researchers are building "smart rooms" in which, free from wires and keyboards, people can browse multimedia displays, play with virtual animals or control programs by sign language.



CONFRONTING THE NUCLEAR LEGACY

Ten Years of the Chornobyl Era 44
Yuri M. Shcherbak

A decade ago reactor number 4 at the Chornobyl nuclear power plant exploded, showering much of eastern Europe with radioactive debris. The Ukrainian ambassador to the U.S., who was a medical researcher in Kiev and one of the first physicians to treat the wounded, looks at the medical aftermath of the accident. He also contemplates what additional technological and political measures need to be taken to contain the lasting danger. First in a series.

Ten Years of the Chornobyl Era

The environmental and health effects of nuclear power's greatest calamity will last for generations

by Yuri M. Shcherbak



GROCHOWIAK/KEPLICZ *Sygma*

"It seemed as if the world was coming to an end....I could not believe my eyes; I saw the reactor ruined by the explosion. I was the first man in the world to see this. As a nuclear engineer I realized all the consequences of what had happened. It was a nuclear hell. I was gripped by fear."

These words were written to me in 1986 by the head of the shift operating the reactor that exploded at the Chornobyl nuclear power plant in northern Ukraine. The explosion and a resulting fire showered radioactive debris over much of eastern Europe. The author of the words above, along with several others, was later jailed for his role in the disaster, although he never admitted guilt.

Subsequent official investigations have shown, however, that responsibility for this extraordinary tragedy reaches far beyond just those on duty at the plant on the night of April 25 and early morning of April 26, 1986. The consequences, likewise, have spread far beyond the nuclear energy industry and raise fundamental questions for a technological civilization. Before the explosion, Chornobyl was a small city hardly known to the outside world. Since then, the name—often known by its Russian spelling, Chernobyl—has entered the chronicle of the 20th century as the worst technogenic environmental disaster in history. It is an internationally known metaphor for catastrophe as potent as "Stalingrad" or "Bhopal." Indeed, it is now clear that the political repercussions from Chornobyl accelerated the collapse of the Soviet empire.

Because of the importance of this calamity for all of humanity, it is vital that the world understands both the reasons it happened and the consequences. The events that led up to the explosion are well known. Reactor number four, a 1,000-megawatt RBMK-1000 design, produced steam that drove generators to make electricity. On the night of the accident, operators were conducting a test to see how long the generators would run without power. For this purpose, they greatly reduced the power being produced in the reactor and blocked the flow of steam to the generators.

Unfortunately, the RBMK-1000 has a design flaw that makes its operation at low power unstable. In this mode of operation, any spurious increase in the production of steam can boost the rate of energy production in the reactor. If that extra energy generates still more steam, the result can be a runaway power surge. In addition, the operators had disabled safety systems that could have averted the reactor's destruction, because the systems might have interfered with the results of the test.

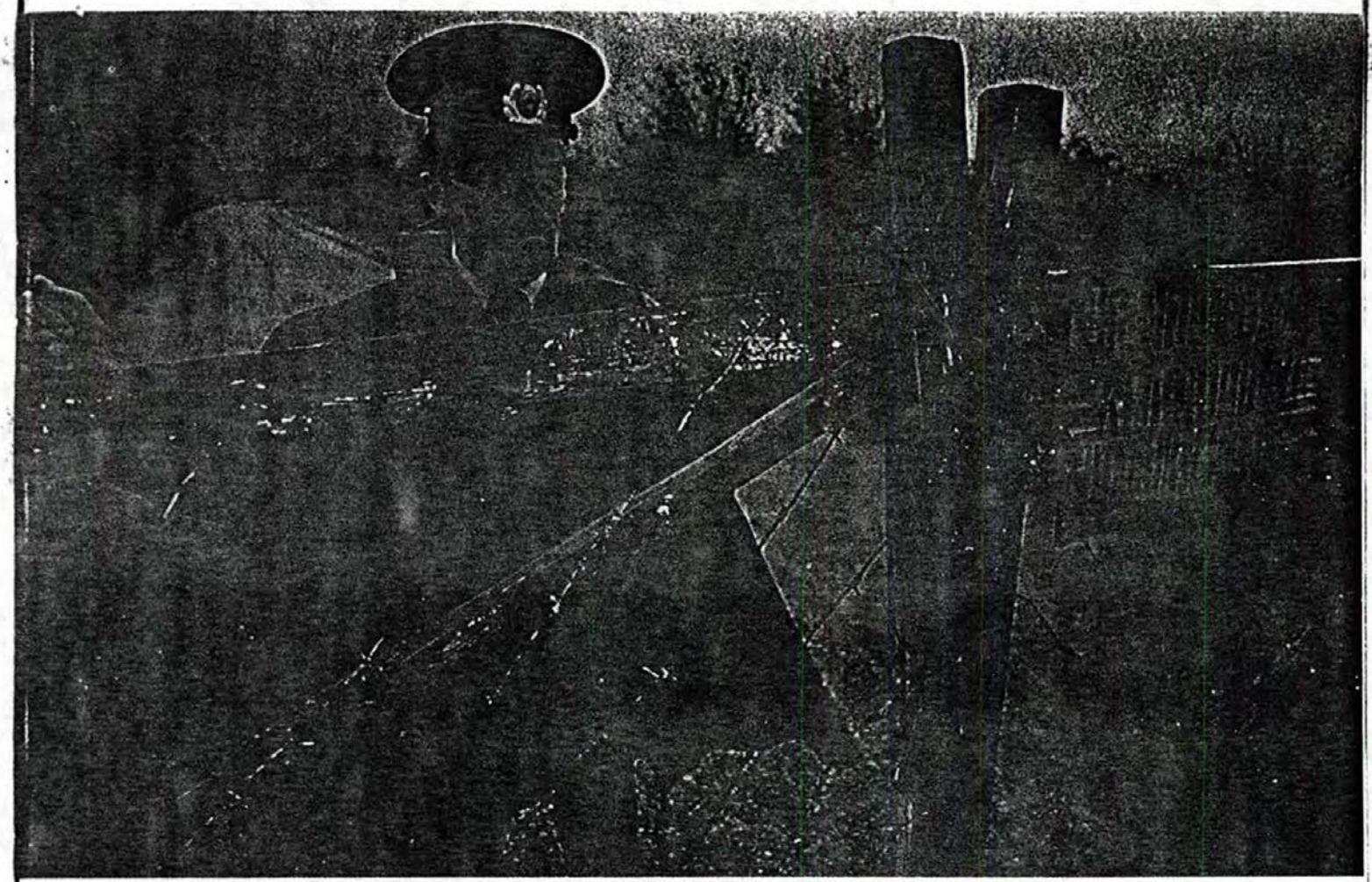
At 1:23 and 40 seconds on the morning of April 26, realizing belatedly that the situation had become hazardous, an operator pressed a button to activate the automatic protection system. The action was intended to shut the reactor down, but by this time it was too late. What actually happened can be likened to a driver who presses the brake pedal to slow down a car but finds instead that it accelerates tremendously.

Within three seconds, power production in the reactor's core surged to 100 times the normal maximum level, and there was a drastic increase in temperature. The result was two explosions that blew off the 2,000-metric-ton metal plate that sealed the top of the reactor, destroying the building housing it. The nuclear genie had been liberated.

Despite heroic attempts to quell the ensuing fire, hundreds of tons of graphite that had served as a moderator in the reactor burned for 10 days. Rising hot gases carried into the environment aerosolized fuel as well as fission products, isotopes that are created when uranium atoms split apart. The fuel consisted principally of uranium; mixed in with it was some plutonium created as a by-product of normal operation. Plutonium is the most toxic element known, and some of the fission products were far more radioactive than uranium or plutonium. Among the most dangerous were iodine 131, strontium 90 and cesium 137.

A plume containing these radioisotopes moved with prevailing winds to the north and west, raining radioactive particles on areas thousands of miles

IGOR KOSTIN/IMAGO *Sygma*



IGOR KOSTIN/IMAGO Sygma

FORBIDDEN ZONE: militiaman controls access to a town in the district of Narodichi, a region evacuated after the explosion and fire at the nearby Chornobyl plant caused a shower of dangerously radioactive fallout across eastern Europe.

away. Regions affected included not only Ukraine itself but also Belarus, Russia, Georgia, Poland, Sweden, Germany, Turkey and others. Even such distant lands as the U.S. and Japan received measurable amounts of radiation. In Poland, Germany, Austria and Hungary as well as Ukraine, crops and milk were so contaminated they had to be destroyed. In Finland, Sweden and Norway, carcasses of reindeer that had grazed on contaminated vegetation had to be dumped.

Widespread Effects

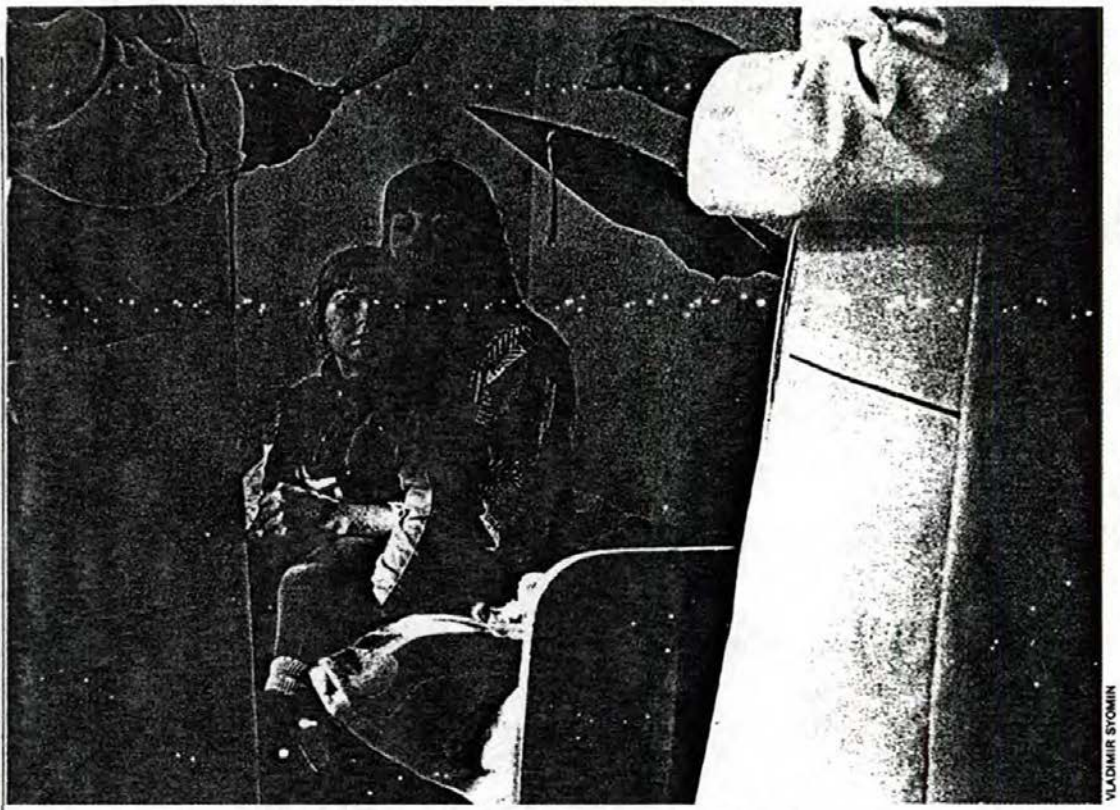
The total amount of radioactivity released will never be known, but the official Soviet figure of 90 million curies represents a minimum. Other estimates suggest that the total might have been several times higher. It is fair to say that in terms of the amount of radioactive fallout—though not, of course, the heat and blast effects—the accident was comparable to a medium-size nuclear strike. In the immediate aftermath of the explosion and fire, 187 people fell ill from acute radiation sickness; 31 of these died. Most of these early casualties were firefighters who combated the blaze.

The destroyed reactor liberated hundreds of times more radiation than was produced by the atomic bombings of Hiroshima and Nagasaki. The intensity of gamma radiation on the site of the power plant reached more than 100 roentgens an hour. This level produces in an hour doses hundreds of times the maximum dose the International Commission on Radiological Protection recommends for members of the public a *year*. On the roof of the destroyed reactor building, radiation levels reached a frightening 100,000 roentgens an hour.

The human dimensions of the tragedy are vast and heartbreaking. At the time of the accident, I was working as a medical researcher at the Institute of Epidemiology and Infectious Diseases in Kiev, some 60 miles from the Chornobyl plant. Sometime on April 26 a friend told me that people had been arriving at hospitals for treatment of burns sustained in an accident at the plant, but we had no idea of its seriousness. There was little official news during the next few days, and what there was suggested the danger was not great. The authorities jammed most foreign broadcasts, although we could listen as Swedish radio reported the detection of high levels of radioactivity in that country and elsewhere. I and some other physicians decided to drive toward the accident site to investigate and help as we could.

We set off cheerfully enough, but as we got closer we started to see signs of mass panic. People with connections to officialdom had used their influence to send children away by air and rail. Others without special connections were waiting in long lines for tickets or occasionally storming trains to try to escape. Families had become split up. The only comparable social upheaval I had seen was during a cholera epidemic. Already many workers from the plant had been hospitalized.

The distribution of the fallout was extremely patchy. One corner of a field might be highly dangerous, while just a few yards away levels seemed low. Nevertheless, huge areas were affected. Although iodine 131 has a half-life of only



VLADIMIR SYOMIN

AWAITING A THYROID EXAMINATION, a young patient and her mother sit anxiously at the Kiev Institute of Endocrinology. In the days and weeks following the 1986 accident at Chornobyl, an estimated 13,000 children inhaled aerosols containing high levels of iodine 131, which collects in the thyroid. Among Ukrainian children, thyroid cancer rates have increased roughly 10-fold.

eight days, it caused large radiation exposures during the weeks immediately following the accident. Strontium 90 and cesium 137, on the other hand, are more persistent. Scientists believe it is the cesium that will account for the largest radiation doses in the long run.

All told, well over 260,000 square kilometers of territory in Ukraine, Russia and Belarus still have more than one curie per square kilometer of contamination with cesium 137. At this level, annual health checks for radiation effects are advised for residents. In my own country of Ukraine, the total area with this level of contamination exceeds 35,000 square kilometers—more than 5 percent of the nation's total area. Most of this, 26,000 square kilometers, is arable land. In the worst affected areas there are restrictions on the use of crops, but less contaminated districts are still under cultivation.

The heavily contaminated parts of Ukraine constitute 13 administrative regions (oblasts). In these oblasts are 1,300 towns and villages with a total population of 2.6 million, including 700,000 children. Within about 10 days of the accident, 135,000 people living in the worst-affected areas had left their homes; by now the total has reached 167,000. Yet it is clear that the authorities' attempts to keep the scale of the disaster quiet actually made things worse than they need have been. If more inhabitants in the region had been evacuated promptly during those crucial first few days, radiation doses for many people might have been lower.

The region within 30 kilometers of the Chornobyl plant is now largely uninhabited; 60 settlements outside this zone have also been moved. Formerly busy communities are ghost towns. The government has responded to this unprecedented disruption by enacting laws giving special legal status to contaminated areas and granting protections to those who suffered the most. Yet the repercussions will last for generations.

Multiple Illnesses

The medical consequences are, of course, the most serious. Some 30,000 people have fallen ill among the 400,000 workers who toiled as "liquidators," burying the most dangerous wastes and constructing a special building around the ruined reactor that is universally referred to as "the sarcophagus." Of these sick people, about 5,000 are now too ill to work.

It is hard to know, even approximately, how many people have already died as a result of the accident. Populations have been greatly disrupted, and children have been sent away from some areas. By comparing mortality rates before and after the accident, the environmental organization Greenpeace Ukraine has estimated a total of 32,000 deaths. There are other estimates that are higher, and some that are lower, but I believe a figure in this range is defensible. Some, perhaps many, of these deaths may be the result of the immense psychological stress experienced by those living in the contaminated region.

One medical survey of a large group of liquidators, carried out by researchers in Kiev led by Sergei Komissarenko, has found that most of the sample were suffering from a constellation of symptoms that together seem to define a new medical syndrome. The symptoms include fatigue, apathy and a decreased number of "natural killer" cells in the blood.

Natural killer cells, a type of white blood cell, can kill the cells of tumors and virus-infected cells. A reduction in their number, therefore, suppresses the immune system. Some have dubbed this syndrome "Chornobyl AIDS." Besides having increased rates of leukemia and malignant tumors, people with this syndrome are susceptible to more severe forms of cardiac conditions as well as common infections such as bronchitis, tonsillitis and pneumonia.

As a consequence of inhaling aerosols containing iodine 131 immediately after the accident, 13,000 children in the region experienced radiation doses to the thyroid of more than 200 roentgen equivalents. (This means they received at least twice the maximum recommended dose for nuclear industry workers for an entire year.) Up to 4,000 of these children had doses as high as 2,000 roentgen equivalents. Because iodine collects in the thyroid gland, these children have developed chronic inflammation of the thyroid. Although the inflammation itself produces no symptoms, it has started to give rise to a wave of cases of thyroid cancer.

The numbers speak for themselves. Data gathered by the Kiev researcher Mykola D. Tronko and his colleagues indicate that between 1981 and 1985—before the accident—the number of thyroid cancer cases in Ukraine was about five a year. Within five years of the disaster the number had grown to 22 cases a year, and from 1992 to 1995 it reached an average of 43 cases a year. From 1986 to the end of 1995, 589 cases of thyroid cancer were recorded in children and adolescents. (In Belarus the number is even higher.) Ukraine's overall rate of thyroid cancer among children has increased about 10-fold from preaccident levels and is now more than four cases per million. Cancer of the thyroid metastasizes readily, although if caught early enough it can be treated by removing the thyroid gland. Patients must then receive lifelong treatment with supplemental thyroid hormones.

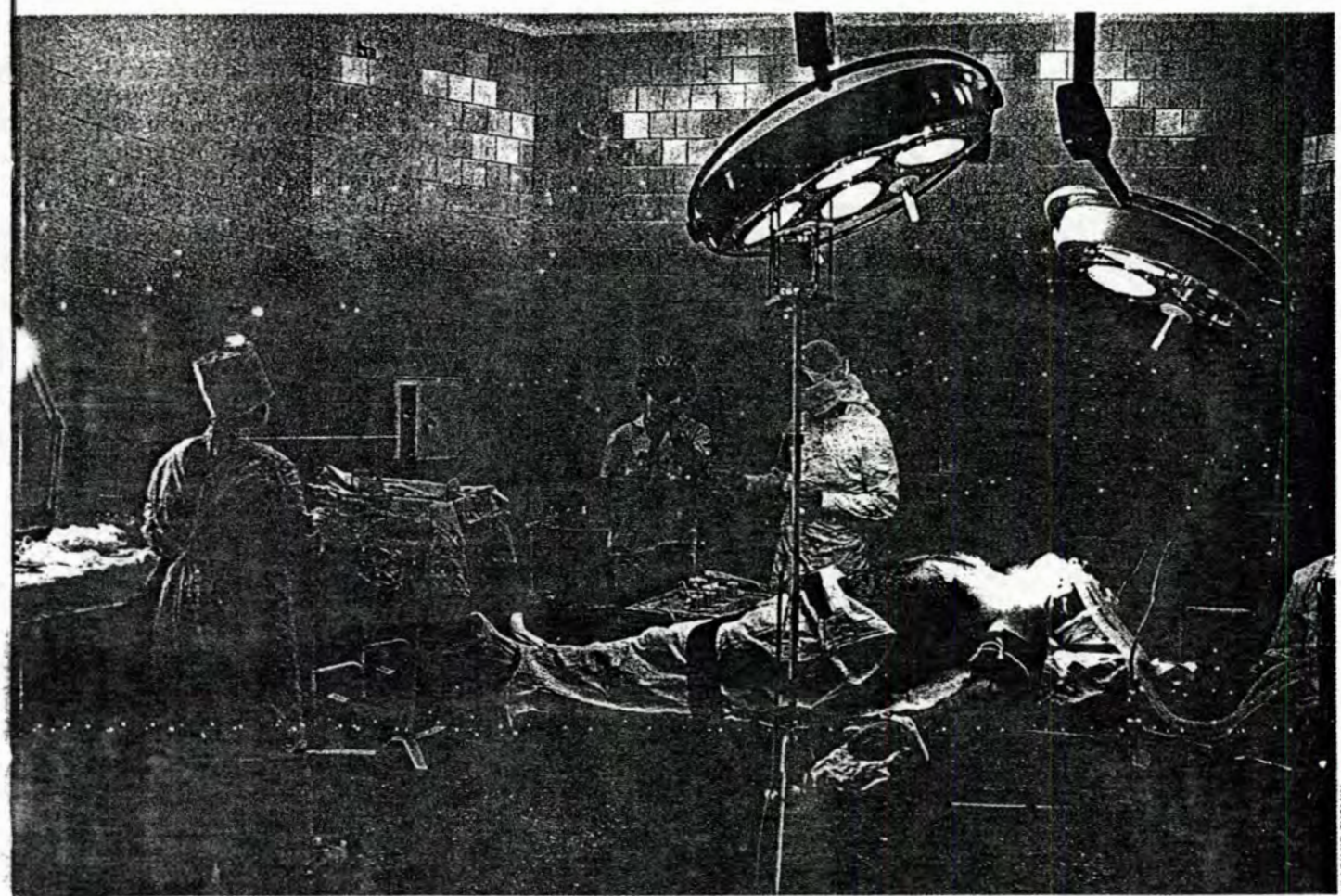
Other research by Ukrainian and Israeli scientists has found that one in every three liquidators—primarily men in their thirties—has been plagued by sexual or reproductive disorders. The problems include impotence and sperm abnormalities. Reductions in the fertilizing capacity of the sperm have also been noted. The number of pregnancies with complications has been growing among women living in the affected areas, and many youngsters fall prey to a debilitating fear of radiation.

The optimists who predicted no long-term medical consequences from the explosion have thus been proved egregiously wrong. These authorities were principally medical officials of the former Soviet Union who were following a script written by the political bureau of the Communist Party's Central Committee. They also include some Western nuclear energy specialists and military experts.

It is also true that the forecasts of "catastrophists"—some of whom predicted well over 100,000 cancer cases—have not come to pass. Still, previous experience with the long-term effects of radiation—much of it derived from studies at Hiroshima and Nagasaki—suggests that the toll will continue to rise. Cancers caused by radiation can take many years before they become detectable, so the prospects for the long-term health of children in the high-radiation regions are, sadly, poor.

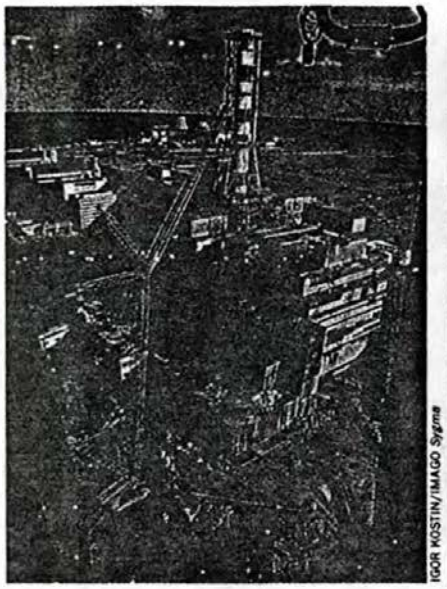
The hushing up of the danger from radiation in Soviet propaganda has produced quite the opposite effects from those intended. People live under constant stress, fearful about their health and, especially, that of their children. This mental trauma has given rise to a psychological syndrome comparable to that suffered by veterans of wars in Vietnam and Afghanistan. Among children evacuated from the reactor zone, there has been a 10- to 15-fold increase in the incidence of neuropsychiatric disorders.

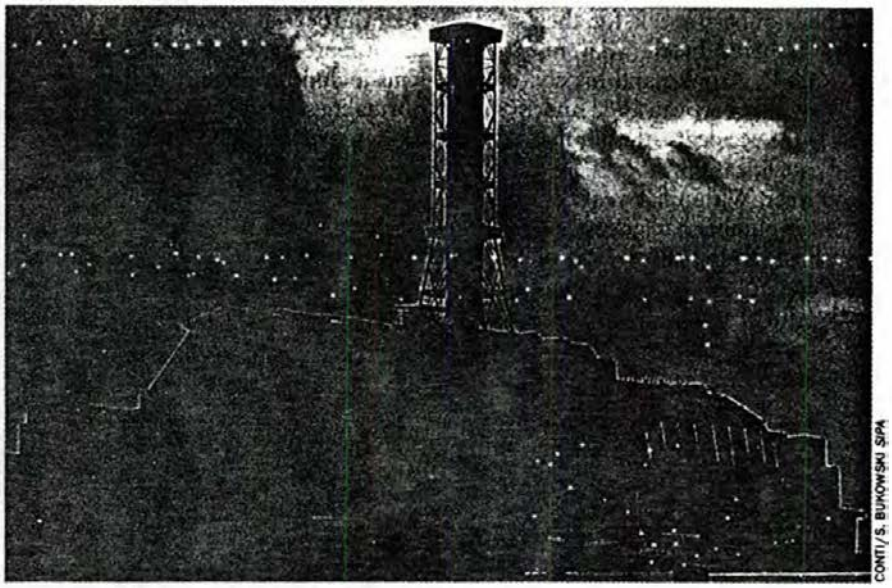
The catastrophe and the resulting resettlement of large populations have also caused irreparable harm to the rich ethnic diversity of the contaminated areas, particularly to the so-called *drevly-*



VLADIMIR SYOMIN

THYROID OPERATION will remove the cancerous gland from a patient in an attempt to prevent the spread of the disease. The operation, carried out at the Kiev Institute of Endocrinology's cancer clinic, is the only treatment for cancer of the thyroid. The patient will then have to take thyroid hormones for the rest of his life to replace those no longer produced in his body.





BURNED-OUT REACTOR was photographed from the air not long after the disaster (*left*). A concrete-and-steel sarcophagus was hastily built (*right*) to contain dangerous radioisotopes; it is now decaying at an alarming rate. An international consortium proposes to surround it with a stronger structure, but construction would cost about $300 million and take five years.

ary, woodland people, and *polishchuks,* inhabitants of the Polissya region. Unique architectural features and other artifacts of their spiritual and material culture have been effectively lost as abandoned towns and villages have fallen into disrepair. Much of the beautiful landscape is now unsafe for humans.

The Ukrainian government, which is in a severe economic crisis, is today obliged to spend more than 5 percent of its budget dealing with the aftermath of Chornobyl. The money provides benefits such as free housing to about three million people who have been officially recognized as having suffered from the catastrophe, including 356,000 liquidators and 870,000 children. Ukraine has introduced a special income tax corresponding to 12 percent of earnings to raise the necessary revenue, but it is unclear how long the government can maintain benefits at current levels.

Today the Chornobyl zone is one of the most dangerously radioactive places in the world. In the debris of the ruined reactor are tens of thousands of metric tons of nuclear fuel with a total radioactivity level of some 20 million curies. The radiation level in the reactor itself, at several thousand roentgens per hour, is lethal for any form of life. But the danger is spread far and wide. In the 30-kilometer zone surrounding the reactor are about 800 hastily created burial sites where highly radioactive waste, including trees that absorbed radioisotopes from the atmosphere, has been simply dumped into clay-lined pits.

These dumps may account for the substantial contamination of the sediments of the Dnieper River and its tributary the Pripyat, which supply water for 30 million people. Sediments of the Pripyat adjacent to Chornobyl contain an estimated 10,000 curies of strontium 90, 12,000 curies of cesium 137 and 2,000 curies of plutonium. In order to prevent soluble compounds from further contaminating water sources, the wastes must be removed to properly designed and equipped storage facilities—facilities that do not yet exist.

Cost of Cleanup

The two reactors that are still in operation at the Chornobyl plant also pose a major problem (a fire put a third out of action in 1992). These generate up to 5 percent of Ukraine's power; the nuclear energy sector altogether produces 40 percent of the country's electricity. Even so, Ukraine and the Group of Seven industrial nations last December signed a formal agreement on a cooperative plan to shut down the whole Chornobyl plant by the year 2000. The agreement establishes that the European Union and the U.S. will help Ukraine devise plans to mitigate the effects of the shutdown on local populations. It also sets up mechanisms to allow donor countries to expedite safety improvements at one of the reactors still in use. In addition, the agreement provides for international cooperation on decommissioning the plant, as well as on the biggest problem of all: an ecologically sound, long-term replacement for the sarcophagus that was built around the ruin of reactor number four.

The 10-story sarcophagus, which is built largely of concrete and large slabs of metal and has walls over six meters thick, was designed for a lifetime of 30 years. But it was constructed in a great hurry under conditions of high radiation. As a result, the quality of the work was poor, and today the structure is in need of immediate repair. Metal used in the edifice has rusted, and more than 1,000 square meters of concrete have become seriously cracked. Rain and snow can get inside. If the sarcophagus were to collapse—which could happen if there were an earthquake—the rubble would very likely release large amounts of radioactive dust.

In 1993 an international competition was held to find the best long-term solution. Six prospective projects were chosen for further evaluation (out of 94 proposals), and the next year a winner was selected—Alliance, a consortium led by Campenon Bernard of France. The consortium's proposal, which entails the construction of a "supersarcophagus" around the existing one, unites firms from France, Germany, Britain, Russia and Ukraine. The group has already conducted feasibility studies. If the project goes forward, design work will cost $20 million to $30 million, and construction—which would take five years—upwards of $300 million. Final disposal of the waste from the accident will take

30 years. One possibility being explored is that the waste might be encased in a special glass.

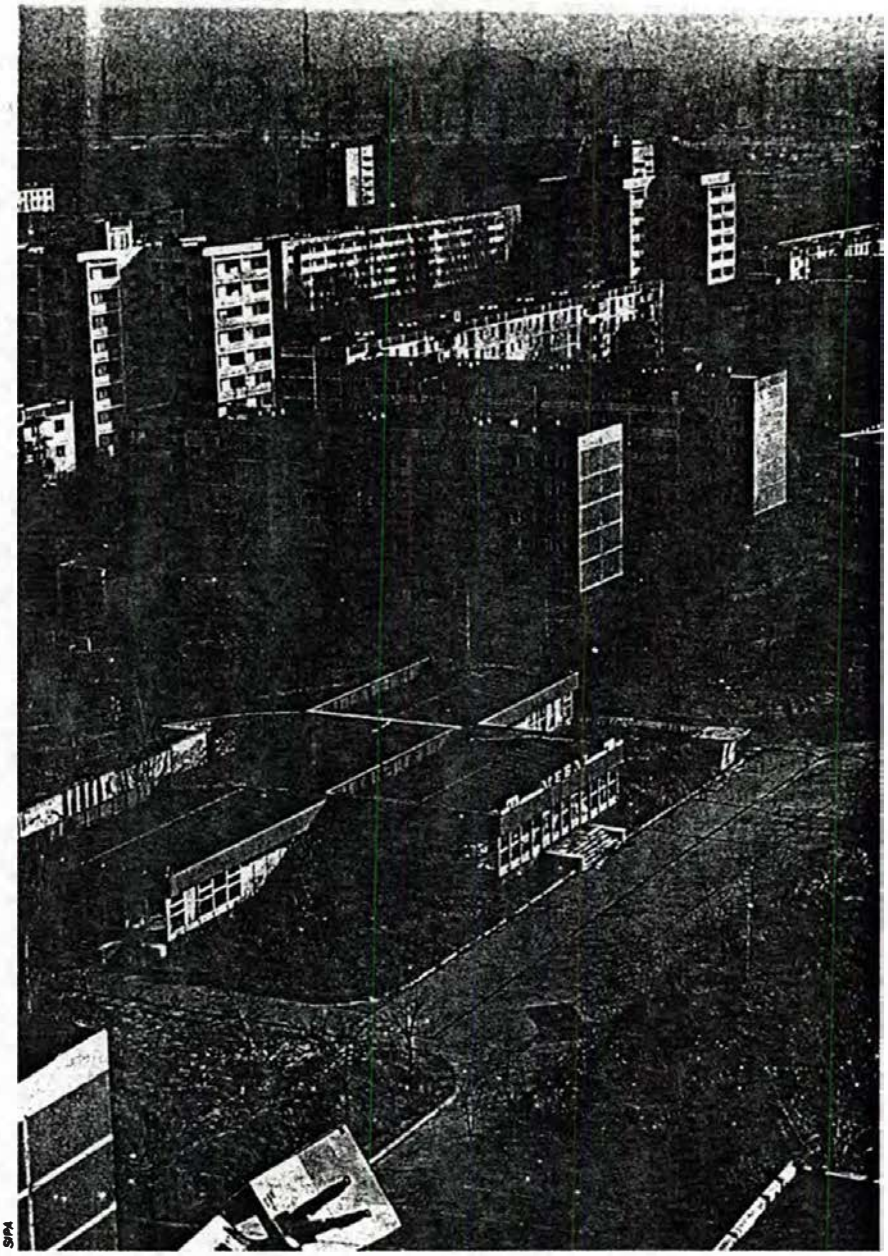
Chornobyl was not simply another disaster of the sort that humankind has experienced throughout history, like a fire or an earthquake or a flood. It is a global environmental event of a new kind. It is characterized by the presence of thousands of environmental refugees; long-term contamination of land, water and air; and possibly irreparable damage to ecosystems. Chornobyl demonstrates the ever growing threat of technology run amok.

The designers of the plant, which did not conform to international safety requirements, are surely culpable at least as much as the operators. The RBMK-1000 is an adaptation of a military reactor originally designed to produce material for nuclear weapons. There was no reinforced containment structure around the reactor to limit the effects of an accident. That RBMK reactors are still in operation in Ukraine, Lithuania and Russia should be cause for alarm.

The disaster illustrates the great responsibility that falls on the shoulders of scientific and other experts who give advice to politicians on technical matters. Moreover, I would argue that the former Soviet Union's communist leadership must share the blame. Despite then President Mikhail S. Gorbachev's professed support for glasnost, or openness, the regime hypocritically closed ranks in the aftermath of the tragedy in a futile and ultimately harmful attempt to gloss over the enormity of what had occurred.

The event offers a vivid demonstration of the failures of the monopolistic Soviet political and scientific system. The emphasis under that regime was on secrecy and on simplifying safety features in order to make construction as cheap as possible. International experience with reactor safety was simply disregarded. The calamity underscores, further, the danger that nuclear power plants could pose in regions where wars are being fought. Of course, all such plants are potentially vulnerable to terrorist attack.

Chornobyl has taught the nations of the world a dreadful lesson about the necessity for preparedness if we are to rely on nuclear technology. Humankind lost a sort of innocence on April 26, 1986. We have embarked on a new, post-Chornobyl era, and we have yet to comprehend all the consequences. ◻



GHOST TOWN: Pripyat, a once vibrant city of 45,000, was home to many of the workers from the Chornobyl plant. It was evacuated after the accident and remains deserted.

The Author

YURI M. SHCHERBAK is ambassador of Ukraine to the U.S. He graduated from Kiev Medical College in 1958 and has advanced degrees in epidemiology. Besides having published extensively in epidemiology and virology, he is the author of 20 books of poetry, plays and essays. In 1988 Shcherbak founded and became leader of the Ukrainian Green Movement, now the Green Party. In 1989 he won a seat in the Supreme Soviet of the U.S.S.R., where as an opposition leader he initiated the first parliamentary investigation of the Chornobyl accident.

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THE WHITE HOUSE

WASHINGTON

March 26, 1996

Warm greetings to all those across the United States, in Ukraine, Belarus, Russia and around the world who are commemorating the tenth anniversary of the Chornobyl nuclear disaster.

The devastating effects of the 1986 explosion and fire at the Chornobyl Nuclear Power Plant are with us still. Dozens of people were killed almost immediately; thousands were stricken with acute radiation sickness. Radiation contaminated large areas of what are now Ukraine, Belarus, and the Russian Federation, reaching even the Baltics, Scandinavia, and beyond. Thousands risked -- and many lost -- their lives in the cleanup efforts, and in the years since, terrible cancers have claimed even more victims, many of them children.

I commend the noble work of the humanitarian relief organizations and the courageous individuals who have cared for the innocent victims of this calamity. In striving to save and protect the children of Chornobyl and their elders, they have responded to one of the world's worst environmental catastrophes with the best effort that the world has to offer. Their advice and initiative have led to constructive U.S. Government programs to supply medicines and treatment for those who continue to suffer. And their compassionate work has earned our lasting admiration and gratitude.

But we know that relief and sustained medical care are not enough. The United States will continue to lead international efforts to prevent another such disaster. Late last year, we joined with Ukraine and the other G-7 nations in a Memorandum of Understanding to close the Chornobyl plant by the year 2000. Through this Memorandum, our countries entered into a partnership to mobilize the resources not just to close Chornobyl, but also to help Ukraine develop a more vibrant, self-sustaining energy sector that will advance its prosperity as a sovereign nation in the new Europe. And on April 19 and 20, world leaders will meet in Moscow to recommit themselves to a global mandate for nuclear safety and security. This is a goal of the highest order -- for we must not rest until Chornobyl is remembered not only as a tragedy, but also as a signpost on the road to a safer world.

As we mourn those who lost their lives at Chornobyl and pray for those who still suffer its effects, let us renew our solemn pledge: to promote healing, ensure prevention, and offer hope.

Bill Clinton

draft #1

FIRST LADY HILLARY RODHAM CLINTON
COLUMN FOR RELEASE MAY 1, 1996
TALKING IT OVER/CREATORS SYNDICATE

Children's Hospital #4 in Minsk looks like many other hospitals ~~in the former Soviet Union~~ I've seen around the world. But there's one difference: It treats thousands [ck] of children with thyroid cancer, one of the apparent consequences of the Chornobyl nuclear disaster.

I visited the hospital two years ago and met some of the children whose lives were changed forever after an explosion at the V.I. Lenin Atomic Power Plant in Chornobyl sent a deadly radioactive cloud over Ukraine, Belarus, Russia and parts of northern Europe.

This week marks the 10th anniversary of the Chornobyl disaster, a tragedy that touches us to this day. More and more people are falling ill, villages remain abandoned, rivers are contaminated, and rich farmland is still unusable. I remember being warned not to eat a grape because the soil it came from might be radioactive.

These are the obvious after-effects of Chornobyl. But what makes this tragedy unique is that so much of the damage is still unknown. It will take years, if not decades, to see the

explosion's ultimate impact on the environment, the food chain, and human genetics.

Doctors and nurses in Minsk told me that they were seeing increasing rates of respiratory illness, heart disease and birth defects, as well as abnormally-high rates of thyroid cancer and other thyroid diseases in children, diseases that before the explosion, rarely appeared in people so young.

At the xxx hospital in Kiev, about 60 miles from Chornobyl, expectant mothers said they were worried about whether their children would have birth defects or abnormalities associated with the radioactive fall-out that stretched as far as Germany and Scandinavia.

met with some American doctors who are lending their time and expertise to Ukrainian and Belarussian hospitals....They are the brighter half of the Chornobyl story.
And while I left feeling more distressed that a tragedy like this could ever happen, I felt more thankful that so many people around the world were helping these children recover.

On the surface, the kids seemed in pretty good shape. They sang songs for me and delighted in putting on the green Boston Celtics caps we brought.

That's the illusion of Chornobyl, and of any disaster like it.

and also the doctors and nurses who treat them.

Sporting green Boston Celtics caps, (which had been donated by the basketball team), the children seemed happy. Though some of them had lost their hair to chemotherapy [check?], they did not seem desperately ill. Their apparent health was deceptive.

That is the tragedy of Chornobyl. Few people died instantly after nuclear reactor in that Ukrainian city exploded, sending 200 times more radiation than the atomic bombs at Hiroshima and Nagasaki combined over the Ukraine, Belarus, and Russia. Yet many are who lived in that area are still suffering from illnesses that many doctors trace to their exposure to radiation

from Chornobyl. Many more are still dreading the day when they, too fall ill.

Soviet officials did not notify the general public about the explosion for two days. So for two days after the explosion, citizens living nearby continued to go about their lives, eating food that was radioactive, walking to school, playing outdoors.

No one will ever able to calculate the human toll of the explosion. Few scientists can agree on how many illnesses, birth defects, and other physical and psychological tragedies can ultimately be attributed to the radiation from the explosion.

In Kiev last year, I met with many expectant mothers at a childbirth class. They told me of their anxieties about pregnancies and their children. add details here.]

Ten years after the explosion, there are miles and miles of land that are still and perhaps never will be livable. The great Dnieper River is showing signs of contamination. The 10-story concrete "sarcophagus" built to contain the remains of Reactor # 4 is already leaking.

The Ukraine and Belarus, which have become independent nations in the years since the explosion, are still coping with Chornobyl's legacy. Seventy percent of the radiation from Chornobyl fell over Belarus.

And while the radiation largely befell the people of the Ukraine, Belarus and Russia, many throughout the world and especially here in the United States have realized that the tragedy of Chornobyl befell all of us.

This week, Vice-President Gore and I hosted a reception in the East Room of the White House to honor the humanitarian organizations, doctors, scientists, spiritual leaders, and private citizens who have spent the last decade helping the victims of Chornobyl.

Private foundations such as the [Alex Kuzma's group -- Children of Chornobyl?] have raised millions of dollars and medical supplies and equipment to send to the Ukraine and Belarus. Peace organizations such as xx have been working to "clean up" Chornobyl and devising ways to make sure a tragedy like Chornobyl never happens again -- in the Ukraine, in Belarus, in America, or anywhere. [more about US aid package, VP Gore's announcement at ceremony.]

And doctors from [all over this country?] have volunteered

their time and traveled to treat patients in Belarus and the Ukraine. Still other organizations have flown some of the youngest victims of Chornobyl to Europe and the United States for more advanced treatment.

One of those children was 12-year old Vova, who has thyroid cancer. He came to U.S. from the Ukraine in 19xx and now lives in Connecticut[?] Vova spoke to us in the East Room... [more about Vova goes here]

Standing in the grandeur of the White House East Room, under the gigantic portraits of George and Martha Washington, the little Ukrainian boy reminded us all that he and children like him, the children of Chornobyl and children everyhere whose health and lives have been devastated through no fault of their own, were and always will be our common responsibility, members of the human family.

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THE WHITE HOUSE

WASHINGTON

FOR IMMEDIATE RELEASE
MARCH 29, 1996

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FIRST LADY HILLARY RODHAM CLINTON TO HOST A CEREMONY COMMEMORATING TENTH ANNIVERSARY OF CHERNOBYL

WASHINGTON, DC -- On April 10, 1996, First Lady Hillary Rodham Clinton and Vice President Al Gore will host an event at the White House to commemorate the 10th anniversary of the Chernobyl nuclear tragedy. Invited guests include leaders of humanitarian relief and environmental organizations, the scientific and medical communities, and American businesses, as well as representatives of the governments of Ukraine, Belarus and Russia. The event will honor the individuals and organizations who have been significantly involved in healing those affected by the disaster and working to prevent future tragedies.

EDITOR'S NOTE: The event will be open to press coverage. Information on press coverage will be provided when it becomes available.

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The Very Reverend Nathan D. Baxter
Dean, Washington National Cathedral
Washington, D.C. 20016-5098

April 3, 1996

To Lissa

Dear Dean Baxter:

As you know, this April 26 will mark the 10th Anniversary of one of the greatest human tragedies of this century, the Chornobyl nuclear disaster. On that day in 1986, Reactor No. 4 at the Chornobyl nuclear power plant in Ukraine exploded and released more radiation than 270 atomic bombs of the size dropped on Hiroshima. Some five million people were exposed to a deadly radioactive cloud which spread across the region. To date, an estimated 125,000 people have died, many of them children, as a result of Chornobyl, which has been termed the greatest technogenic catastrophe in world history.

In the coming weeks, the international community will commemorate the Chornobyl catastrophe by gathering in houses of worship throughout the world to ask for God's guidance in assuring a future for mankind secure from nuclear devastation. Regrettably, this will not occur at the Washington National Cathedral, because of your decision that an interfaith worship service in honor of the victims of Chornobyl is not consistent with the "strategic and logistic circumstances" of the Washington National Cathedral. For reasons which have not been satisfactorily explained, on March 28 you rejected a request by the Embassy of Ukraine, one of this nation's most strategically significant allies, joined by the American Jewish Committee and the Embassies of the other nations most affected by Chornobyl, to hold a worship service at the National Cathedral in commemoration of the 10th Anniversary of Chornobyl.

Spokespersons for your office have attempted to defend your decision by pointing to the many other requests which you receive for permission to hold special events. With all due respect, such an explanation demonstrates that your office does not grasp the significance of a humanitarian catastrophe of the magnitude of Chornobyl or the immense scope of suffering resulting from it. Out of deference to the Cathedral staff, I will assume that your response was the result of lack of appropriate information rather than insensitivity.

Perhaps you should reexamine the priorities currently being pursued in the Worship Department with respect to the Cathedral's programs. I request that this letter be made available to the Cathedral's governing board, so that they may know of the position taken by the Worship Department and of its international and humanitarian implications.

Very truly yours,

Patience Tipton Hunt York
National Board, Ukrainian Congress Committee of America

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THE ATOM SOWS CROP OF SADNESS;
THE KREMLIN'S HUBRIS IN THE NUCLEAR FIELD AND ITS PATENT DISREGARD FOR THE HEALTH AND ENVIRONMENTAL IMPLICATIONS OF ITS ACTS MAY RANK AMONG THE 20TH CENTURY'S GREATEST CRIMES.

SERIES: A NUCLEAR NIGHTMARE. The lethal legacy of the Soviets' atomic obsession. First of three parts

BYLINE: By JOHN-THOR DAHLBURG, TIMES STAFF WRITER

DATELINE: TALMENKA, Russia

BODY:

It was about three years ago in this ramshackle Siberian farming and mink-breeding town that the Yellow Children began to appear.

After hospital treatment, the jaundice that turns some newborns here a dull yellow eventually disappears. But it is not their only problem, for these infants also show signs of congenital defects in their nervous system and organs. They begin to walk later than other children, are oddly silent and have a vocabulary that remains infantile far too long, doctors say.

In one month, 42 of 59 boys and girls born in Talmenka turned yellow a day or two after birth. Towheaded Andrei Gushchin, 2 years and 10 months old, was one of the first. "He won't be a Lomonosov," doctors warned Andrei's mother, Olga, referring to Russia's great 18th-Century savant and poet, Mikhail V. Lomonosov.

Olga Gushchin now wonders whether her quiet, undersized son will even be able to handle kindergarten.

The outbreak of infant jaundice brought researchers from 40 institutes to Talmenka and other affected towns. They scrutinized air and water pollution, contamination of food by pesticides and other chemicals, parents' occupations and other possible causes. All were eliminated as the chief underlying reason for the newborns' problems, leaving scientists with a horrifying conclusion.

As one prominent Moscow researcher puts it, the hundreds of Yellow Children born to date can only be "nuclear mutants" -- the most recent victims of the Soviet Union's costly, often tragic relationship with the atom.

It is 250 miles from this settlement among the pines and birches of Siberia to the hilly steppe at Semipalatinsk. But the locales may forever be

intertwined. For at the latter site, in Kazakhstan, on Aug. 29, 1949, scientists detonated the Soviet Union's first atom bomb. There was a 25-m.p.h. wind that day, and it carried a tongue of hot radioactive dust from the explosion downwind to the Altai region of Russia and the town of Talmenka.

That was more than four decades ago. But on a scrap of paper, Yakov N. Shoikhet, professor at the Altai Medical Institute, sketches out for a visitor how people exposed to fallout from the 122 aboveground blasts at Semipalatinsk could transmit health problems in an unbroken line to their children, and to grandchildren now being born.

"There is evidence of chromosome change due to radiation exposure," Shoikhet says. "Only God knows what we will see in the fourth generation."

With a sort of terrible biblical justice, the people of Talmenka and of the former Soviet Union as a whole are now being made to pay for the atomic misdeeds of their ancestors. Long masked by censorship, disinformation and a conspiracy of professional silence, the problem is becoming known in its vastness and complexity only now:

* More than 100 nuclear bombs were detonated for "peaceful purposes" across the face of the former Soviet Union, from inhabited areas of the coal-mining Donbass region in Ukraine to the pristine Siberian permafrost.

* High-level radioactive waste was routinely dumped into lakes and rivers, even those used as sources of drinking water or for swimming and fishing. Entire nuclear reactors were heaved into the ocean.

* Urban areas including Moscow and St. Petersburg have been fouled with clandestine dump sites for atomic waste, or are menaced by shoddily built, aging atomic power plants.

* An estimated 20 million Soviets were exposed to radioactivity released at Chernobyl; unknown millions received doses from bomb tests at Semipalatinsk and at Novaya Zemlya in the Arctic -- sometimes as intentional guinea pigs -- and from a trio of disasters at the country's first plutonium-producing center.

The Kremlin's technological hubris in the nuclear field and its patent disregard for the health and environmental implications of its acts may rank among the 20th Century's greatest crimes. And, as the Chernobyl accident in 1986 showed, the outside world may suffer the consequences too.

No Full Remedy Likely

"Of all the environmental problems of my country, the nuclear problem is No. 1," said Alexei V. Yablokov, state counselor for ecology and health to Russian President Boris N. Yeltsin. Cleaning it up, he said, will cost "trillions of dollars."

But speaking of remedies may, in many cases, be overly optimistic. For the irradiated mess that the Soviet military-industrial complex left on one-sixth of the Earth's land mass will be eternal in places. Such nuclear pollution will be the most durable legacy of the defunct Communist regime.

"Big chunks of the republic are so poisoned they will not be suitable for human settlement for a very long time. We are talking decades," Victor Danilov-Danilyan, Russia's minister for the environment, has been quoted as saying.

Take one example. Near Chelyabinsk in the southern Urals, the once secret Mayak weapons-grade plutonium plant has accumulated so much radioactive waste -- in an open lake, dumps and storage pools -- that if spread evenly over the former Soviet Union, it would be enough to poison every square foot.

The amount of waste stockpiled there -- 1.2 billion curies -- is 24 or so times the radiation spewed by Chernobyl, and about 240 times the long-lasting nuclear contamination unleashed by the Hiroshima bomb.

Mayak, where large-scale releases of radiation have already occurred, is linked to the outside world via the Ob River, which flows into the sea off northern Russia. Even now, Lake Karachai, transformed into an atomic cesspool, is seeping into the subterranean water table and tributaries of the Ob, according to Moscow physicist Lydia Popova.

"Radioactive contamination in my country is dangerous for all the world," Yablokov warns.

The effects on human health of Soviet nuclear practices, though still debated, appear nothing short of tragic. Thyroid gland tumors have gone up by 22 times in the past five years in Belarus, while in one region of Ukraine that was also contaminated by Chernobyl fallout, stomach and kidney illnesses have increased 450%.

Few corners of what was the Soviet Union escaped the atomic taint. In Moscow itself, home to more than 9 million people, there are at least 600 secret waste dumps whose radiation levels are "dangerously high," according to specialists.

Atomic Waste in Park

One of these atomic garbage piles is right in Izmailovsky Park, a leafy retreat where Muscovites and visitors to the city browse at a popular weekend art fair and parents take their children for a bit of wintertime sledding.

Only recently did it come to light that nuclear waste -- mostly cesium 137, a dangerous gamma-ray emitter -- had been tossed in a river connecting ponds where Peter the Great captained a miniature sailing ship as a youngster. For a generation or so, Russians ambled past the site, none the wiser.

Even when waste is kept away from the general population, storage often is inadequate. John Large, a nuclear engineer from Britain, recalls with disquiet a visit this year to the Sosnovy Bor nuclear power plant and waste site about 45 miles from the heart of St. Petersburg.

Waste storage unit No. 2, a shabbily constructed "big box" of prefabricated concrete, was leaking rainwater and melted snow through the roof, Large remembered. The Sosnovy Bor workers' response couldn't have been simpler -- or more senseless, Large said. They went around the silo smashing holes about every 20 feet into the decaying 18-inch-thick walls with a sledgehammer.

Now the rainwater, heavily contaminated with nuclides, streams out onto open ground, Large said.

For the now independent states of Belarus and Ukraine, the single most important fact of life is nuclear-related: Chernobyl, and the economic and social costs of coping with the consequences of the worst accident in the history of nuclear power.

"We in Belarus lost one in four people during the Great Patriotic War (World War II), while as a result of Chernobyl, one in five citizens -- approximately 2 million people, including 800,000 children -- now suffer because they live in contaminated zones," said Anatoly S. Zybovsky, deputy chairman of the Belarus State Committee on Chernobyl.

Eighty percent of Belarus was sprayed with radioactive isotopes when Chernobyl's No. 4 reactor exploded on April 26, 1986. In Ukraine, farmland and woods about the size of West Virginia were contaminated, in many places with plutonium 239, which will emit deadly alpha radiation for more than 20,000 years.

The enthusiastic use of nuclear bombs by the Kremlin on the Soviet landscape had a still-to-be-determined impact on human health. But the practice betrays the same conquering attitude toward nature that led state planners to dream of reversing the flow of Siberia's mighty rivers.

At least 115 "peaceful nuclear explosions," as they are euphemistically called, were staged throughout the Soviet Union to refashion the landscape.

Bombs were detonated in salt deposits near the mouth of the Volga, European Russia's most important river, to create huge, glassy-walled "bottles" underground for the storage of oil and gas. Bombs were used to extinguish a burning gas well, much the way a child's puff blows out a birthday candle, and as atomic bulldozers to gouge a canal. In the Siberian wilderness region of Yakutia alone, a dozen nuclear devices were exploded.

Because of the Chernobyl accident, much is known about the potential for disaster of the hardware designed and built by the Soviet atomic Establishment, the yadershchiki, or "nuclear guys." And in the opinion of the yadershchiki themselves, the risks remain great.

Asked in a recent poll to rate all models of Soviet-built reactors designed for generating electricity, more than 200 nuclear energy specialists and physicists gave the units only a "C" for sturdiness and reliability, and the Chernobyl-type RBMKs a "D."

In Moscow itself, there are nine reactors, designed chiefly for research purposes, seven of which are housed at the I. V. Kurchatov Institute of Nuclear Energy in the city's west. The Moscow City Council is now so mindful of the dangers of an accident that its Presidium has ordered all nine phased out by July, 1999.

Refueling Accident

The tragic trail of the atom literally spans the extent of what had been the

Soviet Union. In August, 1985, at a refitting yard on Chazma Bay 35 miles east of Vladivostok on the shores of the Pacific, Soviet sailors set out to refuel the reactor on a Victor-class submarine, but something went awry.

A quench plate designed to prevent a runaway reaction dropped for some reason, perhaps when a wave made the sub roll. The reactor went out of control, overheated and belched hot steam and fire, blasting the uranium high into the air. Ten men in the reactor compartment were killed instantly, and the area was blanketed with high radioactivity.

Fallout reportedly spread in a band hundreds of yards wide toward Vladivostok. But naval officials told Western visitors recently that it didn't reach the city of 700,000. The irradiated dead were buried in specially prepared pits and the accident hushed up, though Russian officials now admit the Soviet navy had suffered two similar mishaps earlier.

The hulk of the submarine is still in Chazma Bay. What to do with its sister ships that were once the backbone of the Soviet navy is a nettlesome environmental question that still awaits a solution.

Joshua Handler of the Greenpeace Nuclear Free Seas Campaign has written President Bush that about 80 Soviet submarines are probably awaiting disposal, with another 80 likely to be retired soon, meaning that about 300 reactors will have to be disposed of -- somehow.

How the Kremlin took care of that chore in the past shocks even members of the Russian nuclear Establishment. In the Kara Sea off northern Russia, icebreakers, other ships from the Murmansk Shipping Co. and naval vessels dumped at least 15 used reactors, including six units from submarines still containing their uranium fuel, said Andrei A. Zolotkov, a radiation safety engineer with the shipping line.

In the case of the obsolete nuclear-powered icebreaker V. I. Lenin, Zolotkov said, the entire hull section encompassing the ship's three reactors, less their uranium fuel, was cut out with blowtorches and the entire irradiated mass -- measuring 65 by 65 by 35 feet, or as high as a five-story building -- was dumped into the sea.

Seals Die of Cancer

"They must have realized this would ultimately cause ecological damage," Zolotkov said.

The bill for such abuse of nature is now coming due, scientists say. According to officials at the Northern Polar Institute in Archangelsk, seals by the thousands are dying of cancers caused by radioactive pollution of the seabed and fallout from Soviet nuclear tests staged west of the Kara Sea on Novaya Zemlya, the archipelago where the seals spend most of the year.

And much remains to be discovered.

In the bogs northeast of the Siberian city of Tomsk, where plutonium and uranium cores for Soviet nuclear weapons are manufactured, military helicopters with crews clad in protective wet suits have been dumping unidentified drums

into the ooze, then hurling explosive charges after them to warn people away, reports Albina Bychaninova, a local Ph. D. in medical sciences.

Traces of radiation are showing up in ducks and crayfish in the streams and lakes and in forest animals like elk. After eating game and fish tainted with cesium 137 in the Tomsk area in 1990, seven people were hospitalized.

In Kyshtym, near the now-idle reactors of the Mayak facility that poured their waste into Lake Karachai, townspeople talk fearfully of the smoking, unlabeled freight cars that are sometimes routed through the heart of their community on the way to Mayak, which also reprocesses used nuclear fuel. No one will tell them what is inside.

At Kyshtym, as in the Altai, there has been a wave of jaundiced newborns; a veteran midwife at the Kyshtym hospital told an American visitor she has witnessed a recent increase in birth defects and "strangely weak" infants.

At Mayak, between 25 and 30 tons of plutonium, an extremely toxic and fissionable metal, are in storage. Something like 130 additional tons of purer weapons-grade plutonium spread throughout the former Soviet strategic armaments network.

Such enormous quantities of the radiological poison arouse not only concerns about security and the potential for terrorism but health worries. Just 300 pounds of plutonium, if spread to the lungs of the world's entire population, would be enough to cause cancer in each and every human, specialists say.

The exact effects of radiation on the body are still under dispute, so there is no unanimity about the impact on people of all of the "peaceful" Soviet atomic blasts, instances of pollution by nuclear waste and fallout from bomb tests.

The International Atomic Energy Agency performed its own extensive study of Chernobyl's effects in 1990, sending 250 researchers into Russia, Ukraine and Belarus. The U.N. agency summed up its findings this way in a glossy, colorful brochure: "No health effects were found that could be attributed directly to radiation exposure."

Atom Agency Rapped

That conclusion outraged environmentalists, who see the IAEA as a shill for the worldwide nuclear power industry. "The IAEA report was a fraud," Georgetown University professor Murray Feshbach charges. "They didn't even know enough to ask for the (Soviet Health Ministry's) Third Administration data, the data from the agency that kept all the secret health data."

Feshbach, co-author of an indictment of Kremlin environmental practices entitled "Ecocide in the U.S.S.R." and a respected authority on this country's health trends, has his own alarming suppositions about radiation's effects on the peoples of the former Soviet Union.

"It's something I can't prove, and I want to make sure that's understood," Feshbach said in a recent interview. "But I think the gene pool of this population overall, and (especially) in areas like Semipalatinsk, has been affected."

His fear, and that of some specialists in Russia, Ukraine and other former Soviet republics, is that genetic code carried by human chromosomes may have been altered by a "synergy" of simultaneous exposure to radiation, industrial and agricultural poisons, and the adulterated food and poor medical care that most Soviet citizens received.

One who doesn't mince words is Dr. Vladimir M. Lupandin, a senior researcher of the Institute of Sociology of the Russian Academy of Sciences. The jaundiced children now being born in the Altai, the psychiatrist and environmental activist says, are "third-generation nuclear mutants."

On a recent fact-finding mission this year to the western Siberian region, the Moscow-based researcher said he found that 10 of the Yellow Children had died, while survivors were displaying clear signs of birth defects of the brain, liver and circulatory system.

But since jaundice or other diseases don't carry a label saying they are radiation-induced, it has been difficult for scientists like Lupandin to rigorously prove a cause-and-effect link with the Semipalatinsk tests.

One dissenting expert -- a professor in biochemistry, biophysics and genetics from the University of Salzburg, Austria, who works for the IAEA -- contends that by the 1950s, research had shown worries about genetic harm from radiation to be unfounded.

"The human body has incredible repair facilities," Dr. Friedrich Steinhausler said in an interview at the IAEA's Vienna headquarters. "In people who were children in Hiroshima and Nagasaki (in 1945) you don't see chromosome damage, and yet they were subjected to one hell of a dose."

Steinhausler acknowledges that the thyroid cancers now mushrooming in Belarus are probably radiation-induced, since the exploded reactor at the power plant in neighboring Ukraine belched radioactive iodine that would have been readily absorbed by human thyroid glands.

But on the whole, the IAEA scientist dismisses most health problems blamed on Chernobyl as almost certainly the byproduct of stress generated by a pathological fear of radiation, or the statistical result of much better record-keeping.

Meanwhile, to understand better the forces at work, specialists from all over Russia have flocked to the Altai to look into its strange health trends -- such as unusually high rates of circulatory and urinary tract disorders.

Only time, however, will tell what will happen to the Yellow Children.

"As to what will become of these youngsters at, say, sexual maturity, it is too early to say, for this problem only began a few years ago," explains Dr. Ivan F. Zaitsev, chief physician at the Territorial Children's Clinical Hospital in Barnaul, the Altai's capital.

The incidence of the infant jaundice is also an unsolved riddle. It comes and goes, with this summer seeing relatively few cases.

In her ground-floor apartment, Olga Gushchin, her face clouded with worry, bounced her shy, mute son on her knee one afternoon as she talked to a foreign visitor. She has a healthy teen-age daughter, so she knows something is wrong with Andrei. But exactly what?

"I feel his mind will lag behind; that's certain," she said. "But what will happen to us in the future, I don't know."

Moscow bureau reporter Sergei Loiko contributed to this report.

NEXT: How the Soviets created their nuclear mess

A Radioactive Landscape

All across what once was the Soviet Union, residents are discovering the lethal legacy of the Soviet love of the atom. The lingering havoc includes wretched reactors and widespread nuclear pollution even from exploded bombs. This map gives a sampling of some of the disasters and potential trouble spots:

A. Chernobyl: Radiation from 1986 explosion drifted over much of Europe in the world's worst nuclear power accident.

B. Novaya Zemlya: Nuclear tests have contaminated the Kara Sea.

C. Chelyabinsk: An area of about 11,000 square miles has been contaminated by atomic waste dumping at weapons complex.

D. Semipalatinsk: 467 nuclear tests spread radioactivity over farmlands to the northeast.

*

Atomic blast for "peaceful purposes" such as mining

Concentrations of radioactive pollution

Nuclear dump under construction

Large-scale disposal of nuclear waste

Nuclear submarine accident

Older nuclear plant (including Chernobyl-type reactors)

Heightened radiation from local sources

Heavy contamination (1 to 40 curies per square kilometer*)

Moderate contamination (over 1 curie per square kilometer**)

* As of December, 1990

** As of March, 1992

Sources: Rima Vedeneyeva, director of the Yunona Cartographic Center for

Los Angeles Times, September 2, 1992

Social and Ecological Research in Moscow; Associated Press

The Invisible Killer

Radioactivity is measured by the number of disintegrations over time. One common unit is the curie. The Three Mile Island accident in Pennsylvania in 1979 caused 14 curies of radiation to escape; the Chernobyl power plant explosion spewed 50 million curies into the air in 1986.

*

EFFECTS ON HUMANS

Doses can be calibrated in rems. Nuclear power plant workers in the West usually are limited to exposure of no more than 5 rems annually. For the civilian population, the maximum permissible dose is one-tenth of that, or 0.5 rem. In Ukraine, people are subject to mandatory evacuation from areas soiled by Chernobyl fallout if the absorbed dose tops 0.5 rem and have the right to optional relocation if the dose is 0.1 rem. Since radiation occurs in nature, everyone on Earth receives a certain dose. The average natural background radiation from cosmic radiation, radioactivity in the earth and food is 90-100 millirem.

*

RADIATION DANGERS VARY

* Alpha particles are more dangerous than other forms because they are as big as the nucleus of a helium atom -- two protons and two neutrons -- and travel at speeds of about 6,000 miles per second. Protection as flimsy as a sheet of paper stops them. But if absorbed into the body by breathing, ingestion or through an open wound, they can cause great damage to cells.

* Beta particles are much lighter than alpha but travel much faster, at speeds up to 186,000 miles per second. They can be halted by thin metal shields, or even 100 sheets of paper, and usually do not go much deeper than skin level. They typically cause skin cancers.

* Gamma radiation is an electromagnetic wave that travels as fast as the speed of light. It has no mass but is the most penetrating type of radiation and can be stopped only by thick lead or concrete.

Compiled by Times staff writer John-Thor Dahlburg and Moscow bureau researcher Cindy Scharf

Sources: Natural Resources Defense Council, Bulletin of Atomic Scientists

GRAPHIC: Photo, Olga Gushchin holds 2-year-old son Andrei. He is among the Yellow Children of Talmenka, downwind from an atomic bomb test site. SERGEI KIVRIN / For The Times; Photo, Three Mile Island: 14 curies ; Photo, Chernobyl: 50 million curies ; Drawing, A Radioactive Landscape, VICTOR KOTOWITZ / Los Angeles Times

LANGUAGE: ENGLISH

NEWS AND VIEWS

Chornobyl's realities are forgotten

by Bozhena Olshaniwsky

April 26, 1986, is remembered in the annals of the history of humanity as the day of the world's worst nuclear accident – the 10th anniversary of which will be marked this year. We can lay the fault and responsibility for this infamous disaster at the feet of the former Soviet Union, which through its criminal disdain for the human needs and welfare of its citizens led to the Chornobyl catastrophe at the nuclear power station in Ukraine 10 years ago. Its aftereffects will be felt much longer than the aftermath of the nuclear bombings of Hiroshima and Nagasaki at the end of World War II. Let us hope that we have learned our bitter lesson and that no Chornobyls will ever happen again.

Although 10 years have elapsed since this disaster occurred, the effects of this nuclear accident are still being felt by many and may continue for generations to come. At present 3.5 million people live on Ukrainian territory still contaminated by radiation – 1 million of them being children. The government of Ukraine has been unable to relocate these people. It is reported that Ukraine's budget for expenses dealing with the aftereffects of Chornobyl has decreased to a tenth of what it was four years ago.

One gets the feeling that the Chornobyl problem has been moved to the back burner. When the subject of Chornobyl comes up, the concerns addressed are usually with the atomic reactor or the need for energy from the nuclear station – but not for the victims of the disaster. Meanwhile, the deadly effects of radiation continue to maim and kill an unprecedented number of citizens of Ukraine. Following are some statistics on the effects of the Chornobyl fallout, which should be acknowledged and seriously taken under consideration.

- The area contaminated by radiation is more than 19,500 square miles, which constitutes one-tenth of the entire territory of Ukraine, or 232,046 square miles. (As a comparison, Texas has 267,338 square miles.)
- There are 2,294 population units (cities, towns, villages) within this area.
- 17,761 square miles of agricultural land is contaminated by radiation.
- 16,989 square miles of forests are contaminated by radiation.
- 3.2 million persons have been affected by radiation.
- Over 1 million children are affected by radiation.
- More than 125,000 persons have died because of radiation exposure.
- 356,600 persons have participated in the liquidation and on-site clean-up of the aftermath of the Chornobyl accident.
- 50,000 Chornobyl clean-up workers have become disabled because of illnesses caused by excessive exposure to radiation.
- 6,000 clean-up workers have died directly due to radiation.

The Chornobyl problem has extended far beyond the borders of Ukraine and has caused grave consternation to medical doctors, scientists, politicians and governments officials of many countries. Tragically, Chornobyl proved that the "peaceful atom" knows no boundaries.

Recently an international conference dealing with the problems of "the medical consequences of Chornobyl and other radiation catastrophes" was held in Geneva with participants from 59 countries.

The main task of this conference was to analyze and summarize medical data gathered on the aftereffects of Chornobyl in Ukraine, Belarus and Russia by the World Health Organization of the United Nations. Evhen Korolenko, of the Ministry of Health in Ukraine, attended the conference and stated that the Chornobyl catastrophe was the worst medical, ecological, economic, social, psychological and political disaster that ever befell Ukraine. "What can we do about Chornobyl?" is a question being asked more and more frequently by concerned individuals in many countries and also in the press.

Western Europe has finally acknowledged the fact that the closing of the Chornobyl nuclear power station is a concern not only of Ukraine but also of the international community, since Ukraine lacks the capability to solve this problem. A number of experts have stated that the Chornobyl nuclear reactor must be shut down since it is not safe and is a threat to humanity.

But, it is easier to say "shut it down" than to accomplish this task in the face of the facts that the Chornobyl plant produces 5 to 7 percent of Ukraine's power and that its closing, according to the Ukrainian government, will cost over $4 billion. So far, the G-7 states have promised Ukraine $ 2.3 billion, part of which is for loans for the construction of new power stations.

The chairman of the Parliament of Ukraine, Oleksander Moroz, stated that he is in favor of closing the Chornobyl station only if its entire cost is covered by the international community. Ukraine has no such funds available. He also stated that the memorandum on Chornobyl's shutdown, which was signed by Ukraine on December 20, 1995, in Canada, will ruin Ukraine's energy production system.

By his stance Mr. Moroz is using the closing of the Chornobyl power station as a bargaining chip to extract more money from the international community while the people of Ukraine continue to suffer as the negotiations drag. This is equivalent to being held hostage in a hostile and poisonous climate of excessive radiation, which poses a threat to the health and lives of all living things.

Ecological organizations such as Green World and Green Peace in Ukraine have appealed to Mr. Moroz to seriously consider closing down the Chornobyl plant. In their letter they point out that:

- The first nuclear disaster at the Chornobyl plant happened in 1982, but information about it was never disclosed.
- The second accident in 1986 wreaked nuclear havoc, affecting all of Europe.
- There were 125 accidents at nuclear power plants in Ukraine during 1994 – 109 of them were at the Chornobyl plant.

Numerous charitable, humanitarian and environmental organizations in the United States and Canada have focused their work within the realm of damage control, that is, helping the affected victims, the sick and the poor in Ukraine.

Americans for Human Rights in Ukraine (AHRU) has directed its work toward the prevention and removal of the cause of the problems at Chornobyl. Their primary thrust has been to shut down the source of contamination and move the potential victims from contaminated areas before they become sick. To this end, AHRU has directed its approach during the past nine years by writing appeals and sending petitions to the G-7 and the United Nations.

The next meeting of the G-7 will take place in April of this year in Moscow. The question "to be or not to be" for the Chornobyl power station will again be bantered about by the seven major industrial powers. And, Ukraine's good relations with the European community will probably be made dependent on the resolution of the Chornobyl question.

Bozhena Olshaniwsky is president of Americans for Human Rights in Ukraine.

Rice takes the lead in New Jersey to commemorate Chornobyl disaster

by Walter Bodnar

NEWARK, N.J. – Utilizing his dual position as New Jersey state senator and city councilman, Ronald L. Rice will take the lead in New Jersey in commemorating the 10th anniversary of the Chornobyl nuclear disaster by sponsoring and presenting resolutions both in Trenton, the state capital and in the city of Newark.

The two ceremonial introductions of the Chornobyl commemorative resolutions will take place at the following locations:

• in Trenton, on Thursday, March 21, at 2 p.m. in the New Jersey State Senate Chambers, 125 W. State St., and

• in Newark, on Wednesday, April 17, at 7 p.m. in the City Council Chambers, third floor, City Hall, 920 Broad St.

The resolutions state, in part that "the people of Chornobyl, still heavily burdened with the aftereffects of the nuclear explosion, continue to drink radioactive water, eat radioactive food and suffer from diseases caused by radiation, i.e., cancer, leukemia, diminished immunity, birth defects..."

Mr. Rice, a member of the Health Committee in the state Senate, represents a large constituency of Americans of Ukrainian heritage both in the West Ward of Newark and the 28th Congressonal District of New Jersey, which encompasses a part of Newark plus Irvington, Maplewood and South Orange.

In addition to his governmental duties, Mr. Rice has shown a sensitivity to the needs of the Ukrainian American community that he represents, and has willingly taken a personal approach to its desires and aspirations. The 10th anniversey commemoration of the Chornobyl disaster is but one of the many legislative actions that he has introduced.

He also has initiated resolutions supporting the independence of Ukraine, legislation to include studies in the New Jersey State Curriculum Guide of the Ukrainian famine of 1932-1933, and resolutions and statements on Chornobyl during the past 10 years.

Mr. Rice, who has announced his readiness to run for the office of mayor of Newark in order to root out corruption and improve the quality of life in the area for people of all races and creeds, extends his scope beyond the borders of his district.

He was introduced to Ukrainian environmental and health concerns by Americans for Human Rights in Ukraine and the Green World organization in Ukraine. This is reflected in his resolutions that state: "It is both proper and fitting for the members of this House to pause in their deliberations to recognize the tireless efforts of Americans for Human Rights in Ukraine in New Jersey, the Green World in Ukraine and other environmental organizations that recommend closing of the Chornobyl nuclear power station in Ukraine since it endangers the health and life of the people of Ukraine and surrounding areas, and destroys their natural resources by rendering them radioactive."

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TUESDAY, APRIL 23, 1996

Jessica Mathews

The Chernobyl Curse ...

On April 26, 1986, Chernobyl Unit 4 exploded, releasing 200 times as much radiation as Hiroshima and Nagasaki combined. In the 10 years since, only one indisputable result has become clear, and that is the one least recognized in the West. We know now that the catastrophe played a substantial role in the collapse of the Soviet Union. We cannot yet even guess at what human, environmental and economic cost.

Don't think of Chernobyl as a past event. It is a still unfolding story. If it were a book, we would be perhaps one-third of the way through. The later chapters are still unwritten.

The Soviet regime's immediate reaction to the explosion was to lie and to launch a massive coverup that would continue for years. Those who lived near the reactor were told that it was just a fire, that there was no danger, even as party members and their families fled. Foreign broadcasts were jammed. Only after suffering days of unnecessary radiation were the first 100,000 people evacuated.

The coverup stayed intact until 1989, when maps were released showing the extent of contamination and additional, belated evacuations were ordered. Pravda ran a front-page account by a "liquidator," as cleanup workers are known, who reported that while dosimeters showed his group being exposured to 70 roentgens, his supervisor would record 1.5 because, "I don't have the right to record any dose that high. . . . The bosses would chew me out."

As the truth leaked out, Ukraine, where Chernobyl is located, and Belarus, where most of the radiation fell, erupted in outrage. Soviet abuses, people realized, were not a thing of the past. The revelations, writes then-U.S. Ambassador Jack Matlock in "Autopsy of an Empire," "galvanized hatred" for the regime. At a crucial moment Chernobyl legitimized anti-Soviet national movements, not in the peripheral Baltics, but in the very heart of the U.S.S.R..

The fury drove into politics men who were to drive later events. Physicist Stanislav Shushkevich, who was to become the head of state of Belarus and whom Matlock describes as playing "a key role in destroying the Soviet Union," was one. Epidemiologist Yuri Shcherbak, who founded the Ukrainian Greens and from a seat on the Supreme Soviet forced the first investigation of Chernobyl, and who is now ambassador to the United States, was another. How many tens of thousands of other scientists, doctors, technicians, bureaucrats and cleanup workers were similarly radicalized we shall never know.

In the heart of the Kremlin, too, the effects were profound. Defense Minister Dmitri Yazov later confessed that Chernobyl destroyed his conviction that nuclear war could be fought and won. More important, the calamity proved that continuing secrecy, propaganda and manipulated news could never be compatible with real reform of the Communist system.

Partly as a result of the coverup, and partly because of the lack of prior health data, it is unlikely that Chernobyl's health effects, even the number of deaths, will ever be known. Russia uses the official figure of 31 deaths so far. The Ukrainian Greens estimate 32,000. The Ukrainian government uses a figure of 8,000.

Time may not greatly clarify the picture. The 800,000 heavily exposed liquidators are, intentionally, scattered all over the former Soviet Union. Where their records exist, they are almost certain (see above) to be inaccurate. Civilian records are not much better. There is clear evidence of a wave of thyroid cancer among children. It is too soon to see adult thyroid cancer, leukemias or other long-latency cancers. Damaged immune systems, cardiac and reproductive disorders and other illnesses are being tracked, but it may never be possible to sort out the effects of radiation from those of extreme stress. About all one can say now, and perhaps for decades, is that the figure of 31 deaths is a travesty.

Exposures continue. Thousands of settlements and millions of acres have been abandoned, including much of Belarus's best agricultural land, and 400,000 people have been evacuated. But at least 300,000 more, and perhaps many times that number, still live on land that is unacceptably dangerous by Western standards. Others eat radioactive vegetables. Thirty million people drink water from contaminated rivers.

Belarus estimates that it spends 15 percent of its GDP on Chernobyl's aftermath; Ukraine spends 5 percent of its budget. Both amounts meet only a small fraction of the human need. Cleanup of the vast, contaminated areas cannot even be thought of. Even the reactor itself is still a danger: The sarcophagus built to contain huge amounts of radioactive dust is crumbling.

Could it happen again? It's difficult to know just how dangerous the dozens of Soviet-built reactors are. Conditions at many have been reported to be awful, but Western contractors and governments with Soviet-era reactors have a strong interest in exaggerating safety risks that the United States and Europeans might pay to fix. On the other hand, there may not be much need to exaggerate. West Germany, which took a close look at some of these reactors, provides a clue: Within a year after unification, it had closed all six of East Germany's reactors and the five that were under construction.

Thousands of ghost towns in Russia, Ukraine and Belarus are silent testimony to much of what was wrong with Soviet communism. Whether they will ultimately have anything definite to say about the benefits and costs of nuclear energy, remains for the future.

The writer is a senior fellow at the Council on Foreign Relations.

Yelena Levchenko

... And a Cry From Belarus

I am from Gomel, a town in Belarus only 80 miles from Chernobyl. When people ask me about what happened there 10 years ago, I give my own example.

I have two children—Anatoly, my son age 10, and Tatayna, my daughter who is 14. When my daughter was 6, she had osteomyelitis



hip-coxal articulation as a side effect of flu. In plain, nonmedical language, this means her bones had become infected. She was in a hospital for two months.

During the first week, the doctors said she likely would not survive. In the second week they said they would have to amputate the leg. Later, they said only that she would be lame. But thanks to God and the doctors, she can now walk normally. Her immune system is very weak, however; she has colds every month.

The legacy of Chernobyl will be with Belarus for hundreds of years. The tragedy is human, but it also costs us a lot in the economic sense. It has been reported that the the potential expenses from the Chernobyl disaster amount to approximately 30 times the country's whole budget.

Through no fault of their own, Belarussians have become victims of this tragedy, with consequences we cannot afford. The economy is in deep crisis, production has dropped sharply. The resources of both public and very small private sectors are already exhausted. Belarus cannot help itself.

The writer is a visiting researcher at the Graduate Public Policies Program at Georgetown University.

THE WASHINGTON POST
TUESDAY, APRIL 23, 1996

The Washington Post

AN INDEPENDENT NEWSPAPER

Next in the Middle East

IT IS MISCHIEVOUS of Russia, France and Italy, not to mention Iran, to be running around the Mideast tossing in proposals for the crisis in Lebanon. Inevitably their several plans and purposes are diluting what should be a common focus on a single plan. Not that all diplomatic genius and political legitimacy reside in Washington. But the United States by its preferred access to the state parties and by its well-earned primacy in leading regionwide peace efforts is the country best situated to end this crisis now.

Everyone wants a cease-fire. The differences are over terms. The American approach centers on improving the flawed arrangements of 1993 by which Israelis and Hezbollah undertook not to fire at each other's civilians. The improvements would broaden these cease-fire commitments, make them written and require their enforcement by Lebanon and especially by Syria. Further, Washington backs Israel in leaving an Israeli presence in southern Lebanon as a card for Israel's later play in peace talks with Syria.

The Russians and French suggest what turn out to be looser cease-fire arrangements. They would ask Israel to give up its southern Lebanon presence now for a promise of quiet in northern Israel, rather than preserving that presence for negotiation with Syria over return of the Golan Heights. They would draw Iran—Hezbollah's ideological sponsor and America's bane—into the Lebanon circle.

The immediate negotiating prospect is not cheering. Syria's master of cynicism, Hafez Assad, blew up the fire by reportedly allowing some 900 rockets to be trucked in to Hezbollah from Iran and is now enjoying being cultivated by one foreign minister after another. Hezbollah is basking in the glow generated by its successful defiance of Israel's military might and by the opprobrium flowing to Jerusalem on account of its ferocious and continuing retaliatory bombardments hitting civilian targets up and down Lebanon. Israel heads toward May elections that inevitably will be shadowed by recriminations over this latest of Lebanon penetrations gone deeply awry.

In the circumstances, the United States should get the shooting closed down promptly and with as little damage to future diplomacy as possible and pick up with the winners of Israel's elections next month. A peace treaty between Syria, which with general Western approval "protects" and occupies most of Lebanon, and Israel becomes more necessary than ever.

Sen. Dole and the Judges

SEN. BOB DOLE told the American Society of Newspaper Editors that one of "the root causes of the crime explosion" is the liberal slant of judges appointed to the federal bench by President Clinton. If the Democrats retain control of the White House, he predicts, the "security and safety [of] America's families" will be at risk. The charge that crime is a result of liberal judging is not exactly a novel idea, but it does seem to us that Sen. Dole is a little behind the times in making it.

To be sure, the quality of potential nominees is fair game for election debate. As Chief Justice Rehnquist reminded an audience earlier this month, judges are not immune from criticism, nor are appointing authorities insulated from criticism when those choices turn out to be flawed.

But a look at the Clinton record in this area provides the best argument against the senator's hyperbole. This president has appointed 155 judges at the District Court level, 30 to the courts of appeals and two to the U.S. Supreme Court. Of that number, Sen. Dole has ferreted out for criticism a handful of cases decided by four named judges. That is a truly infinitesimal fraction of the thousands and thousands of cases that have been heard in federal courts since January 1993. Even if one were to agree that these few judges were wrong in these few cases, it would be ridiculous to conclude that they have led to a crisis in law enforcement threatening the nation's security.

It is ironic, moreover, that the administration is under attack for appointing liberal judges when for the last couple of years most of the complaints have come from those who believe that the Clinton nominees have been too moderate. One appellate court judge in California, for example, recently labeled the president "gutless" for this reason. In fact, the president has been cautious, rejecting some very well-qualified candidates in favor of those who would win confirmation by the Republican Senate. And he was successful. Every nominee has been confirmed, and only three were put to a recorded vote—one in a dispute over residence, not ideology.

The senator also criticizes the American Bar Association for the role it plays in evaluating nominees. As president, he would be free to consult or ignore the advice of any group in choosing judges. But he should keep in mind the fact that most criminal cases are handled by state, not federal, judges. The latter have primary responsibility in complicated areas such as antitrust, copyright, administrative law, federal tax and the myriad other matters involving statutory and constitutional interpretation. When he suggests that a panel of police officers, crime victims, prosecutors and others replace the ABA in examining the credentials of potential nominees, he is playing to the crowd and badly underestimating the responsibilities these judges will assume.

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June 27, 1995

SECTION: NEWS

LENGTH: 1094 words

HEADLINE: Chernobyl's Fallout: Children Ravaged by Cancer

BYLINE: Margaret Shapiro

DATELINE: BOROVLYANI, Belarus

BODY:

Bald and waiflike, dozens of children with translucent skin and sunken eyes wander through the corridors of the state cancer institute here, heartbreaking testament to the radioactive aftermath of the world's worst nuclear disaster.

These tiny patients have cancers that in the past were seen rarely here: of thighbones, of the lungs, of soft tissue and, especially, of the thyroid. The Chernobyl nuclear power plant is in Ukraine, but when it exploded in 1986, 70 percent of its deadly radioactivity fell here, to the north and west, on the pancake-flat plains and forests of the now independent nation of Belarus.

Ever since, the statistics of cancer, congenital malformations and illness, especially among children, have been rising.

"At first people did not want to link these medical problems with Chernobyl, and many accused us of radiation phobia," said Yevgeni Konoplya, director of theRadiobiology Institute of Belarus's Academy of Sciences and an expert on post-Chernobyl effects.

"But now they know," he said. "All the problems they faced in Nagasaki we facehere. There was no place as hard hit by Chernobyl as Belarus."

And the blows keep coming. At the time of the accident in 1986, more than 2 million Belarussians were exposed to high levels of radiation, with only a belated warning and action from the Soviet government. Eventually, Moscow relocated thousands of people from some of the hardest-hit areas of Ukraine and Belarus to other spots.

Since then, the collapse of the Soviet Union and the poverty of the newly independent countries that replaced it have offered little further relief. Experts say that when Chernobyl exploded, huge tracts of farmland from Gomel to Brest and Mogilev were contaminated with major doses of radioactive cesium, strontium and even some plutonium. They say very little is still being done to remedy the situation in Belarus, an impoverished nation of 10 million.

"The government has no money to resettle people, to provide fertilizers, to provide medical care," said Gennadi Grushevoi, head of the private Belarussian

charitable fund For the Children of Chernobyl. Some scientists suggest that fertilizers can reduce the amount of radiation absorbed by plants.

The Children of Chernobyl fund raises money abroad and from some local businesses to support a wide range of medical and social programs for affected children and their families.

According to the fund, hundreds of thousands of people still live in "dirty" areas and consume locally grown food and milk, which tests often show are contaminated with unacceptably high levels of radiation, heavy metals and chemicals.

More than 2 million people live in officially "clean" areas, which nonethelessregister substantially higher than normal levels of background radiation, the fund said.

"The problem is the collective dose of radioactivity is increasing," said Vasili Nesterenko, an economist with the Institute of Radiation Security, who isalso a member of the Belarus Parliament. "We get it through the food."

The most dramatic sign of what experts here believe will be an epidemic of oddcancers to come from Chernobyl is the striking upsurge in cases of thyroid cancers and precancerous thyroid conditions in children.

In 1986, before Chernobyl, according to Yevgeni Demidchuk, director of the republic's Scientific and Practical Center of Thyroid Cancer in Minsk, Belarus registered just two cases of thyroid cancer in children under 14, about a typical number for a country its size.

By 1992, that number had soared to 66 cases and last year to 82, a surge so sudden and severe that international experts, initially skeptical about Belarus's post-Chernobyl health claims, now acknowledge it can only be explainedby Chernobyl fallout.

"This is Chernobyl, for sure," Mr. Demidchuk said.

Precancerous thyroid conditions in children are even more widespread.

"This is on a mass scale, several million kids who might develop thyroid cancer," Mr. Konoplya said.

At the Borovlyani cancer institute near Minsk, more than 50 children are now being treated for brain tumors, bone tumors, kidney tumors and other cancers. Hundreds more already have come through this facility and left their mark. On the green walls of the children's floor, dozens of crayon drawings - of rainbows, of forests, of smiling children - are taped, many done by children no longer living.

It is hard to work here, said Svetlana Petrovich, 30, one of the doctors on thward. Not because the children are so sick, and many of them will die so young, but because in many cases a lack of equipment or medicine makes it very hard to treat them properly. The government can provide little funding.

Doctors get about $65 a month here and nurses about $40. Most of the nurses arclad in yellow medical gowns given as humanitarian aid by the Paris hospital

system. Chemotherapy medications are provided also from overseas, but the medications that reduce the side effects of chemotherapy are not available. "We do not have the money to buy it," Dr. Petrovich said.

Some antibiotics are available here - unlike the average hospital in Belarus, where patients often must supply their own - but the new medications needed by some children already resistant to old antibiotics are too expensive.

Two weeks ago the cancer ward was getting low on intravenous tubes and was running out of catheters, so the nurses were finding other ways to administer medicines when possible. The ward no longer can use some chemotherapies that have to be monitored very closely through blood tests.

LANGUAGE: ENGLISH

LOAD-DATE: June 28, 1995

CHORNOBYL

Ted Pantages to be honorary chair of Chornobyl Challenge '96

Mention the Russian + Byellorussian ambassador

But I also want to mention Dr.

→ have had academic symposia, prayer service — input ways for all of us to reflect on what more we can do as citizens of the world

Intro VP -

- he has paid so much attn to Chornobyl
- Chernomyrdin - known him ck.

Audience = NGOs
business
scientists/physicians
church leaders

Chernobyl

Belarus (Minsk)

Children afflicted w/ thyroid cancer (dozens)
Some w/ hair; some no hair
They performed for her;
Pix - Welcome Mrs. Clinton
Sharon Moore - wrote a bk abt helping
Chernobyl - target to childen in Minsk

Kiev

Visited mothers who were expecty children
Talked abt genital probs -
won't know for yrs full impact
- how will it affect kids

Also docs who are treating these ppl
Partners w/ Pitts Children
Humanitarian response of America
Tragedy that knows no boundaries

After WH - gather at St. Johns - prayer service
come together x religious lines
HRC = honorary chair of Chernobyl challenge
They've concentrated - role of
academia; scientific; humanitarian; spiritual
- ppl who come together on the day -
Ukraine + US to raise $$ +
call to action

VOVA - little boy who got cancer -
12 yrs old

Humanitarian -

→ thyroid cancer -
came to U.S. ~~from~~
for treatment

Alex Kuzma
Children of Chernobyl
Albany
Vice - president - new NW
made 483-0383.

→ Ukrainian
NGOs. medical treatment, hospital
diplomatic people
Clinton
US AID people
UN
making sure new
happens again
nuclear safety
partnerships
medical
supplies
chemotherapy

2000

Chornobyl's Tenth Anniversary Commemoration: April 10 Event
Agenda for
April 1 Coordination Meeting
4:30 -5:30 p.m. Rm. 100

Status of actions completed

- press release
- letter from the President (to Children of Chornobyl events?)
- invitations (2nd tier list)

Press Package:

- Assistance and U.S. role - Vpons announcement
- G-7 Efforts/accomplishments
- MOU on Chornobyl
- Background on PVOs
- Historical account of the accident
- List of Participants
- Presidential message

Material for the program: due by 4/3

- Background (1 page) on Vova, the child
- Background on the bandura duo -?
- Drawing exhibit
- Statement to describe the event

Other children to be invited: due by

Input to social office

Outlines for the speeches

Ukraine, West Debate Shutting, Safety of Plant

By James Rupert
Washington Post Foreign Service

KIEV, Ukraine—Western and Ukrainian officials agree: Ten years after a reactor at the Chernobyl power station exploded in the world's worst nuclear accident, the plant remains one of the planet's most dangerous nuclear installations. They just do not quite agree on why.

Western officials say the most urgent problem is Chernobyl's two working reactors, which have the flawed design of the one that exploded and are poorly maintained. This spring, the Chernobyl plant is so short of money that it has put off for three months a scheduled maintenance overhaul on Reactor No. 3 and has left employees unpaid.

Ukraine says the reactors are working safely enough. Instead, it stresses that the 20-story concrete tomb over the destroyed reactor, called the "sarcophagus"—built to keep deadly radiation from escaping—is deteriorating faster than expected, and can be expected to survive only 10 to 15 more years.

Amid a welter of nuclear safety problems in the former Soviet Bloc—including smuggling of radioactive materials and security of nuclear weapons—Chernobyl remains a high priority. But efforts to make the plant safer have been slowed by disagreement over the source of its dangers and who will pay to fix them.

Western governments, especially in Europe, are pressing Ukraine to shut down Chernobyl's two operating reactors. Ukraine has accused the West of obsessing over the reactors, noting that 13 others of the same design operate in the former Soviet Union without such pressure from the West. Instead, Ukraine is pushing the West to help pay to replace the tomb that protects the environment from the intensely radioactive remains of Reactor No. 4, which blew up in 1986.

Western Europeans' emphasis on closing the working reactors "is a natural position," a European diplomat said. "Our populations also were put at risk in the 1986 accident," when a radioactive plume drifted over the continent. The environmental hazards of the decaying sarcophagus threaten primarily Ukraine and neighboring Belarus.

Ukraine decided in 1992 to close Chernobyl the following year. But with the country impoverished and desperately short of affordable energy, legislators reversed the decision only 10 weeks before the plant was to stop operations.

Closing the reactors and losing the 5,000 jobs they provide remains a politically painful step. Still, in December, after years of negotiations, Ukraine signed a non-binding memorandum with the Group of Seven largest industrialized nations and the European Union to close Chernobyl by 2000.

The Western nations and their lending institutions have promised to help both in funding the shutdown and in compensating for the loss of Chernobyl's production, which is about 5 percent of Ukraine's electricity supply. So far, the Western donors have earmarked about $3 billion, mostly in loans, to streamline Ukraine's inefficient energy sector and complete construction of two reactors at other Ukrainian nuclear plants.

In recent months, some U.S. and European officials who deal with Ukraine on these issues have expressed greater sympathy for its need to preserve jobs for Chernobyl's workers. Previously, "the West tended to look only at the issue of getting the reactors closed . . . but that wasn't working," one official said.

"It'll be very important that the West follow through with this aid" to help upgrade Ukraine's energy sector, he said, "because if we have not addressed [Ukraine's] social concerns, it will be very difficult for them to flip the switch" to shut down Chernobyl in the end.

The Group of Seven has invited Ukrainian President Leonid Kuchma to Moscow for the summit conference on nuclear safety issues that starts today, largely "for a general reaffirmation of the commitments already made" to close Chernobyl, a Western diplomat said.

Western and Ukrainian nuclear specialists say safety upgrades that followed the 1986 accident now prevent a recurrence of that disaster. Still, Western specialists say, Chernobyl's safety is so flawed that the plant should be closed quickly.

Yet, in the ruins of the Soviet nuclear industry, Chernobyl's problems are typical for power plants. In the depressed economies of former Soviet countries, electrical bills are not being paid, so nuclear plants are nearly bankrupt.

Chernobyl often has to barter for its supplies. This month it had to suspend the daily process of refueling its reactors for several days after running out of uranium fuel. Plant director Serhei Parashin only obtained more by persuading his Russian supplier to accept an IOU, Ukrainian and U.S. nuclear specialists said.

More disturbingly, the plant "is postponing the annual maintenance outage for Reactor 3 from March 4 until sometime in June," said Laurin Dodd, manager of the international nuclear safety program at the U.S. government's Pacific Northwest National Laboratory in Richland, Wash.

Parashin and his plant still suffer from a Soviet-inherited culture that put a low priority on safety, Dodd said. "His first priority is not the safety of the plant but taking care of the 30,000 people," employees and their families, who depend on it for their livelihood.

Since the accident, the plant has spent heavily to help build the city of Slavutich, 25 miles to the east, where its employees now live, and Parashin has been criticized for continuing lavish spending there while other functions of the plant suffer.

Chernobyl plant spokesman Alexander Slavis disagreed. "Safety is always our first priority," he said, and "a big part of safety depends on the people and their psychological conditions. That's why . . . living standards and working conditions . . . are among the first priorities as well."

A problem particular to Chernobyl is that many of its best workers have quit since 1992 because of doubts that the plant has a long-term future. Dodd, who visited the plant this month, said the current staff "is generally young . . . but impressive." Still, "I think they are so concerned about their future, they're reluctant to report problems," he said.

This month, Ukraine's nuclear safety authority ordered a top safety official at Chernobyl removed and others reprimanded, saying they had tried to cover up the seriousness of an accident in November in which radioactivity was released into the plant.

While many of Chernobyl's problems are typical of ex-Soviet power plants, one is unique: the crumbling, 300,000-ton sarcophagus over the remains of Reactor No. 4. Both the dangers of the sarcophagus and the proposed solutions read like science fiction fantasy.

According to the few who have been inside, the remains of the 1986 Chernobyl disaster form a dark, otherworldly landscape. A massive, rubble-filled cavern is dank with humidity and buzzing with radiation from perhaps 200 tons of uranium reactor fuel that melted during the 1986 fire and since has solidified into a glass-like material.

"It is like the heart of a monster," said Igor Kostin, a Ukrainian photographer who has been inside.

Cracks and holes in the walls admit shafts of light and allow radioactive dust to escape. Sprinklers built into the tomb spray water and chemicals to dampen the tons of dust, but they corrode the steel beams that support the structure. The beams also are growing brittle under radioactive bombardment.

Scientists say the tomb may be too heavy for the foundation supporting it and would be unstable in an earthquake or flood. Last month, Ukrainian Environment Minister Yuri Kostenko said the tomb should be expected to last only another 10 to 15 years.

A collapse of the tomb would raise a highly radioactive dust cloud that would re-contaminate the environment for perhaps 20 to 30 miles around, scientists said. Theoretically, such a collapse—or a shift of unstable debris within the sarcophagus—could concentrate a critical mass of uranium fuel, causing new nuclear fission that would emit more radiation.

But the immediate hazard is that the sarcophagus is leaching radiation into the groundwater that slowly is making its way to the nearby Dnieper River—Ukraine's Mississippi. Radioactive contamination of the Dnieper would threaten drinking water for Kiev, just downstream, and many other Ukrainian cities.

This is why "the Ukrainians see the sarcophagus as a greater danger than the reactors," said a Western diplomat here. "They're afraid they're going to get left holding the bag," without sufficient Western aid to clean up the destroyed reactor.

While the West has anted up hundreds of millions of dollars to help close the reactors, it has promised no money so far to address the problems of the sarcophagus. The European Union's governing commission is paying several million dollars for feasibility and planning studies on the problem.

A study finished last year suggested that a cleanup would take as much as a century. It recommended building a massive, high-tech dome or cube around the destroyed reactor and adjacent buildings. Such a vessel would use double hulls and air locks to help prevent the escape of radiation.

Inside the vessel, robot bulldozers, cranes and other machinery would work to dismantle the sarcophagus, removing the most poisonous wastes first for processing and eventual storage. Controllers in a center outside the vessel would guide the work via television monitors.

Much about the cleanup concept is unaddressed. It would create a virtual mountain of nuclear waste that would require huge storage sites. And, according to European Commission spokesman Nicholas Wegter, "there is still no source for financing" the concept. He said evidence so far suggests a construction cost for the vessel of $1 billion to $1.5 billion.

THE WASHINGTON POST
FRIDAY, APRIL 19, 1996

THE WASHINGTON POST
TUESDAY, APRIL 23, 1996

Jessica Mathews

The Chernobyl Curse ...

On April 26, 1986, Chernobyl Unit 4 exploded, releasing 200 times as much radiation as Hiroshima and Nagasaki combined. In the 10 years since, only one indisputable result has become clear, and that is the one least recognized in the West. We know now that the catastrophe played a substantial role in the collapse of the Soviet Union. We cannot yet even guess at what human, environmental and economic cost.

Don't think of Chernobyl as a past event. It is a still unfolding story. If it were a book, we would be perhaps one-third of the way through. The later chapters are still unwritten.

The Soviet regime's immediate reaction to the explosion was to lie and to launch a massive coverup that would continue for years. Those who lived near the reactor were told that it was just a fire, that there was no danger, even as party members and their families fled. Foreign broadcasts were jammed. Only after suffering days of unnecessary radiation were the first 100,000 people evacuated.

The coverup stayed intact until 1989, when maps were released showing the extent of contamination and additional, belated evacuations were ordered. Pravda ran a front-page account by a "liquidator," as cleanup workers are known, who reported that while dosimeters showed his group being exposured to 70 roentgens, his supervisor would record 1.5 because, "I don't have the right to record any dose that high. ... The bosses would chew me out."

As the truth leaked out, Ukraine, where Chernobyl is located, and Belarus, where most of the radiation fell, erupted in outrage. Soviet abuses, people realized, were not a thing of the past. The revelations, writes then-U.S. Ambassador Jack Matlock in "Autopsy of an Empire," "galvanized hatred" for the regime. At a crucial moment Chernobyl legitimized anti-Soviet national movements, not in the peripheral Baltics, but in the very heart of the U.S.S.R..

The fury drove into politics men who were to drive later events. Physicist Stanislav Shushkevich, who was to become the head of state of Belarus and whom Matlock describes as playing "a key role in destroying the Soviet Union," was one. Epidemiologist Yuri Shcherbak, who founded the Ukrainian Greens and from a seat on the Supreme Soviet forced the first investigation of Chernobyl, and who is now ambassador to the United States, was another. How many tens of thousands of other scientists, doctors, technicians, bureaucrats and cleanup workers were similarly radicalized we shall never know.

In the heart of the Kremlin, too, the effects were profound. Defense Minister Dmitri Yazov later confessed that Chernobyl destroyed his conviction that nuclear war could be fought and won. More important, the calamity proved that continuing secrecy, propaganda and manipulated news could never be compatible with real reform of the Communist system.

Partly as a result of the coverup, and partly because of the lack of prior health data, it is unlikely that Chernobyl's health effects, even the number of deaths, will ever be known. Russia uses the official figure of 31 deaths so far. The Ukrainian Greens estimate 32,000. The Ukrainian government uses a figure of 8,000.

Time may not greatly clarify the picture. The 800,000 heavily exposed liquidators are, intentionally, scattered all over the former Soviet Union. Where their records exist, they are almost certain (see above) to be inaccurate. Civilian records are not much better. There is clear evidence of a wave of thyroid cancer among children. It is too soon to see adult thyroid cancer, leukemias or other long-latency cancers. Damaged immune systems, cardiac and reproductive disorders and other illnesses are being tracked, but it may never be possible to sort out the effects of radiation from those of extreme stress. About all one can say now, and perhaps for decades, is that the figure of 31 deaths is a travesty.

Exposures continue. Thousands of settlements and millions of acres have been abandoned, including much of Belarus's best agricultural land, and 400,000 people have been evacuated. But at least 300,000 more, and perhaps many times that number, still live on land that is unacceptably dangerous by Western standards. Others eat radioactive vegetables. Thirty million people drink water from contaminated rivers.

Belarus estimates that it spends 15 percent of its GDP on Chernobyl's aftermath; Ukraine spends 5 percent of its budget. Both amounts meet only a small fraction of the human need. Cleanup of the vast, contaminated areas cannot even be thought of. Even the reactor itself is still a danger: The sarcophagus built to contain huge amounts of radioactive dust is crumbling.

Could it happen again? It's difficult to know just how dangerous the dozens of Soviet-built reactors are. Conditions at many have been reported to be awful, but Western contractors and governments with Soviet-era reactors have a strong interest in exaggerating safety risks that the United States and Europeans might pay to fix. On the other hand, there may not be much need to exaggerate. West Germany, which took a close look at some of these reactors, provides a clue: Within a year after unification, it had closed all six of East Germany's reactors and the five that were under construction.

Thousands of ghost towns in Russia, Ukraine and Belarus are silent testimony to much of what was wrong with Soviet communism. Whether they will ultimately have anything definite to say about the benefits and costs of nuclear energy, remains for the future.

The writer is a senior fellow at the Council on Foreign Relations.

Yelena Levchenko

... And a Cry From Belarus

I am from Gomel, a town in Belarus only 80 miles from Chernobyl. When people ask me about what happened there 10 years ago, I give my own example.

I have two children—Anatoly, my son age 10, and Tatayna, my daughter who is 14. When my daughter was 6, she had osteomyelitis



hip-coxal articulation as a side effect of flu. In plain, nonmedical language, this means her bones had become infected. She was in a hospital for two months.

During the first week, the doctors said she likely would not survive. In the second week they said they would have to amputate the leg. Later, they said only that she would be lame. But thanks to God and the doctors, she can now walk normally. Her immune system is very weak, however; she has colds every month.

The legacy of Chernobyl will be with Belarus for hundreds of years. The tragedy is human, but it also costs us a lot in the economic sense. It has been reported that the the potential expenses from the Chernobyl disaster amount to approximately 30 times the country's whole budget.

Through no fault of their own, Belarussians have become victims of this tragedy, with consequences we cannot afford. The economy is in deep crisis, production has dropped sharply. The resources of both public and very small private sectors are already exhausted. Belarus cannot help itself.

The writer is a visiting researcher at the Graduate Public Policies Program at Georgetown University.

THE WASHINGTON POST
TUESDAY, APRIL 23, 1996

The Washington Post

AN INDEPENDENT NEWSPAPER

Next in the Middle East

IT IS MISCHIEVOUS of Russia, France and Italy, not to mention Iran, to be running around the Mideast tossing in proposals for the crisis in Lebanon. Inevitably their several plans and purposes are diluting what should be a common focus on a single plan. Not that all diplomatic genius and political legitimacy reside in Washington. But the United States by its preferred access to the state parties and by its well-earned primacy in leading regionwide peace efforts is the country best situated to end this crisis now.

Everyone wants a cease-fire. The differences are over terms. The American approach centers on improving the flawed arrangements of 1993 by which Israelis and Hezbollah undertook not to fire at each other's civilians. The improvements would broaden these cease-fire commitments, make them written and require their enforcement by Lebanon and especially by Syria. Further, Washington backs Israel in leaving an Israeli presence in southern Lebanon as a card for Israel's later play in peace talks with Syria.

The Russians and French suggest what turn out to be looser cease-fire arrangements. They would ask Israel to give up its southern Lebanon presence now for a promise of quiet in northern Israel, rather than preserving that presence for negotiation with Syria over return of the Golan Heights. They would draw Iran—Hezbollah's ideological sponsor and America's bane—into the Lebanon circle.

The immediate negotiating prospect is not cheering. Syria's master of cynicism, Hafez Assad, blew up the fire by reportedly allowing some 900 rockets to be trucked in to Hezbollah from Iran and is now enjoying being cultivated by one foreign minister after another. Hezbollah is basking in the glow generated by its successful defiance of Israel's military might and by the opprobrium flowing to Jerusalem on account of its ferocious and continuing retaliatory bombardments hitting civilian targets up and down Lebanon. Israel heads toward May elections that inevitably will be shadowed by recriminations over this latest of Lebanon penetrations gone deeply awry.

In the circumstances, the United States should get the shooting closed down promptly and with as little damage to future diplomacy as possible and pick up with the winners of Israel's elections next month. A peace treaty between Syria, which with general Western approval "protects" and occupies most of Lebanon, and Israel becomes more necessary than ever.

Sen. Dole and the Judges

SEN. BOB DOLE told the American Society of Newspaper Editors that one of "the root causes of the crime explosion" is the liberal slant of judges appointed to the federal bench by President Clinton. If the Democrats retain control of the White House, he predicts, the "security and safety [of] America's families" will be at risk. The charge that crime is a result of liberal judging is not exactly a novel idea, but it does seem to us that Sen. Dole is a little behind the times in making it.

To be sure, the quality of potential nominees is fair game for election debate. As Chief Justice Rehnquist reminded an audience earlier this month, judges are not immune from criticism, nor are appointing authorities insulated from criticism when those choices turn out to be flawed.

But a look at the Clinton record in this area provides the best argument against the senator's hyperbole. This president has appointed 155 judges at the District Court level, 30 to the courts of appeals and two to the U.S. Supreme Court. Of that number, Sen. Dole has ferreted out for criticism a handful of cases decided by four named judges. That is a truly infinitesimal fraction of the thousands and thousands of cases that have been heard in federal courts since January 1993. Even if one were to agree that these few judges were wrong in these few cases, it would be ridiculous to conclude that they have led to a crisis in law enforcement threatening the nation's security.

It is ironic, moreover, that the administration is under attack for appointing liberal judges when for the last couple of years most of the complaints have come from those who believe that the Clinton nominees have been too moderate. One appellate court judge in California, for example, recently labeled the president "gutless" for this reason. In fact, the president has been cautious, rejecting some very well-qualified candidates in favor of those who would win confirmation by the Republican Senate. And he was successful. Every nominee has been confirmed, and only three were put to a recorded vote—one in a dispute over residence, not ideology.

The senator also criticizes the American Bar Association for the role it plays in evaluating nominees. As president, he would be free to consult or ignore the advice of any group in choosing judges. But he should keep in mind the fact that most criminal cases are handled by state, not federal, judges. The latter have primary responsibility in complicated areas such as antitrust, copyright, administrative law, federal tax and the myriad other matters involving statutory and constitutional interpretation. When he suggests that a panel of police officers, crime victims, prosecutors and others replace the ABA in examining the credentials of potential nominees, he is playing to the crowd and badly underestimating the responsibilities these judges will assume.

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In the days that followed, as the magnitude of the disaster emerged, I should have more clearly recognized that the Chernobyl catastrophe was a manifestation of the political, moral and technological rot that was metastasizing in the Soviet system and would soon kill it.

Looking back, the signs of decay reflected in the accident, 10 years ago today, seem remarkably telling.

The timing of the Government announcement was itself a symptom of the secrecy and manipulation of information that were choking the Soviet political system. The Government waited nearly three days after an explosion blew off the top of reactor No. 4 at Chernobyl and spewed radioactive debris into the air to disclose there had been a nuclear accident. Not a word about radiation was included in the first statement.

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While news of the accident was suppressed, Communist Party and Government officials learned of the danger and moved hurriedly to shield their families and friends. The moral void at the core of the Soviet system was evident as trains crowded with the relatives of Communist officials in Kiev rolled into Moscow, while for days most residents of the Ukrainian capital remained oblivious to the danger, wondering why municipal trucks kept watering down the streets.

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The night of the accident, operators had powered down the reactor in a way that made the core less stable. Inexplicably, they also disengaged critical safety systems. When the reactor started to destabilize, they panicked and took action that inadvertently set off a power surge in the core that produced the explosion. The combination of arrogance and incompetence were characteristic of Soviet technology in the 1980's, as Moscow fell further and further behind the West in electronics and other advanced fields.

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Who Won the Budget War?

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Along the way, both the House Speaker, Newt Gingrich, and the Senate majority leader, Bob Dole, lost traction. But for all Mr. Clinton's deft maneuvering around the Republican-controlled Congress, he did not win the policy war. Victory here went to the Republicans. They knocked more than $25 billion out of discretionary spending from levels approved by Congress when it was controlled by Democrats. Mr. Clinton fought hard to protect low-income families, but the budget deal sprinkles only a few extra dollars around the margins.

Mr. Clinton rejected every previous Republican budget offer because none protected key domestic programs. The impasse led to a series of temporary spending bills that kept some domestic programs limping along with 25 percent less money. But under the final compromise agreement, Mr. Clinton managed to win back $5 billion for programs at the center of his domestic agenda.

The Republicans had proposed wiping out Americorps, the program of national service, but the deal will reinstate about three-quarters of last year's spending. Mr. Clinton also reinstated most of last year's spending on his advanced technology program. Money was added back to Head Start, clean-water programs, summer jobs and education subsidies for disadvantaged students.

These are all important victories. But they only amount to an additional $5 billion to programs that cost about $225 billion. Discretionary spending will still fall by about 13 percent. The Republicans won Mr. Clinton's approval to make deep cuts in the Legal Services Corporation, energy assistance for low-income families and the National Endowment for the Arts. Programs for low-income families, which the Republicans intended to cut by about 15 percent, will still fall under by more than 10 percent.

The differences among the Republican bills that Mr. Clinton vetoed in December, the continuing resolutions that have governed spending since and the new agreement are in fact small. All would spend about the same amount of money on discretionary programs. With the G.O.P. in control of both houses, that was to be expected. Nevertheless, Mr. Clinton fought for and won some changes in priorities that he can use as ammunition in the fall campaign.

Higher Standards From Mr. Mills

New York's Education Commissioner said six months ago that he planned to tighten graduation requirements for the state's 2.7 million high school students. This page embraced the proposal but said that the Commissioner, Richard Mills, would need to provide both a clear plan and the resources for achieving it. This week Mr. Mills unveiled the plan, but some education officials suspect that he may have trouble finding the money.

The state now has a two-tier testing system that leads to two classes of diplomas. About 40 percent of students — mainly those who plan to attend college — pass the more challenging Regents High School Examinations, which earns the coveted Regents diploma. But most students take less challenging courses and the State Competency Tests. Those who pass receive a local diploma, which makes it more difficult for them to enter four-year colleges.

The Board of Regents, prodded by Mr. Mills, voted unanimously this week to require *all* public school students to pass Regents exams as a condition for high school graduation. The tougher requirements will be phased in, beginning in the year 2000. To those who predict higher failure and dropout rates, Commissioner Mills says that students will rise to the challenge if we expect the best from them. That is exactly what happened when Chancellor Ramon Cortines imposed stiffer math and science requirements nearly three years ago.

The curriculum changes will require extensive teacher retraining. To that end, Mr. Mills promised to create a "coordinated program of teacher professional development." Mr. Mills, who has already criticized Gov. George Pataki's proposed budget cuts, is asking the Legislature and the Governor to increase state education funding by about $300 million, with specific funds earmarked for textbooks and professional redevelopment. He also says he will "redirect" about $300 million in state and Federal training funds that are already in the system.

Nevertheless, even Mr. Mills's most enthusiastic supporters are skeptical that he can find $300 million floating around the system and "redirect" it. These doubts turn to outright disbelief in New York City, where buildings are crumbling, books are scarce and the teacher-student ratio is considerably higher than in the state as a whole. Mr. Mills may indeed find some existing money. But for his plan to succeed, the Legislature will need to both restore proposed funding cuts and increase money for teacher training and educational materials and several other categories as well.

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Mr. Clinton rejected every previous Republican budget offer because none protected key domestic programs. The impasse led to a series of temporary spending bills that kept some domestic programs limping along with 25 percent less money. But under the final compromise agreement, Mr. Clinton managed to win back $5 billion for programs at the center of his domestic agenda.

The Republicans had proposed wiping out Americorps, the program of national service, but the deal will reinstate about three-quarters of last year's spending. Mr. Clinton also reinstated most of last year's spending on his advanced technology program. Money was added back to Head Start, clean-water programs, summer jobs and education subsidies for disadvantaged students.

These are all important victories. But they only amount to an additional $5 billion to programs that cost about $225 billion. Discretionary spending will still fall by about 13 percent. The Republicans won Mr. Clinton's approval to make deep cuts in the Legal Services Corporation, energy assistance for low-income families and the National Endowment for the Arts. Programs for low-income families, which the Republicans intended to cut by about 15 percent, will still fall under by more than 10 percent.

The differences among the Republican bills that Mr. Clinton vetoed in December, the continuing resolutions that have governed spending since and the new agreement are in fact small. All would spend about the same amount of money on discretionary programs. With the G.O.P. in control of both houses, that was to be expected. Nevertheless, Mr. Clinton fought for and won some changes in priorities that he can use as ammunition in the fall campaign.

Higher Standards From Mr. Mills

New York's Education Commissioner said six months ago that he planned to tighten graduation requirements for the state's 2.7 million high school students. This page embraced the proposal but said that the Commissioner, Richard Mills, would need to provide both a clear plan and the resources for achieving it. This week Mr. Mills unveiled the plan, but some education officials suspect that he may have trouble finding the money.

The state now has a two-tier testing system that leads to two classes of diplomas. About 40 percent of students — mainly those who plan to attend college — pass the more challenging Regents High School Examinations, which earns the coveted Regents diploma. But most students take less challenging courses and the State Competency Tests. Those who pass receive a local diploma, which makes it more difficult for them to enter four-year colleges.

The Board of Regents, prodded by Mr. Mills, voted unanimously this week to require *all* public school students to pass Regents exams as a condition for high school graduation. The tougher requirements will be phased in, beginning in the year 2000. To those who predict higher failure and dropout rates, Commissioner Mills says that students will rise to the challenge if we expect the best from them. That is exactly what happened when Chancellor Ramon Cortines imposed stiffer mat
ence requirements nearly three years a

The curriculum changes will requi
teacher retraining. To that end, Mr. M
to create a "coordinated program of
sional development." Mr. Mills, wh
criticized Gov. George Pataki's pro
cuts, is asking the Legislature and the
increase state education funding by
million, with specific funds earmarke
books and professional redevelopment. H
he will "redirect" about $300 million in
Federal training funds that are alread
system.

Nevertheless, even Mr. Mills's most en
tic supporters are skeptical that he can fi
million floating around the system and "r
it. These doubts turn to outright disbelief
York City, where buildings are crumblin
are scarce and the teacher-student ratio is c
ably higher than in the state as a whole. M
may indeed find some existing money. But
plan to succeed, the Legislature will need
restore proposed funding cuts and increase
for teacher training and educational materi
several other categories as well.

Yeltsin, Grasping at International Coattails, Takes Re-election Campaign to Beijing

By MICHAEL R. GORDON

MOSCOW, April 24 — Just days after welcoming leaders from industrialized nations to Moscow, President Boris N. Yeltsin arrived in Beijing today for three days of high-profile meetings that both he and President Jiang Zemin of China appear to view as a chance to play to important constituencies at home.

With the Russian presidential election less than two months away, Mr. Yeltsin has sought opportunities to demonstrate his stature as a statesman and display his vigor, no small concern for a 65-year-old candidate with a heart ailment.

For the Chinese President, the visit, only the third by a Russian leader since Russia and China fell out in the 1950's, is a face-enhancing sign of his international standing, helpful in the subtle succession politics in Beijing, as China awaits the death of Deng Xiaoping, the paramount leader.

Top aides accompanying Mr. Yeltsin said that the Russian President planned to sign several agreements, ranging from the sale of a new reactor to a border agreement. But some of the economic agreements fall short of contractual commitments while others have been in the works for some time.

The potential electoral payoff for Mr. Yeltsin is a matter of pride and imagery. While Russian voters are not preoccupied with foreign policy issues, nationalism and a sense that Russia has been taken advantage of by the West have become important election themes.

The visit provides Mr. Yeltsin with an opportunity to demonstrate to Russian voters that Moscow is not unduly beholden to the West.

It is part of a busy schedule of foreign activities for Mr. Yeltsin that have been dutifully, even extravagantly, reported by Russian television and include a trip to Norway and the signing of a series of mostly symbolic "integration" agreements with the former Soviet republics of Belarus, Kazakstan and Kyrgyzstan.

These agreements were designed to outflank the Communists, Mr. Yeltsin's chief opponent in the election, who have called for the restoration of the Soviet Union.

Casting himself as a defender of Russian interests, Mr. Yeltsin has also argued successfully for Russia's inclusion in the Council of Europe, and he has castigated the North Atlantic Treaty Organization for its plan to accept new East European members.

Russia also has policy reasons for a China visit. The earlier hope of Russian reformers to build ties with Japan has been hampered by territorial disputes.

"There has been a clear shift to mainland Asia in the last two or three years," said Andrei V. Kortunov, a foreign policy analyst. "China is number one in terms of Russian policy in Asia."

There are also trade issues. Cheap Chinese goods are common in Russia, and Russia has found in China a fertile market for military equipment, most recently SU-27 fighter planes.

Viktor Mikhallov, Russia's Minister of Atomic Energy, said that the two sides planned to sign a "framework" agreement covering Russia's sale of a new nuclear power plant in the northeastern Liaoning province. But he said the final price of the plant, which has been under discussion for years, was not yet agreed.

There are also longstanding border issues, and a new treaty settling some border differences is to be signed during the visit.

Mr. Yeltsin also recently said that he will urged China to agree to a nuclear test ban during his trip. That is significant because China has been a major holdout.

Inherited Damage Is Found In Chernobyl Area Children

Ten years after the disastrous nuclear accident at the Chernobyl power plant in the Ukraine, scientists report that they have found inherited genetic damage in people exposed to the fallout.

Such damage has not been observed before, but it was not associated with illness, and researchers do not know whether it will ultimately affect health.

A study being published today in the journal Nature says children born in 1994 in Belarus, to parents who lived there in 1986 when the reactor melted down, had twice the normal rate of a certain type of mutation.

The children studied came from 79 families living about 300 kilometers (186 miles) from Chernobyl in the Mogilev district of Belarus, a region severely polluted by radioactive and chemical contaminants from the accident.

The most striking finding was that the genetic damage took the form of so-called germline mutations, changes in DNA in sperm and eggs. Such mutations are passed on from generation to generation.

Researchers did not test the sperm and eggs of the parents, but inferred that since the children were born years after their parents' exposure, their mutations were inherited and thus would have had to have occurred in the parents' germ cells.

Although the researchers said that chemical pollution might have contributed to the mutations, they thought the more likely cause to be radiation.

If the researchers prove correct, the finding is a first: germline changes have never been detected before in people exposed to radiation, not even the survivors of the atomic bombing of Japan or their children.

But the Chernobyl accident differed from the bombing in important ways. The bombs released an enormous amount of radiation all at once, while the radiation from Chernobyl was less intense but longer lasting.

Unlike the bombs, Chernobyl released a great deal of the radioactive isotope cesium 137. The body cannot distinguish cesium from potassium, an essential nutrient, and so the cesium is taken up by cells and becomes an internal source of radiation.

In addition, the reactor at Chernobyl spewed out an array of nonradioactive chemical pollutants, including highly toxic heavy metals.

So far, the major health problem blamed on the meltdown has been an increase in thyroid cancer in children around Chernobyl, due to emissions of radioactive iodine.

In addition, many residents show chromosome damage, which in some cases can lead to leukemia or other cancers, though not enough time has passed for those diseases to develop. Increases in birth defects and miscarriage have also been reported, but some researchers dispute those findings.

Anxiety in the region runs so high that many researchers say they think it is causing more illness than the radiation is.

The families that were studied in Belarus were healthy, and researchers do not know what the newly discovered mutations mean. The uncertainty is based on the type of DNA that was examined.

The researchers chose regions called minisatellites, which are prone to mutation and likely to show changes when exposed to an agent capable of damaging genes. Minisatellites are good screening tools for mutation, but they are not functioning genes and their purpose is unknown. Mutations in them may not be important.

Chernobyl fallout may have caused genetic harm, but its effect is unclear.

"The minisatellites have nothing to do with regions that affect health, cancer, mortality and so on," said the study director, Dr. Yuri Dubrova, a genetics researcher at the Russian Academy of Sciences and the University of Leicester in England. "What we can safely say from our data is that the mutation rate in these particular genetic locations is two times higher after the accident.

"We cannot say anything about what is going on in the rest of the genome."

Dr. Lynn Wiley, a professor of developmental biology in the medical school at the University of California at Davis, said: "I believe what this team is reporting, but I don't know what to make of it. We don't know how good a marker or sentinel the minisatellites are for what's happening in the rest of the genome."

A more skeptical view was taken by Dr. James Neel, a geneticist and physician at the University of Michigan, who conducted extensive studies on Japanese atomic bomb survivors and their children.

Dr. Neel said his research did not point to germline effects, nor did a recent study of minisatellite regions in Japanese subjects.

"This new work implies a sensitivity to the genetic effects of radiation that's far, far in excess of either experimental work with fruit flies or mice, or our own studies in Japan," Dr. Neel said. "This is not the study that's going to establish that effect. I would urge them to repeat this work just as soon as possible.

"This is such a sensitive subject. There's near hysteria in Russia over it."

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U.N. and Iraq Suspend Talks on Limited Oil Sales

By PAUL LEWIS

UNITED NATIONS, April 24 — Iraq and the United Nations temporarily suspended talks today on a plan that would allow the country to sell a limited amount of oil in order to buy food and supplies for civilians.

United States and British diplomats continue to insist that they want an agreement on the issue, but without weakening existing economic sanctions against Iraq or allowing President Saddam Hussein to improve his position in any way.

"If the changes we put forward are agreed on, we would approve the deal immediately," America's United Nations representative, Madeleine K. Albright, said in an interview. "Some of my Security Council colleagues say that sanctions are hurting the Iraqi people. We want to help them."

The suspension was agreed between Secretary General Boutros Boutros-Ghali and Iraq's Deputy Prime Minister, Tariq Aziz, early today.

After meeting with Secretary General Boutros Boutros-Ghali this morning, Iraq's chief negotiator, Abdul Amir al-Anbari struck an upbeat note, insisting the talks "are not back to square one," stressing the progress made and saying that he hopes when talks resume next month they "are more sucessful."

But he also made clear that the principal stumbling block remains the changes the United States and Britain insisted the Secretary General make in the agreement that would allow Iraq to sell up to $2 billion worth of oil every six months to purchase supplies for civilians. "Some member countries objected to some of the provisions and made amendments," Mr. Anbari said.

In particular, the United States and Britain want funds reserved for Iraq's Kurdish provinces funneled through the existing United Nations assistance program there. They question the fairness of Iraq's existing rationing system which handles food distribution. They also object to Iraq's choosing the bank into which oil payments are made and from which letters of credit would be issued to pay for essential supplies.

Paraguay Averts a Military Coup, but the Deal Outrages Many

By CALVIN SIMS

ASUNCIÓN, Paraguay, April 24 — Overnight, the shadow of another coup in Paraguay was swept away, but the relief of the people here is tempered by outrage over the compromise the civilian Government made to escape the threat.

The army commander, Gen. Lino César Oviedo, who had refused a presidential order to resign and taken refuge in an army barracks, agreed to leave his post, President Juan Carlos Wasmosy announced late Tuesday night in a nationally televised address. But the general's condition for resigning was that he be named Defense Minister.

Today, opposition parties, university students and human rights groups sharply criticized the agreement and held demonstrations throughout Asunción today, saying that the President had lost a prime opportunity to free Paraguay from decades of military control.

"Can someone, anyone, please explain how in a democratic system, a general who directly disobeys the orders of the President and starts a coup is later rewarded with a Cabinet position as Defense Minister," said Alicia Saenez, a 52-year-old teacher, who demonstrated in front of the Congress.

Western diplomats, who spoke on condition of anonymity, said that although General Oviedo remained a threat to democracy as Defense Minister, Mr. Wasmosy deserved praise for negotiating an end to the coup attempt. "This is perhaps the first time that a coup was thwarted here in Paraguay and that is a significant step toward maintaining democracy," one diplomat said.

There were widespread calls today for Mr. Wasmosy to resign. When he took office in 1993, he became Paraguay's first elected civilian President since 1954. Under a new Constitution written in 1992, Paraguayans have enjoyed new political freedoms, but the military has continued to loom large through its association with Mr. Wasmosy's Colorado Party.

General Oviedo will continue to wield considerable power in Paraguay: he has widespread support among the army's rank and file, is a close friend of his successor, Gen. Óscar Rodrigo Díaz Delmás, and as Defense Minister will oversee the country's military policy and budget.

Dr. Carlos Filizollas, chairman of the left-wing Encuentro Nacional Party, called the compromise "an affront to the Paraguayan people and democratic institutions."

Crucial to ending the crisis was the support Mr. Wasmosy received from neighboring countries and trading partners, which offered the President military help and sent diplomats to Asunción on Tuesday.

Such regional support is unusual in Latin America and underscores a growing commitment to democracy in a region that has been plagued by military dictatorships. In addition, Latin American diplomats said that they were concerned about the possible economic impact of a coup in Paraguay. Brazil, Argentina, Uruguay and Paraguay are part of a regional common market called Mercosur that has 200 million customers.

FACT SHEET ON CHORNOBYL CLOSURE

On December 20, 1995, the G-7 countries signed a Memorandum of Understanding with Ukraine to implement a comprehensive program to support the closure of the Chornobyl Nuclear Power Plant, the site of the world's worst civilian nuclear power reactor accident on April 26, 1986. The memorandum signed by Ukraine and the G-7 is intended to lead to closing the remaining two operating units of Chornobyl by the year 2000, with a related objective of restructuring Ukraine's energy sector to run more efficiently and according to internationally accepted safety standards.

Background: Ukraine's economic prosperity requires a stable and secure energy supply. Ukraine is one of the most energy-intensive countries in the world, importing roughly half of its energy supply -- 90% of it from Russia. In 1994, thermal plants generated 57.4% of Ukraine's electricity; nuclear (34.1%), hydro (6.1%) and small industrial (2.3%) plants generated the balance.

Memorandum of Understanding (MOU): Ukraine's MOU with the G-7 puts Chornobyl closure in the context of Ukraine's effort to restructure its power sector. The MOU outlines a comprehensive program with four elements: power sector reforms to create a national electricity market; least-cost power supply and efficiency investments to meet national power demand; nuclear safety issues associated with decommissioning; and the social impacts of closing the plant. The MOU creates a unique multilateral mechanism to reach these goals which has already mobilized over $3 billion of G-7, IFI, and other donor resources, over $2.3 billion of which is IFI financing.

PROJECTS UNDER THE COMPREHENSIVE PROGRAM

Power Sector Restructuring: A competitive power system with market-based electricity prices and commercially viable generation and distribution companies is essential to Ukraine's energy future. On July 1, 1995, the break-up of Ukraine's monopoly power system was completed resulting in 4 thermal generation companies, 2 hydropower companies, a nuclear company, and a transmission company. Furthermore, 27 joint-stock electricity companies have been created to own and operate low-voltage networks. The key next step is to implement a competitive power market, the "Energomarket". To support these efforts, the World Bank increased proposed funding for its power sector reform loan to $300 million and is expediting the loan, including $30 million for retroactive reimbursements for fuel.

Least-Cost Energy Investments: The G-7 and Ukraine agreed to identify and mobilize financing for least-cost investments to

meet national power demand as Ukraine restructures its power sector. President Chirac, on behalf of the G-7, has obtained assurances from the World Bank and the EBRD of their cooperation. These investments will include demand and supply-side measures. A preliminary least-cost study points to priority investments for conventional power plant rehabilitation, building new pumped storage facilities, and completion to international safety standards of two nuclear plants at Rovno and Khmelnitsky. The EBRD, Euratom, the European Investment Bank and the EU are preparing detailed feasibility assessments to determine whether the completion of these two reactors would satisfy environmental, safety and financial feasibility requirements.

Improved Energy Efficiency: While estimates for potential energy savings vary, representative projections for electricity savings are 10-15% of total power demand. Retail price reform, improved tariff collection, and restructuring/privatization of industrial and municipal enterprises will reduce energy intensity, reduce waste, and improve productivity and competitiveness. The U.S. is developing a special grant package to develop bankable energy efficiency projects for IFI financing, as well as demonstration projects for low-cost/no-cost efficiency technologies.

Nuclear Safety Plan: The plan includes G-7 and EU support for decommissioning Chornobyl, managing nuclear waste from the 1986 accident, and short-term upgrades for Unit 3. A decommissioning plan is now complete, and $173 million in grants from the multi-donor Nuclear Safety Account, the EU and Canada have been mobilized for waste treatment facilities. The U.S. has initiated $10.8 million in safety upgrades, and the NSA has developed an additional $15.5 million safety package. The EU and Ukraine have agreed on criteria for a cost-effective, environmentally sound solution to the sarcophagus problem; experts from Ukraine, the EU and G-7 countries expect to have interim stabilization measures ready in mid-summer and a final solution ready by November.

Social Impact: Chornobyl's closure will affect 5,000 workers at the plant and the 30,000 inhabitants of Slavutich and the Chornobyl region. The EU and U.S. are helping Ukraine develop a plan that addresses dislocation, job creation, retraining, and the need for long-term financial sustainability in the region.

Financing: The MOU is a cooperative effort in which the G-7 will mobilize international financing to supplement Ukraine's domestic resources. International financing will be based on the principle that IFI loans will be mobilized for bankable, income-generating projects while grant funds will be considered for appropriate non-income generating projects. Ukraine and the G-7 will meet twice yearly at the policy level and twice yearly at the technical level to accelerate implementation of the MOU.

US ASSISTANCE TO CHORNOBYL

On December 20, 1995, the U.S. and its G-7 partners joined with Ukraine to undertake a comprehensive program to close Chornobyl by the year 2000. At present, over $2.5 billion in multilateral development bank financing and $500 million in donor grant assistance has been made available to address needs identified in the comprehensive program. To date the U.S. has contributed over $73 million to such efforts, including support for an International Research Center for Nuclear Safety, Radioactive Waste and Radioecology that will help create an indigenous capability to solve nuclear safety and decontamination problems at Chornobyl; enhanced fire protection and operational safety improvements at Chornobyl; assistance to Ukraine's nuclear power regulator to strengthen capabilities in such areas as decommissioning and licensing; and a broad range of energy sector projects to increase efficiency and ensure that Ukraine has an economically sound power sector after closing Chornobyl.

The United States will build on these core programs with a series of new humanitarian and technical assistance initiatives in Ukraine and Belarus during the tenth anniversary year of the Chornobyl accident. This paper describes those new initiatives.

HUMANITARIAN

Delivery of Humanitarian Assistance

A special combined humanitarian assistance surface and airlift mission to Ukraine, Belarus and Moldova was initiated to support the Chornobyl tenth anniversary project. The mission provided over $15 million in assistance - $5 million in donated medical equipment and supplies was shipped by surface and over $10 million in donated medicines was airlifted to Chisinau on April 23, Kiev on April 25 and Minsk on April 27. Ambassador-designate Richard Morningstar, Special Advisor to the President and Secretary of State for NIS Assistance, along with other US and Ukrainian officials, met the airlift in Kiev. In addition to US government stocks, major donors who contributed to this effort included Eli Lilly and Company, Monsanto-Searle, Project Hope Foundation and Americares. The US government organized the deliveries through the non-governmental organization Counterpart and provided the transportation for the deliveries. Many other donor organizations have been active in making contributions over the past four years, resulting in humanitarian contributions to Ukraine and Belarus transported by the US Government totaling over $265 million.

TECHNICAL ASSISTANCE

Chornobyl Sarcophagus

Of the many problems Ukraine faces in dealing with the shutdown of the Chornobyl nuclear power plant, that of the sarcophagus

is one of the most difficult. An acute lack of resources and the severe radiation environment has caused the present sarcophagus, which was built hastily following the Chornobyl accident, to deteriorate. The absence of alarm systems, lack of adequate radiation monitoring, physical decay, and leaks pose immediate and serious risks to the workers at the site, including those operating Unit 3 adjacent to the sarcophagus. Interim measures are necessary to stabilize the sarcophagus and reduce the risk of collapse.

The EU, U.S., Germany and Ukraine are supporting a collaborative initiative to develop short and long-term measures to stabilize the sarcophagus. Short-term options should be completed in mid-1996, allowing work to begin later this year. The U.S. government proposes to dedicate $33 million in new assistance funds over two years to jumpstart implementation of a solution to the sarcophagus problem. Resources will be devoted to improving conditions for workers at the sarcophagus, specific interim stabilization measures, and a long-term multi-donor solution. This will demonstrate our commitment to realizing quick results on one of the most serious problems.

Additional safety equipment for Ukraine nuclear reactors

Continuing the US program to improve the safety of operating nuclear power plants in the NIS, the Department of Energy will provide $4 million in additional display and control systems for those reactors without containment systems; these safety displays have the capability to monitor and shut down a facility before a crisis occurs.

Regulatory assistance on nuclear fuel use

The Nuclear Regulatory Commission will provide assistance to Ukraine to develop regulatory institutions for managing the purchase, licensing and use of nuclear fuel.

Energy Efficiency in Ukraine

One of the key objectives of the program in support of Chornobyl closure is adequate and reliable energy in the future. The USG is proposing to devote $15 million to energy efficiency measures that will respond to priorities in Ukraine. These measures are proposed in the context of overall energy sector reform in Ukraine that is helping to establish rational pricing and payments signals. Funds would be used to assist in the immediate improvement of industry energy efficiency and the development of private Ukrainian energy efficiency service companies (ESCOs); support an energy savings pilot project that would target Ukraine's municipal energy problems including, for example, the water utilities; address crucial components of power sector reform such as load

management bidding to the energy market; support the exploration of alternative energy sources; and support an energy efficiency project preparation initiative that would identify efficiency projects for industries and buildings to be financed by the multilateral banks and private investors.

Treatment of breast cancer

The US government will undertake an effort to screen, diagnose and treat victims of breast cancer in those areas most effected by radioactive contamination resulting from the Chornobyl accident. Existing hospital partnerships in Ukraine and Belarus will administer part of this effort.

Support for decontamination of milk

US government agencies will be supporting the final research and testing of a new technology for removing radioactive contamination from milk and other liquid foods in Ukraine. Selentec, a US firm based in Atlanta, will receive funding from several USG agencies to help develop, test and work toward a product that removes cesium from liquids like milk and fruit juice. While still at a very early stage, the technology is promising enough for the Department of Energy to commit $80,000 for the joint development of test procedures for the process and another $480,000 to apply the technology to Ukrainian milk production. USAID will also provide funds for the project.

Mobile test laboratory

The United States is providing the Ukrainian Ministry of Environment with a state-of-the-art mobile laboratory to test air, water and soil for contamination. The value of the equipment and accompanying training programs is about $1 million. The laboratory will be delivered to Ukraine in the summer 1996.

PRESS STATEMENT

OVERVIEW: THE ACCIDENT AT THE CHORNOBYL NUCLEAR POWER PLANT

In the early hours of April 26, 1986, during a test on the turbines in Chornobyl's Reactor No. 4, a catastrophic explosion in the reactor core destroyed much of the reactor building. The explosion and subsequent fire released massive quantities of radioactive substances -- radioactive iodine, cesium-137, strontium 90 -- into the atmosphere. The fire raged for nearly two weeks, before being extinguished May 10. Most of the 31 individuals officially recorded as dying during or immediately after the disaster were plant personnel or firefighters with little or no protection against radiation. Some 600,000 individuals from throughout the former Soviet Union helped with the cleanup that followed.

Although arguments persist over the explosion's immediate cause, contributing factors include basic flaws in the reactor's design, poor plant construction, the extreme riskiness of the test procedures used the night of the explosion, and a poor safety culture throughout the Soviet nuclear establishment. The affected reactor also had no containment structure.

Pripyat, a town of some 50,000 housing plant personnel and their families only two kilometers from the plant, was evacuated two days after the explosion. Further evacuations subsequently created a 30-kilometer exclusion zone around Chornobyl. Approximately two-thirds of this zone lies in Ukraine, and one-third lies in Belarus. Exclusion zones, in which habitation, farming, and other activities are restricted to varying degrees, have been designated throughout the large region affected by fallout. Closed zones, where no one may live or enter without a pass, are situated next to so-called permanent control and periodic control zones, where residents undergo health monitoring at various times. However, these restrictions and check-ups are not strictly enforced. In total, some 135,000 people were evacuated, although some individuals have refused to leave the zone.

Health Effects: Although precise figures may never be known, there is general agreement that the accident led to an increase in thyroid cancers among Ukrainian and Belarusian children, from approximately 6 cases a year before the accident to between 30-40 cases per year since 1990. There is also a prospect that we will seea rise in leukemia among 'liquidators"--those who helped deal with the immediate consequences of the accident at the plant site--can be attributed to irradiation. The U.S. Department of Energy and Ukraine's Ministry of Health are now discussing cooperative studies of leukemia among the liquidators.

Financial Impacts: Estimates of the financial and human costs of the accident vary greatly. The Chornobyl Ministry estimates Ukraine has spent over $3 billion in the four years since independence on Chornobyl-related health and clean-up costs. Across the border in Belarus, where the wind carried most of the heaviest concentrations of radiation, the government has been struggling with Chornobyl-related costs that have amounted to $235 billion over the decade. More than five percent of Ukraine's draft 1996 budget-some $695 million are current exchange rate--has been allocated for dealing with the accident's consequences. About 65 percent of this sum is devoted to direct payments--e.g. rent, utilities, medical, and other types of subsidies--to those affected by the accident, currently estimated at about 3.2 million people. The remainder is largely targeted for construction costs to resettle those in contaminated areas and for cleanup of affected areas. More than 180,000 hectares of arable land and 257,000 hectares of forest land have been rendered useless due to radioactive contamination. An additional 3 million hectares of arable land is still cultivated but has higher than normal radiation levels. In Belarus, some 25% of the land is considered uninhabitable.

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HEADLINE: "Olya - Invite Me Into Your Dreams"

BYLINE: Kuzyszyn, Oles

BODY:
"Olya-Invite Me Into Your Dreams".

With her first album, titled "Remember," Olya Chodoba-Fryz gave notice that she was a pop singer of considerable potential, blessed with a velvety voice, and interpretive sensitivity and a willingness to experiment. Her recently released sequel, "Invite Me Into Your Dreams," proves that the expectations of her new fans were well-founded.

For this project, Olya teamed up with Yurko Antoniuk, a superb keyboardist and arranger from Lviv, to produce and album of diverse, well-chosen selections, which effectively showcase the combined talents of the two performers.

Olya has adopted a performing style that suits her well - an intimate "fireside" delivery, tastefully understated and caressingly soothing. In his approach to the arrangements, Mr. Antoniuk captured the mood brilliantly, constructing an instrumental setting that supports Olya's voice without competing with it, while at the same time featuring his own instrumental skills with an occasional well-placed solo or contrapuntal line.

The entire sonic palette was skillfully captured to digital audio by sound engineer Marko Sydorak at Electro nova Studios, whose resume of successful recordings (among them a host of Ukrainian projects) is far too long to list.

The album opens with "Skrypka Hraye" (The Violin Plays), a contemporary cabaret-style tune with lyrics by Y. Rybchynskyi and music by O. Zlotnyk. Olya recasts the song into a haunting ballad - a re-interpretation that is not only musically viable, but actually adds poignancy to the Rybchynskyi lyrics. In the chorus, a subtle two-note string gesture answers the vocal phrases. A touch of percussion underlines the beat in the second verse, thus elevating the level of intensity ever so slightly. In a surprising twist, the song closes with a reprise of the first verse without continuing on to the chorus. Only the two-note string gesture remains as a reminiscence of the catchy refrain.

"Pershyi Snih" (The First Snow, lyrics by B. Stelmakh, music by I. Bilozir) is set in a danceable, bossa-nova beat, reminiscent of many a starry Soyuzivka night when Olya sang for the resort guests. A new arrangement of "Bulo Ne Tuzhyty" (I Longed In Vain, music and lyrics by Bohdan Wesolowsky) is similarly

conceived. The more delicate rumba beat, rather than the customary tango, is refreshing, as is Mr. Antoniuk's rich harmonization. In the reprise of the chorus, Olya offers a hocket-like vocal interplay, which adds interest and ushers the song to a close.

Even more familiar are Joseph Kozma's classic "Autumn Leaves" (rendered here with Ukrainian lyrics by Z. Bundziak) and "Strumochok" (The Stream, not a folk song, as indicated in the album notes, but a three-decade-old original composition with lyrics by M. Shpot and music by Y. Vovk). The former is given "Latin" feel by Mr. Antoniuk, who also provides a very genuine sounding "guitar" solo, and some rather more contrived "horn" stabs. In the latter, the brisk groove is actually closer to the composer's intent than the homogenized rumba that this song has become here in the West. Olya's vocal is complemented by a jazz guitar accompaniment, and then she herself scats convincingly over an accordion solo. Here however, her imaginative scat is somewhat obscured by an overly generous helping of reverberation. This notwithstanding, Olya shines in this type of repertoire, singing freely and with conviction. In the context of Mr. Antoniuk's creative arrangements, these standards are elevated well beyond the level of standard dance-band fare.

Three songs by the immortal Volodymyr Ivasiuk are included. Two are rather well-known: "Ya Tvoye Krylo" (I Am Your Wing, lyrics by R. Kudlyk) and "Zaprosy Mene U Sny" (mvite Me Into Your Dreams, lyrics by B. Stelmakh). The third, "Kolyskova Dlia Oksanochky" (Oksana's Lullaby, lyrics by Ivasiuk), is more obscure.

In "Ya Tvoye Krylo," an off-beat accompaniment figure in the second verse provides rhythmic variety, followed by an appropriate release of tension in the third verse. The "Lullaby's tender, highly personal lyrics could have perhaps benefited from a slightly sparser instrumental setting. The duo's introduction of this little-known Ivasiuk gem to the general audience will, nevertheless, be greatly appreciated.

Of the three, "Zaprosy Mene U Sny" is certainly the toughest assignment for any singer, due mainly to the unforgettable recording by Sofia Rotaru accompanied by the Kyyiv Television and Radio Orchestra. Only she, it seems, succeeded in portraying the pain and passion of the evocative lyrics; an unrequited love has left a scar that lasts a lifetime and will not heal, even in the twilight of old age. If there is one song where Olya falls short, clearly this is it. Understandably, the comparison is unfair, and is intended as a tribute to possibly the greatest Ukrainian pop singer ever, rather than an affront to Olya's abilities.

Ukrainian folk songs had always been an important element in Olya's musical development and here, as on her debut release, the two that she chose work very well. In "Siriyi Husy" (The Gray Geese), she produces an appropriately restrained and consistent vocal timbre, and effectively employs some antiphonal vocal effects. The pizzicato strings introduced in the second verse add just the right amount of intensity. This same technique is used to much advantage in the children's favorite "Oy Misiatsiu" (Oh, Silver Moon), which closes the album. Here Olya's gentle vocal, together with Mr. Antoniuk's atmospheric accompaniment, provide an appropriately "nocturnal" aural scenario.

Although continually credited on Western recordings as a "folk song," "De

Syniyi Hory" (The Blue Mountains) is more likely a contemporary musical setting of a folk lyric. Unfortunately, it is not yet known here in the West who the composer of this very popular song might be. Be that as it may, in this arrangement, the poetic description of the Carpathian mountains in the text is aptly reflected in Mr. Antoniuk's musical introduction, featuring trembita and sopilka calls. Olya renders this song very well, although the upper vocal harmonies in the second and third verses are somewhat superfluous. There is actually more contrapuntal interest in the accompanying string lines, which, alas, cannot break through the thick vocal textures.

No doubt that the inclusion of Caccini's "Ave Maria" will raise some eyebrows, especially among classical singers and afficionados of classical vocal repertoire. Perhaps anticipating this, Olya, in this selection, chose to mask her voice with much too much reverberation. There was no need for this, since her instrument is entirely adequate for this particular piece, and more to the point, since it was obviously not her intent or ambition to pose as an opera singer.

The precedents for pop singers occasionally performing arrangements of classical repertoire are numerous, most recently Julio Iglesias" rendition of Beethoven's "Ode To Joy" on his latest album "Crazy." If not always musically satisfying, these efforts at the very least help to introduce classical repertory to an otherwise oblivious segment of the listening audience. Olya's version of this "Ave Maria" actually works rather well, due in no small measure to Mr. Antoniuk's marvelous electronic "orchestration." This transference of medium does not in my way detract from the devotional quality of the original.

The vocal showpiece of the album may well be "Krayu Miy Lelechyi" (Returning to My Native Land, lyrics by V. Semeniak, music by I. Poklad). Here Olya phases artfully, her voice at ease, sometimes almost robust. Mr. Antoniuk adds a lively trumpet solo in triplets, establishing an infectious Caribbean beat. Mostly, however, it is Olya's confident delivery and subtle phrase turns that propel the song.

There is no "sophomore jinx" at play in this artist's second effort. Quite the contrary, Olya Chodoba-Fryz has made some significant strides since her debut effort of 1992. With her first release, she embarked upon that elusive journey to find a performing style best suited to her main strengths as a singer. This second album proves that she is well on her way to establishing what might become a "signature sound" for her. Once she does, we can expect many more fine efforts from her in the future.

"Olya - Invite Me Into Your Dreams" is available at Ukrainian stores everywhere, or may be ordered by writing to: Olya, 1173A Second Ave., Suite 163, New York, NY 10021.

ETHNIC-GROUP: European/Eastern Eur

LANGUAGE: English

LOAD-DATE: May 22, 1995



Effects:
Whitney Kane

THE CHICAGO ATHENAEUM
The Museum of Architecture and Design

March 27, 1996

VIA FAX 202/456-9160

Ms. Victoria Reznik
NATIONAL SECURITY COUNCIL, RUSSIA DIRECTORATE
The White House
1600 Pennsylvania Avenue.
Washington, DC

Dear Ms. Reznik:

I just spoke with our Director, Christian Laine, and informed him of your interest in the "Children of Chernobyl" exhibit. He is very excited at the prospect of displaying part of this important exhibition in the White House. As you saw by the sample of pictures, there is no greater tribute to the suffering caused by the Chernobyl disaster than the heartfelt drawings of the children who lived through the nightmare.

With April 10 only two weeks away, we need to act quickly to insure the exhibit will be in place by the 10 Year Remembrance Ceremony. We estimate the budget for installation of the exhibit, taking into account the short time frame, would be approximately $10,000. The budget includes the following:

to ship 20 drawings
Can't do it
$

Framing
Labeling for Transit
Crates
Shipping (Chicago to Washington)
Transportation (White House to Cannon Building)
Installation (labor, materials)
Removal of Exhibit
Staff Travel
Staff Lodging/Expenses

Mr. Laine has been heavily involved in the efforts to raise $30,000,000 to build a hospital in the area to treat the victims of Chernobyl. The Museum is planning on making a contribution to this effort. Mr. Laine would like to be present at the ceremony to help enhance our fundraising efforts and pay homage to the young victims of this modern day Holocaust.

Finally, Christian and our Chairman, Neil Kozokoff, would like to bring a contingent of dignitaries from Chicago to highlight the plight of the victims. Maggie Daley, wife of our Mayor Richard Daley, may be interested in attending the ceremony. Please let us know how many VIP's we should bring to the ceremony.

As time is of the essence, we will need formal approval of the exhibit budget as soon as possible. Please contact me if you have any questions.

Sincerely,

David E. Bender
Director of Planning and Public Affairs
THE CHICAGO ATHENAEUM

VIA FAX

THE CHICAGO ATHENAEUM
MUSEUM OF ARCHITECTURE AND DESIGN
6 North Michigan Av., Chicago, Illinois 60602 Tel. 312/251-0175 Fax 312/251-0176

FAX TRANSMISSION

Date: 3/27

To: Victoria Réznik

From: David Bender

Message

If this FAX does not Transmitt,
Please Call 312/251-0175
Transmission Fax Number:
202 / 456-9160

29
Number of Pages:

THE CHILDREN OF CHERNOBYL

An Exhibition of Recent Works of Art by Belarusian Children
Affected by the Chernobyl Nuclear Accident

Coordinated with

The Ministry of Culture, Republic of Belarus
The State Museum of Nature and Ecology, Minsk, Belarus
The Belarus Embassy, Washington, D.C.

THE CHICAGO ATHENAEUM
Museum of Architecture and Design

A Traveling Exhibition
1996-1998

THE CHILDREN OF CHERNOBYL
An Exhibition of Recent Works of Art by Belarusian Children Affected by the Chernobyl Nuclear Accident

On April 26, 1986, the world experienced the worst environmental disaster ever recorded in human history. One of the cooling plants of the Ukraine's Nuclear Power Facility at Chernobyl experienced a melt-down, which released thousands of tons of nuclear radiation (90 times more lethal than Hiroshima) into the Eastern European atmosphere.

The catastrophe devastated villages, farms, crops, and food supplies in and around Chernobyl and the northern Ukraine and the bordering Country of Belarus.

The southern winds blew a life-threatening nuclear cloud north over the Republic of Belarus, showering down radioactive nuclides—iodine, cesium, plutonium, strontium—on the Belarusian countryside and poisoning the citizens of this new country that has since gained its independence from the former Soviet Union.

Over 70% of these invisible toxins rained down upon the Belarusian territory, creating what is called "The Chernobyl Zone"—a highly contaminated area that scientists believe will take thousands of years to recover.

In the wake of the disaster, over 800,000 Belarusian children (2.2 million total Belarusians) were exposed to lethal levels of radition due to the Chernobyl accident. Forty thousand children are permanently hospitalized and critically ill with severe Leukemia, hyperplasma of the thyroid, and other serious cancer sicknesses caused by excessive radiation and nuclear poisoning.

The remaining environmental and ecological consequences of the Chernobyl accident and subsequent radiation spills into the environments of Eastern Europe have not been fully realized or totally assessed by the world's health and scientific communities.

In addition to medical rehabilitation, the Government of Belarus has launched an art program to support the morale of the afflicted children. At various hospitals in Minsk, Gomel, and in the countryside of Belarus, the seriously ill children have produced astonishing works of art in a variety of medium that give important testament to their plight and to their needs for continued survival.

Sponsored and organized by The Chicago Athenaeum and The Minister of Culture of the Government of Belarus, this exhibition of approximately 125 works of art entitled, "The Children of Chernobyl," will create an awareness about the fate of these 800,000 plus children who are destined for severe illness in various stages throughout the remainder of their lives. The exhibition is scheduled to open in Chicago in December, 1993, and continues as a traveling show in North America and Europe during 1996-1998.

In Chicago and in other American cities, the exhibition will serve as a fundraiser and benefit for the Children of Chernobyl with the goal of sending art and music supplies to the "Chernobyl Zone" and in continuing to provide cultural assistance to the children's hospitals in the cities of Minsk and Gomel.

THE CHILDREN OF CHERNOBYL

An Exhibition of Recent Works of Art by Belarusian Children
Affected by the Chernobyl Nuclear Accident

Coordinating Organizations

Rush-Presbyterian-St. Luke's Hospital
The Cultural Therapeutics Program

Based in Chicago, the Mission of the Cultural Therapeutics Program at Rush-Presbyterian-St. Luke's Medical Center is to improve and provide a program that offers better health care for people who suffer from stress and anxiety disorders (nearly one third of the American population).

The Cultural Therapeutics Program also aims to integrate the arts into a medical therapeutic environment by using patient's self-expressive imagery energized in various skilled art forms, to facilitate the therapeutic process. This, in turn, improves communication and clinical care of patient thereby rendering the treatment more effective.

Children's Aid International

Based in San Diego, California, this international relief organization for children maintains an office in Minsk, Belarus called RESPONSE (35 Bagdonwicha, Room 35, Minsk, Belarus). The organization has a child sponsorship program entitled, "Angelcare." For $23.00 monthly, a Child of Chernobyl can be adopted and sponsored to support emergency healthcare.

The Chicago Athenaeum: Museum of Architecture and Design

The Chicago Athenaeum is an International Museum of Architecture and Design, appropriately based in the world's first city of modern architecture. The Museum is concerned about all aspects of culture and the environment from the "spoon" to the city" and how design can have a positive effect on the human environment.

THE CHILDREN OF CHERNOBYL

An Exhibition of 125 Recent Works of Art by Belarussian Children that Survived the Chernobyl Nuclear Accident

EXHIBITION TOUR FACTS

The exhibition, "The Children of Chernobyl" contains approximately works of art by 125 children from the Chernobyl Zone in Belarus.

The exhibition consists of beautiful drawings in an assortment of mediums from watercolor to gouache and pencil on paper.

The exhibition materials are in various sizes.

EXHIBITION PIECES

Approximately 125 framed drawings in various sizes.

SPACE REQUIREMENTS

Different configurations allow a space of 1,500 square feet or more.

TOUR DATES

The National and International Tour is 1994-1998 and allows eight weeks for each venue; with three weeks of travel/set up time in between sites. It may be possible to schedule longer or shorter exhibition periods.

SHIPPING

Institutions in the United States are responsible for costs of shipping one way (income to the venue). Foreign exhibitors are responsible for incoming and outgoing shipping costs; plus all customs and brokerage fees.

THE CHILDREN OF CHERNOBYL

An Exhibition of 125 Recent Works of Art by Belarussian Children that Survived the Chernobyl Nuclear Accident

INSURANCE

Institutions are responsible for "wall to wall" insurance. Certificate is required.

SECURITY

Low security is required.

PRESS MATERIALS

A complete media kit model will be provided for each venue to be customized, reproduced, and distributed; photographs are included.

EXHIBITION PARTICIPATION FEE

$10,000 for a 4 to 8 week display

LOCAL UNDERWRITING

Local underwriting is permissible to defray cost of the exhibition. The exhibition contract details how national and local underwriting credit must be displayed and used in media materials.

TOUR BOOKING

All arrangements for participating in the national tour must be made with The Chicago Athenaeum: The Museum of Architecture and Design. Tour participation fee deposit is due at least three months in advance.

THE CHILDREN OF CHERNOBYL

An Exhibition of 100 Recent Works of Art by Belarussian Children that Survived the Chernobyl Nuclear Accident

To schedule tour dates, contact: The Director of Exhibitions at:

THE CHICAGO ATHENAEUM
Museum of Architecture and Design
6 North Michigan Avenue
Chicago, Illinois 60602
Tel: 312/251-0175
Fax: 312/251-0176

THE CHILDREN OF CHERNOBYL

An Exhibition of 125 Recent Works of Art by Belarussian Children that Survived the Chernobyl Nuclear Accident

TOUR RESERVATION SHEET

IN ORDER TO ARRANGE FOR DESIRED DATES, PLEASE FILL OUT AND RETURN THIS FORM AS SOON AS POSSIBLE:

Institution: _____

Preferred Dates: _____

Director/Museum Curator: _____

Address: _____

City: _____ State: _____ Zip: _____

Tel: _____ Fax: _____

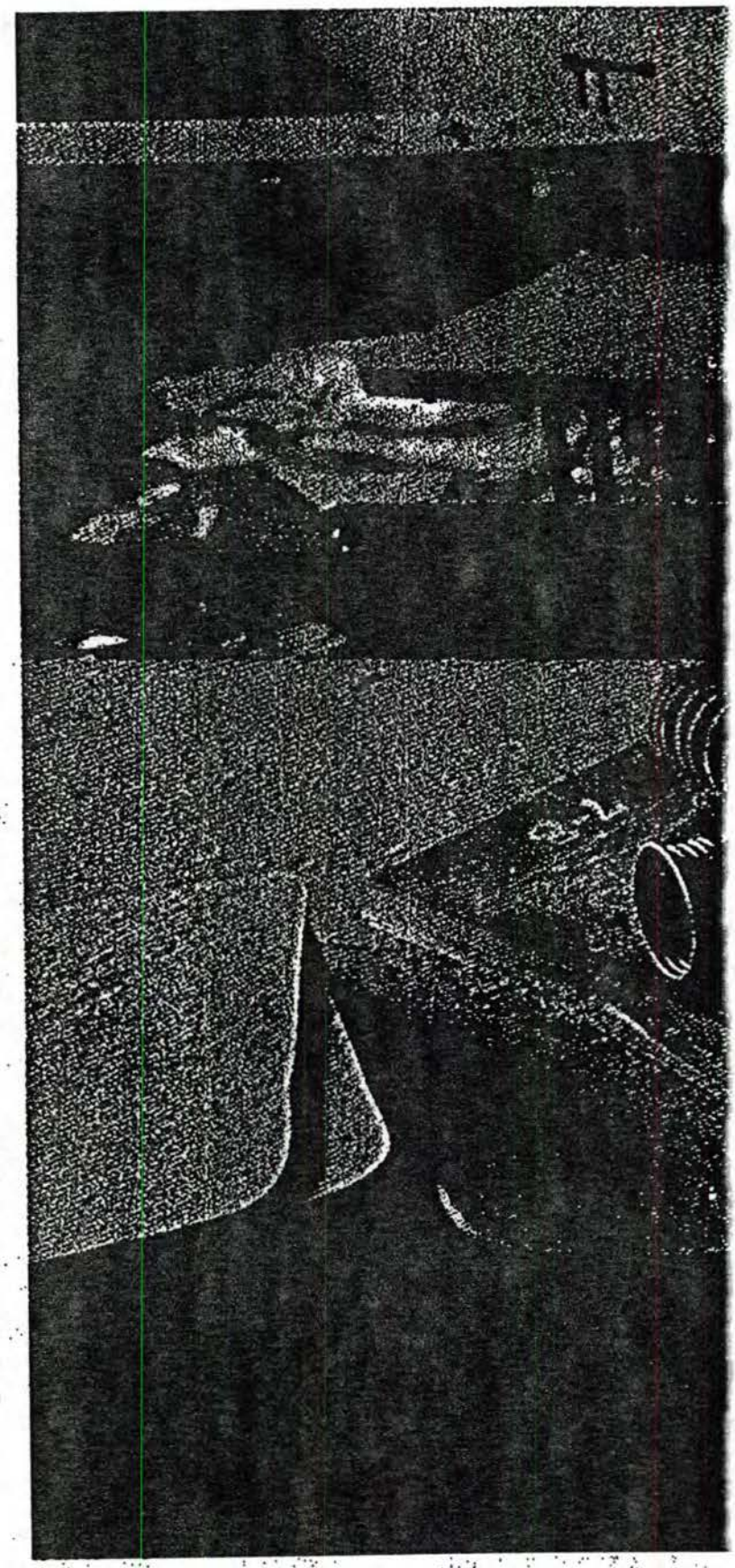
A 50% deposit is required to secure your booking date.

Please send to:

Director of Exhibitions
THE CHICAGO ATHENAEUM
6 North Michigan Avenue
Chicago, IL 60602
Tel: 312/251-0175
Fax: 312/251-0176

Chernobyl: Ten Years After the Catastrophe

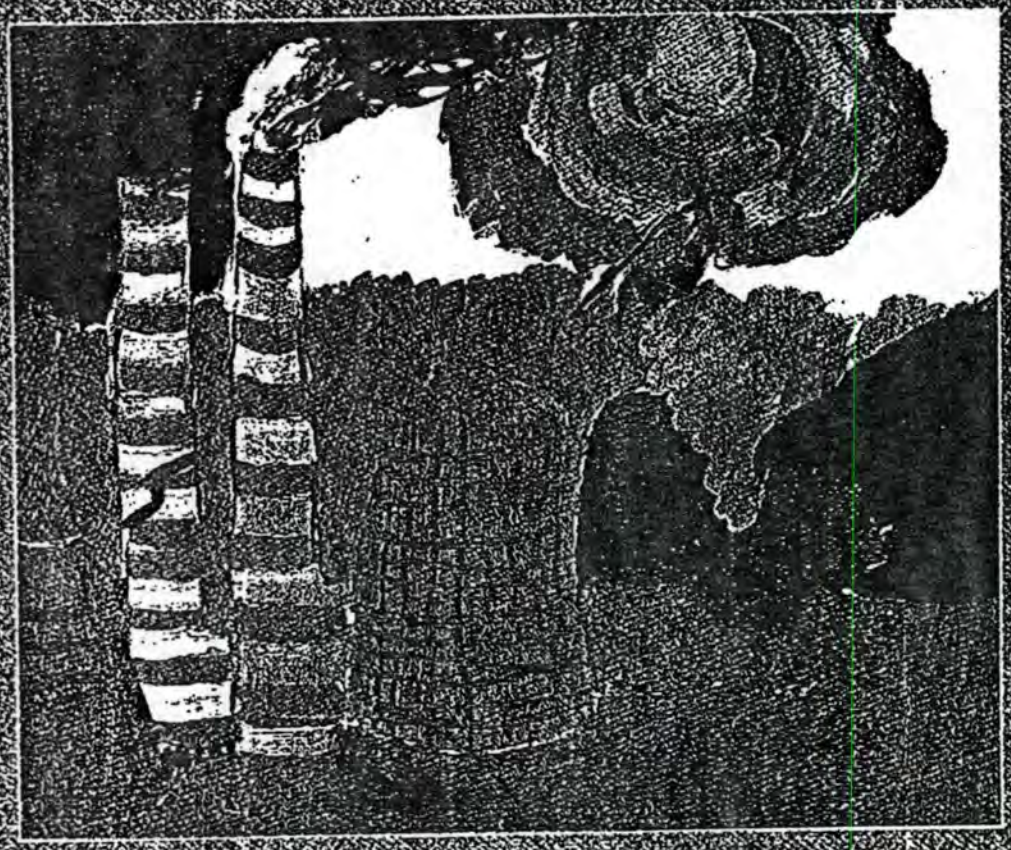
by David R. Marples, Ph.D.



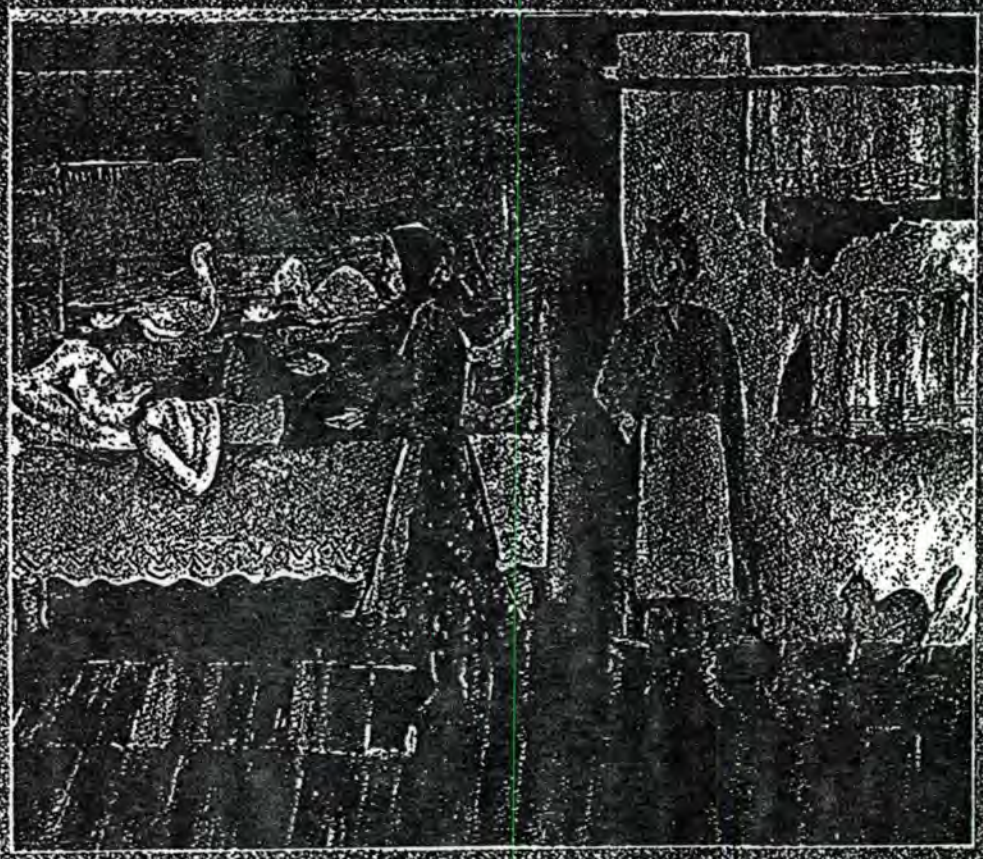
Abandoned schoolroom, Belarus, 1990

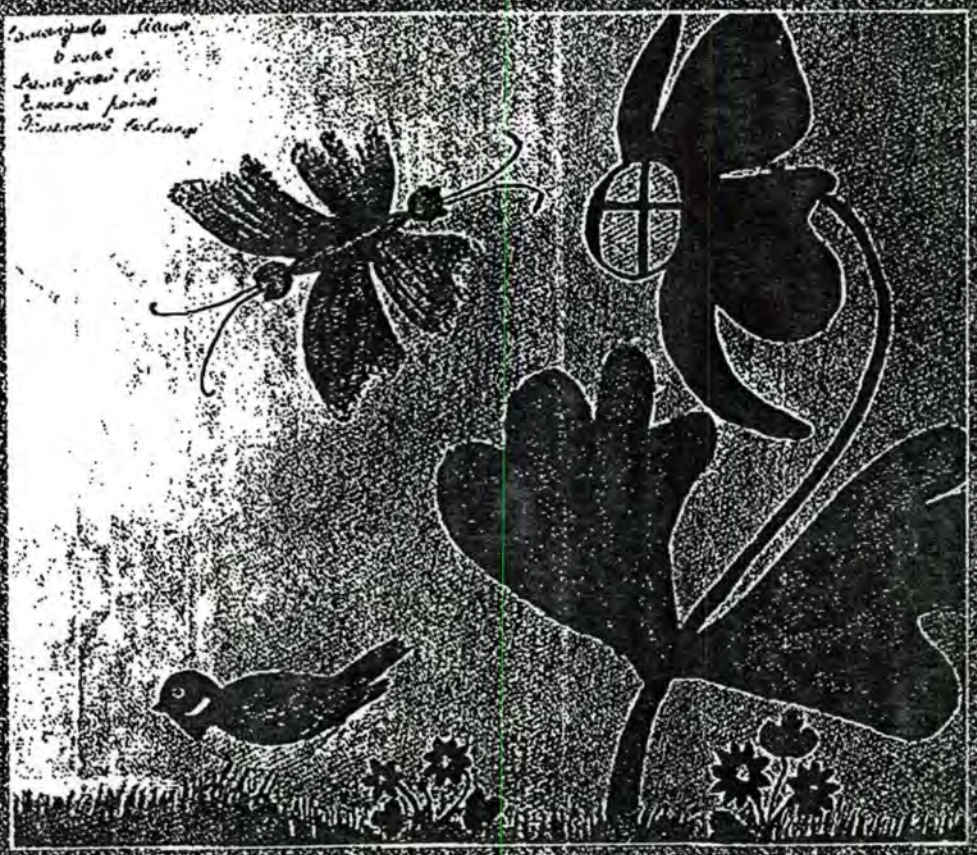
April 1996 will mark the 10th anniversary of the accident at the Chernobyl nuclear power station in the former Ukrainian Soviet Socialist Republic. Since that time, the Soviet Union has disintegrated and has been replaced by independent republics. Three of these—Russia, Ukraine, and Belarus—were significantly affected by the radioactive contamination of Chernobyl. The responsibility for the aftermath of this major industrial disaster has devolved from the Soviet government to the governments of these new republics. The Chernobyl power station itself is today under the control of the Ukrainian au-

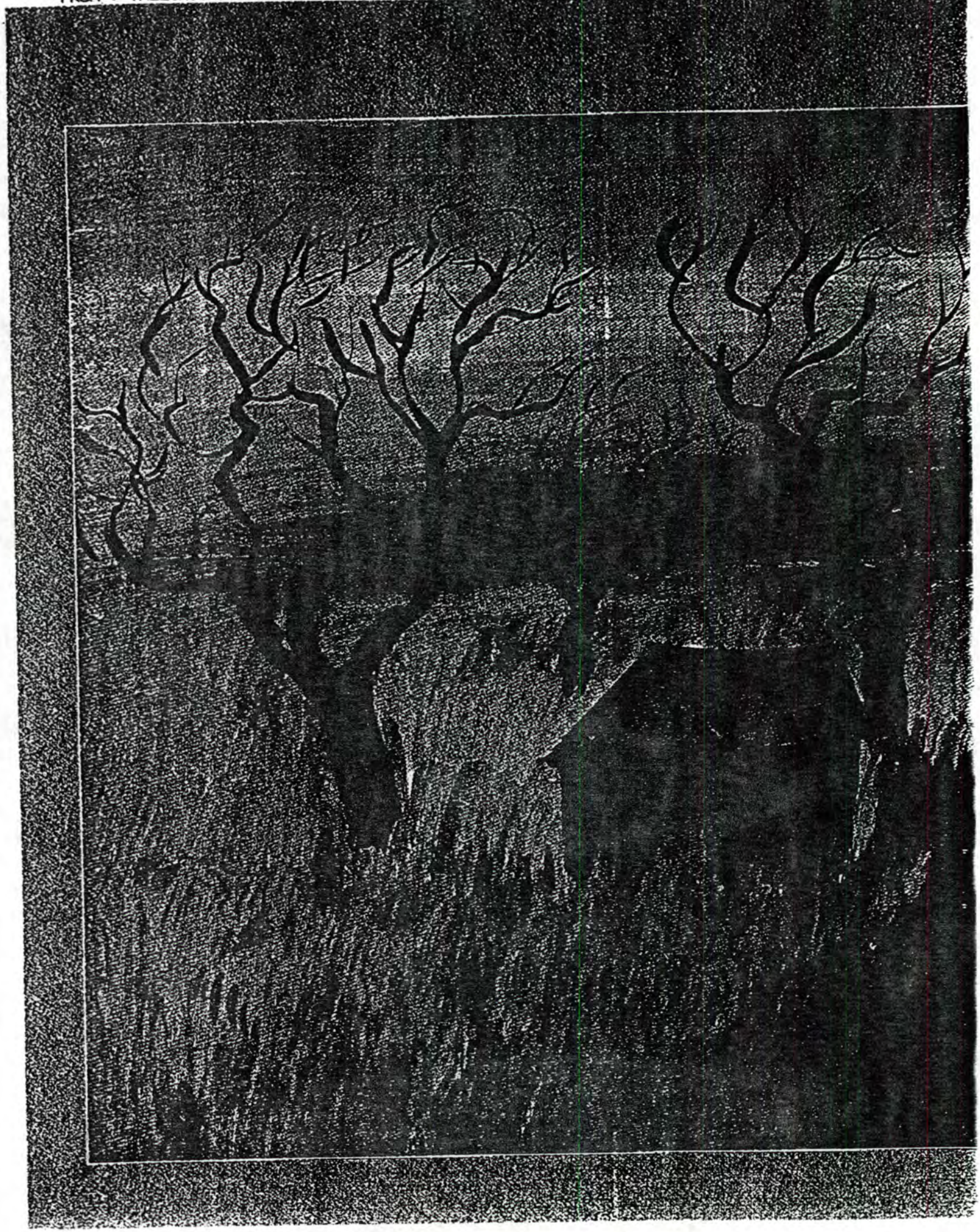
David R. Marples, Ph.D., is Professor of Russian History, University of Alberta, Edmonton.

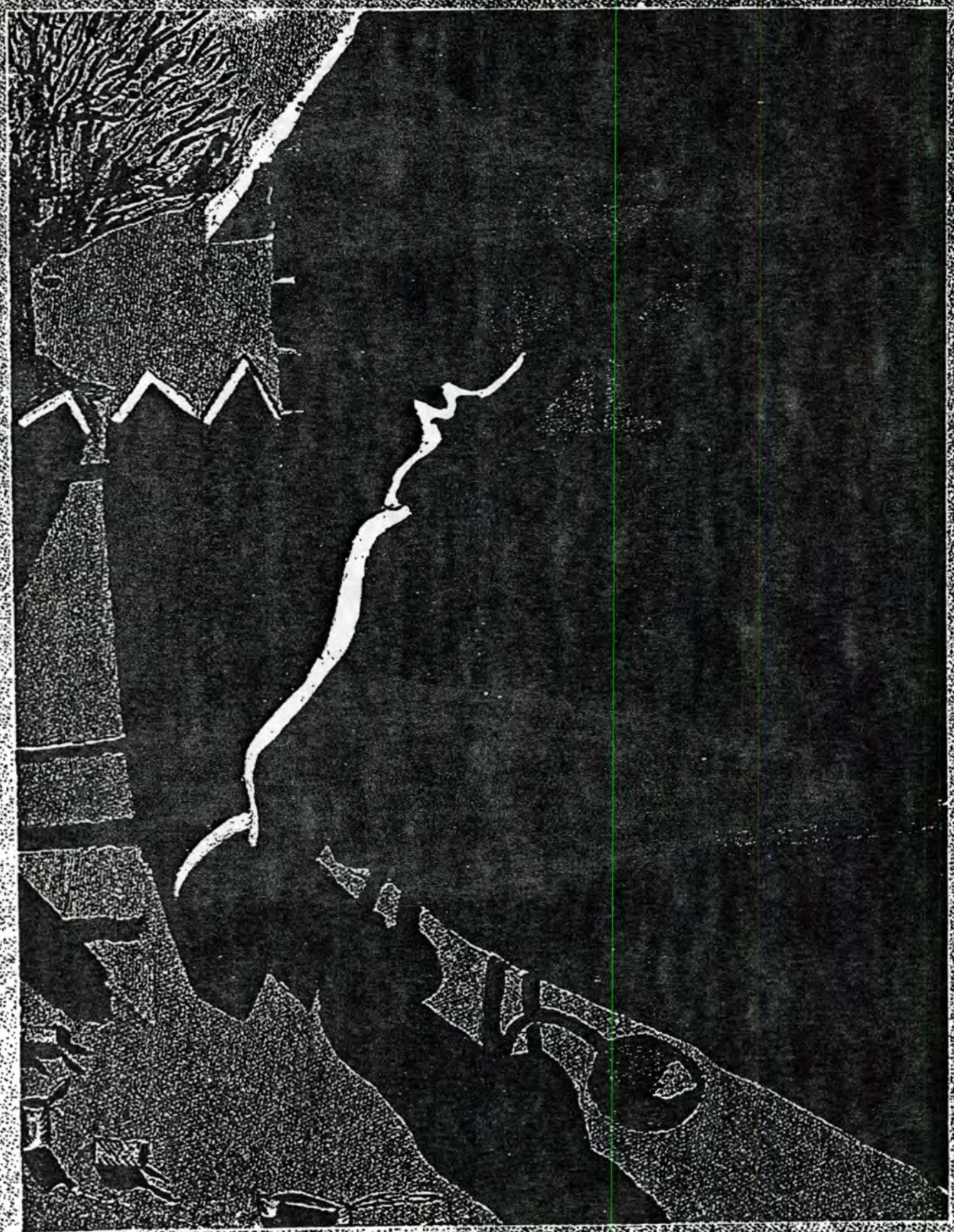














Children of Chernobyl: Their Pictures Tell the Story



THE CHILDREN OF CHERNOBYL

Check List

1. "Chernobyl." Vasya Matskevich, Age 12. Rakitka Village, Brest Region. Watercolor (21 x 30 cm.).

2. "In the Chernobyl Forest." Larisa Maskalyova, Age 13. Khotsimsk Town, Mogilev Region. Water Color (26 x 38 cm.).

3. "Chernobyl Stairs." Yura Fedorin, Age 11. Kostyukovichi Town, Mogilev Region. Water Color (29 x 32 cm.).

4. Mommy, I Want to Live." Dima Ryzhankov, Age 11. Kostyukovichi, Mogilev Region. Water Color (29 x 32 cm.).

5. "My Dream. It Will be So." Vitali Blinafatov, Age 13. Khotsimsk Town, Mogilev Region. Water Color (26 x 36 cm.).

6. "Contaminated Zone." Elena Botikova, Age 12. Belynichi Village, Mogilev Region. Water Color (20 x 30 cm.).

7. "Radiation. No Swimming." Tanya Galitsa, Age 13. Khotsimsk Town, Mogilev Region. Water Color (27x x 38 cm.).

8. "A Deserted Village." Sasha Sorokin, Age 11. Kostyukovichi Town, Mogilev Region. Water Color (29 x 42 cm.).

*9. "In Contaminated Zone." Julia Novatskaya, Age 10. Grodno Town. Water Color (30 x 43 cm.).

10. "Untitled." Peter Vincha, Age 13. Pencil on Paper (21 x 29 cm.).

11. "Untitled." Natasha Ignatovich, Age 13. Belynichi Village, Mogilev Region, Pencil on Paper (21 x 29 cm.).

12. ""Untitled." Peter Vinteha, Age 13. Grodno Region. Pencil on Paper (21 x 29 cm.).

13. "Affected Zone." Pavel Ponomarenko, Age 6. Baranovichi Town, Brest Region. Pencil on Paper (21 x 29 cm.).

*14. "The Merry Sun." Nastya Khroshenkova, Age 9. Water Color (30 x 42 cm.).

15. "My Toys." Anna Skozetskaya, Age 9. Water Color (30 x 42 cm.).

*16. "The Angel is Blessing Children." Irene Yerasimovich, Age 15. Water Color (30 x 42 cm.).

*17. "Autumn." Tanya Ivchick, Age 16. Water Color (30 x 42 cm.).

18. "Still Life." Marina Bordyugova, Age 14. Mogilev Town. Gouache (42 x 59 cm.).

19. "Chernobyl is our Pain." I. I. Atroshchenko, Age 13. Vasilevichi Village, Gomel Region. Gouache (60 x 84 cm.).

20. "Chernobyl and Ecology. To Gather Mushrooms and Berries is Forbidden." I. I. Atroschenko, Age 13. Vasilevichi Village, Gomel Region. Gouache (60 x 84 cm.).

21. "30 km Zone. Danger!" Sasha Babiy, Age 11. School No. 27, Grodno Town. Water Color (42 x 59 cm.).

22. "Pripyats River." Andrew Babiy, Age 12. School No. 27, Grodno Town. Water Color (42 x 50 cm.).

23. "Abandoned." Tanya Konovalova, Age 10. Kostyukovichi Town, Mogilev Region. Gouache (29 x 42 cm.).

24. "My Pet." Tanya Podoshevka, Age 12. Mogilev Children's Art School. Water Color (43 x 59 cm.).

*25. "Mirror." Anna Pavlova, Age 16. Mogilev Children's Art School, Mogilev Region. Ink on Paper (32 x 43 cm.).

*26. "The God Has Come!" Lena Strozhevich, Age 13. Mogilev Region. Gouache (35 x 52 cm.).

*27. "Still Life." Tanya Sotnikova, Age 14. Mogilev Town. Gouache (32 x 50 cm.).

28. "Dreamer." Anna Suboch, Age 12. Mogilev Children's Art School, Mogilev Region. Water Color (32 x 50 cm.).

29. "Clown." Ann Yakunia, Age 5. Rogachev Town, Gomel Region. Gouache (21 x 29 cm.).

30. "New Year." Sergei Kalinovski, Age 14. Rogachev Town. Gouache (30 x 39 cm.).

32. "Flowers." I. Nickoleaenko, Age 13. Gouache, (21 x 30 cm.).

34. "My Doll." Masha Sozinova, Age 5. Rogachev Town, Gomel Region. Gouache (21 x 31 cm.).

*35. "To School." Tanya Chernenko, Age 11. Rogachev Town, Mogilev Region Water Color (29 x 36 cm.).

36. "My Doll Malvina." Anna Yakushina, Age 8. Rogachyov Town, Gomel Region. Gouache (20 x 29 cm.).

37. "Bouquet." Vitya Kashmuk, Age 14. Rogachev Town, Gomel Region. Water Color (41 x 29 cm.).

38. "My Toy." Veronika Larchenko, Age 5. Rogachev Town, Gomel Region. Gouache (21 x 29 cm.).

*39. "Untitled." Julia Dichankina, Age 11. Rogachev Town. Gouache (30 x 43 cm.).

*40. "Untitled." Julia Dichankina, Age 11. Rogachev Town, Gomel Region. Gouache (29 x 41 cm.).

41. "Explosion of Civilization." Irene Zyskunova, Age 12. Water Color (37 x 51 cm.).

42. "Untitled." Gena Rogozhin, Age 11. Gouache (20 x 30 cm.).

43. "New Year." Julia Berlinova, Age 14. Mogilev Art School, Mogilev Region. Gouache (42 x 57 cm.).

45. "Autumn." Dasha Vasilyeva, Age 10. Water Color (30 x 41 cm.).

46. "A Portrait." Marina Iorinas, Age 11. Mogilev Art School, Mogilev Region. Gouache (37 x 52 cm.).

47. "A Girl With a Parrot." Kate Savitskaya, Age 12. Mogilev Region. Gouache (32 x 50 cm.).

48. "Circus." Masha Mihalovskay, Age 12. Mogilev Children's Art School, Mogilev Region. Gouache (36 x 55 cm.).

50. "Red Fall." Tamara Maksimova, Age 12. Bobruisk, Mogilev Region. Gouache (29 x 42 cm.).

*51. "Winter Landscape." Tanya Ragun, Age 12. Mogilev Region. Gouache (51 x 34 cm.).

52. "Trees Are Like People Here." Olga Daineko, Age 15. Water Color (43 x 61 cm.).

53. "Abandoned Castle." Inna Shtukar, Age 12. Mogilev Children's Art School, Mogilev Region. Gouache (31 x 50 cm.).

54. "Trees Are Like People." Olga Daineko, Age 15. Water Color (43 x 61 cm.).

55. "Still Life." Irene Lapchenko, Age 14. Mogilev Town. Water Color (31 x 48 cm.).

56. "Chernobyl's Cloud." Andrew Kabanov, Age 12. Krichev Town, Mogilev Region. Gouache (43 x 61 cm.).

57. Buried Village." Svetlana Pozharskaya, Age 13. Krichev Town, Mogilev Region. Gouache (43 x 61 cm.).

58. "Lifeless Village." Natasha Vitkina, Age 11. Krichev Town, Mogilev Region. Gouache (43 x 56 cm.).

59. "A Lonely Tree." Tanya Solovyeva, Age 12. Krichev Town, Mogilev Region. Gouache (42 x 30 cm.).

60. "A Buried Village." Natasha Drozdova, Age 13. Krichev Town, Mogilev Region. Gouache (43 x 61 cm.).

61. "Dying Tree." Marina Kravchenko, Age 10. Krichev Town, Mogilev Region. Gouache (43 x 54 cm.).

62. "Cold Spring." Lena Pashkevich, Age 11. Krichev Town, Mogilev Region. Gouache (43 x 54 cm.).

*63. "Abandoned House." Irene Chubkova, Age 12. Krichev Region. Gouache (43 x 54 cm.).

*64. "Absense of Human Beings." Igor Blozkov, Age 12. Krichev Region. Gouache (30 x 42 cm.).

*65. "Fire in Forest." Juliya Stefaneko, Age 11. Krichev Town, Mogilev Region. Gouache (30 x 42 cm.).

*67. "Beloved Place." Maria Korovatskay, Age 13. Krichev Town, Mogilev Region. Gouache (35 x 42 cm.).

*68. "Nobody Lives Here Any Longer." Natasha Bernadskaya, Age 12. Krichev Region. Gouache (30 x 42 cm.).

*69. "Cement Works." Marina Smolyak, Age 12. Krichev Town, Mogilev Region. Gouache (30 x 42 cm.).

70. "Red Trees." Sveta Vukulova, Age 12. Krichev Town, Mogilev Region. Gouache (30 x 42 cm.).

71. "Flood Time." Igor Polozkov, Age 13. Krichev Town, Mogilev Region. Gouache (30 x 43 cm.).

72. "School Without Children." Dennis Gorodnov, Age 11. Gouache (30 x 42 cm.).

*73. "Trees at the Water." Inna Chehlova, Age 12. Krichev Town, Mogilev Region. Gouache (30 x 42 cm.).

74. "We Are Leaving the Native Place." Andrew Valzuzhenich, Age 10. Krichev Town, Mogilev Region. Gouche (30 x 42 cm.).

75. "Rainbow Over Sozh River." Marina Chulkova, Age 11. Krichev Town, Mogilev Region. Gouache (30 x 42 cm.).

76. "Glow." Sergei Skryazhenko, Age 11. Krichev Town, Mogilev Region. Gouache (30 x 42 cm.).

77. "Take Care of Nature." Sveta Pugach, Age 11. Krichev Town, Mogilev Region. Gouache (30 x 42 cm.).

*78. "In a Hospital." Alexei Yarets, Age 13. Krichev Town, Mogilev Region. Gouache (43 x 61 cm.).

*79. "The Pilots Are Ordered to Give that Cloud a Seat." Vasya Kurbako, Age 11. Krichev Town, Mogilev Region, Gouache (30 x 43 cm.).

80. "Old Age." Valentina Vlasenko, Age 13. Krichev Town, Mogilev Region. Gouache (43 x 55 cm.).

81. "Our Future." Sergei Krutko, Age 12. Krichev Town, Mogilev Region. Gouache (23 x 42 cm.).

*82. "Temple." Rman Semenov, Age 13. Krichev Town, Mogilev Region. Gouache (43 x 50 cm.).

84. "Behind the Barbed Wire." Natasha Bernadskaya, Age 13. Krichev Town, Mogilev Region. Gouache (42 x 61 cm.).

85. "Dead Garden." Natasha Yerofevya, Krichev Town, Mogilev Region. Gouache (42 x 60 cm.).

86. "Dirty Spots on Snow." Olga Popova, Age 12. Krichev Town, Mogilev Region. Gouache (39 x 43 cm.).

*87. "Chernobyl Fall." Vladimir Dobrovolski, Age 14. Krichev Town, Mogilev Region. Gouache (43 x 52 cm.).

88. "Save Us, God!" Olga Zapekina, Age 12. Krichev Town, Mogilev Region. Gouache (43 x 61 cm.).

90. "Loneliness." Julia Ivankova, Age 12. Krichev Town, Mogilev Region. Gouache (30 x 43 cm.).

91. "Burned with the Radiation." Sergei Geroboy, Age 12. Krichev Town, Mogilev Region. Gouache (43 x 51 cm.).

92. "Born in Chernobyl." Lena Petrochenkova, Age 13. Krichev Town, Mogilev Region. Gouache (30 x 43 cm.).

93. "Trees." Dennis Gorbunov, Age 11. Krichev Town, Mogilev Region. Gouache (30 x 43 cm.).

94. "No Entrance." Julia Poroleva, Age 12. Krichev Town, Mogilev Region. Gouache (43 x 61 cm.).

*95. "The Chernobyl Accident." Oleg Masiko, Age 12. Krichev Town, Mogilev Region. Gouache. (41 x 54 cm.).

96. "Silence." Lena Pankratov, Age 12. Krichev Town, Mogilev Region. Gouache (30 x 41 cm.).

97. "At Night." Boris Mozalkov, Age 13. Krichev Town, Mogilev Region. Gouache (31 x 43 cm.).

*98. "Abaondoned Village." Marina Smolyak, Age 13. Krichev Town, Mogilev Region. Gouache (43 x 53 cm).

99. "Restettled Boys." Piotr Belyavski, Age 13. Krichev Town, Mogilev Region. Gouache (29 x 41 cm.).

100. "A Liquidator." Dennis Belozerov, Age 13. Krichev Town, Mogilev Region. Gouache (31 x 43 cm.).

102. "Disturbing Sky." Tanya Yelenskaya, Age 12. Krichev Town, Mogilev Region. Gouache (52 x 41 cm.).

*103. "Black Cloud." Olga Shesterenko, Age 12. Krichev Town, Mogilev Region. Gouache (43 x 61 cm.).

*104. "Charm." Alexei Yarets, Age 13. Krichev Town, Mogilev Region. Gouache (55 x 43 cm.).

105. "An Abandoned Herd." Olga Filipova, Age 12. Krichev Town, Mogilev Region. Gouache (43 x 52 cm.).

*106. "The Chernobyl Nuclear Power Station." Sergei Krutko, Age 12. Krichev Town, Mogilev Region. Gouache (43 x 52 cm.).

107. "Putting Out the Fire." Oleg Stefanenko, Age 11. Krichev Town, Mogilev Region. Gouache (30 x 42 cm.).

108. "We Are Leaving Our House." Anna Bakumenko, Age 11. Krichev Town, Mogilev Region. Gouache (43 x 61 cm.).

109. "A Lonely Tree." Vladmir Lesin, Age 11. Krichev Town, Mogilev Region. Gouache (42 x 52 cm.).

111. "Chernobyl Indian Summer." Oleg Masiho, Age 12. Krichev Town, Mogilev Region. Gouache (43 x 53 cm.).

112. "April 26, 1986. We Know Nothing About the Trouble." Olga Andrenko, Age 13. Krichev Town, Mogilev Region. Water Color (29 x 52 cm.).

113. "May, 1986." Regina Kolgina, Age 13. Krichev Town, Mogilev Region. Gouache (36 x 52 cm.).

*114. A House Near the River." Natasha Ryzhkova, Age 12. Krichev Town, Mogilev Region. Gouache (42 x 52 cm.).

115. "We Are Still Living in the Affected Zone." Elena Antonyuk, Age 14. Krichev Town, Mogilev Region. Gouache (39 x 59 cm.).

116. "The Trees." Anna Bakumenko, Age 10. Krichev Town, Mogilev Region. Gouache (30 x 43 cm.).

117. "Chernobyl's Apples." Nastya Dorozhkina, Age 10. Krichev Town, Mogilev Region. Gouache (30 x 43 cm.).

118. "House Keeping." Tanya Syatkina, Age 12. Krichev Town, Mogilev Region. Gouache (30 x 43 cm.).

119. "At the Well." Natasha Kravtsova, Age 11. Krichev Town, Mogilev Region, Gouache (30 x 43 cm.).

120. "Lifeless Village." Andrew Sherhnyov, Age 12. Krichev Town, Mogilev Region. Gouache (30 x 43 cm.).

Additional Drawings:

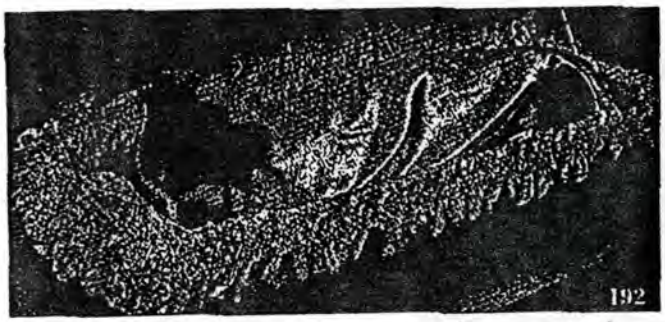
121. "A Handful of Soil in Memory of My Native House." P. Vinga. Krupova Village, Grodno Region. Gouache.

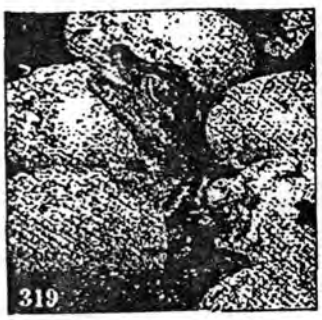
122. "The Flowers of Chernobyl." Masha Samagulova, Age 12. Gomel Region. Gouache.

123. "Mommy, I Want Home." Sergei Kozlov, Age 13. Dobrush Town, Gomel Region. Gouache.

124. "Poor Birds!" Tanya Goduiko, Age 10. Sherchevo Village, Brest Region. Gouache.

125. "Farewell, My Druzok." Sergei Akhremkin, Age 13. Hotsimsk Town, Mogolev Region. Gouache.









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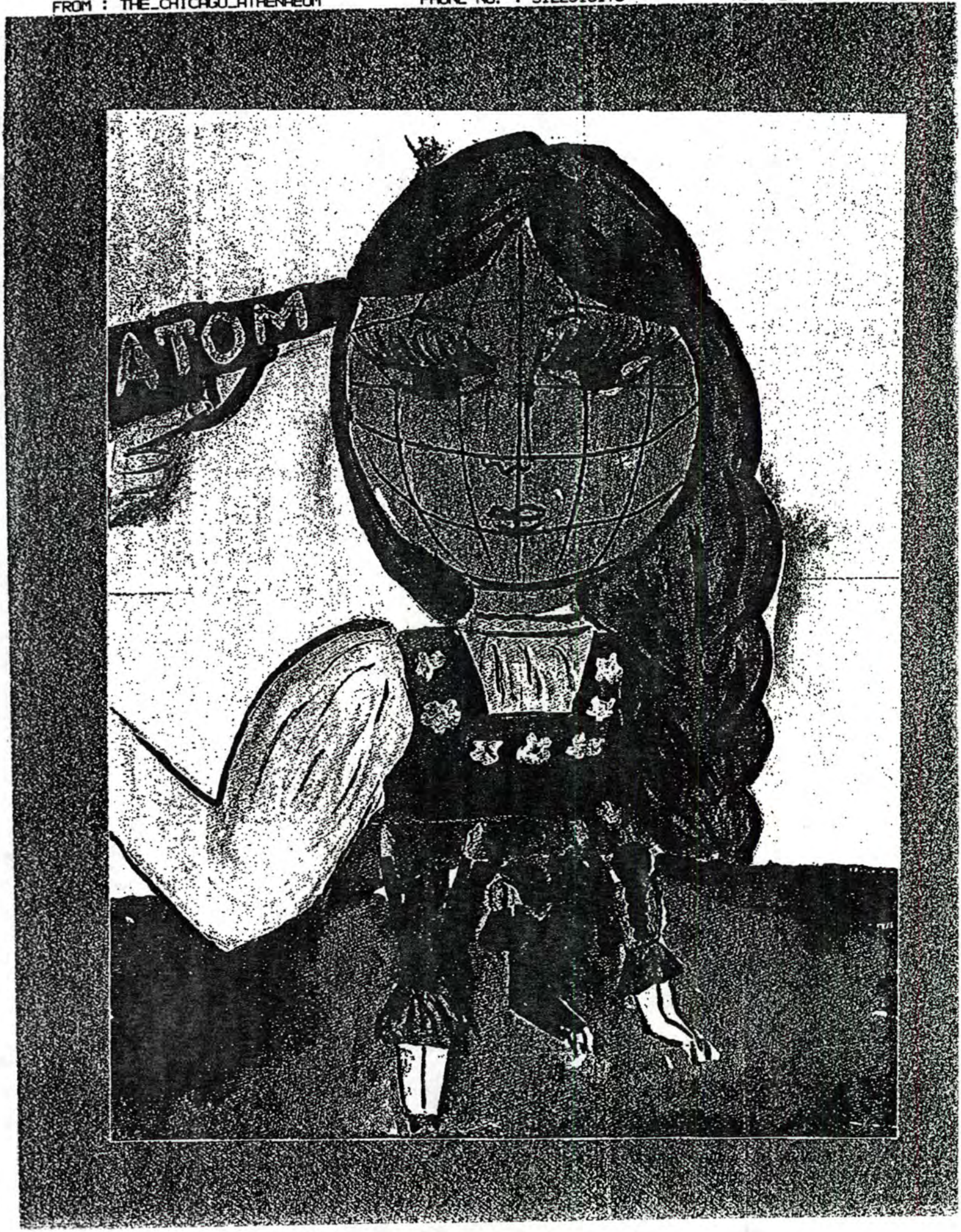
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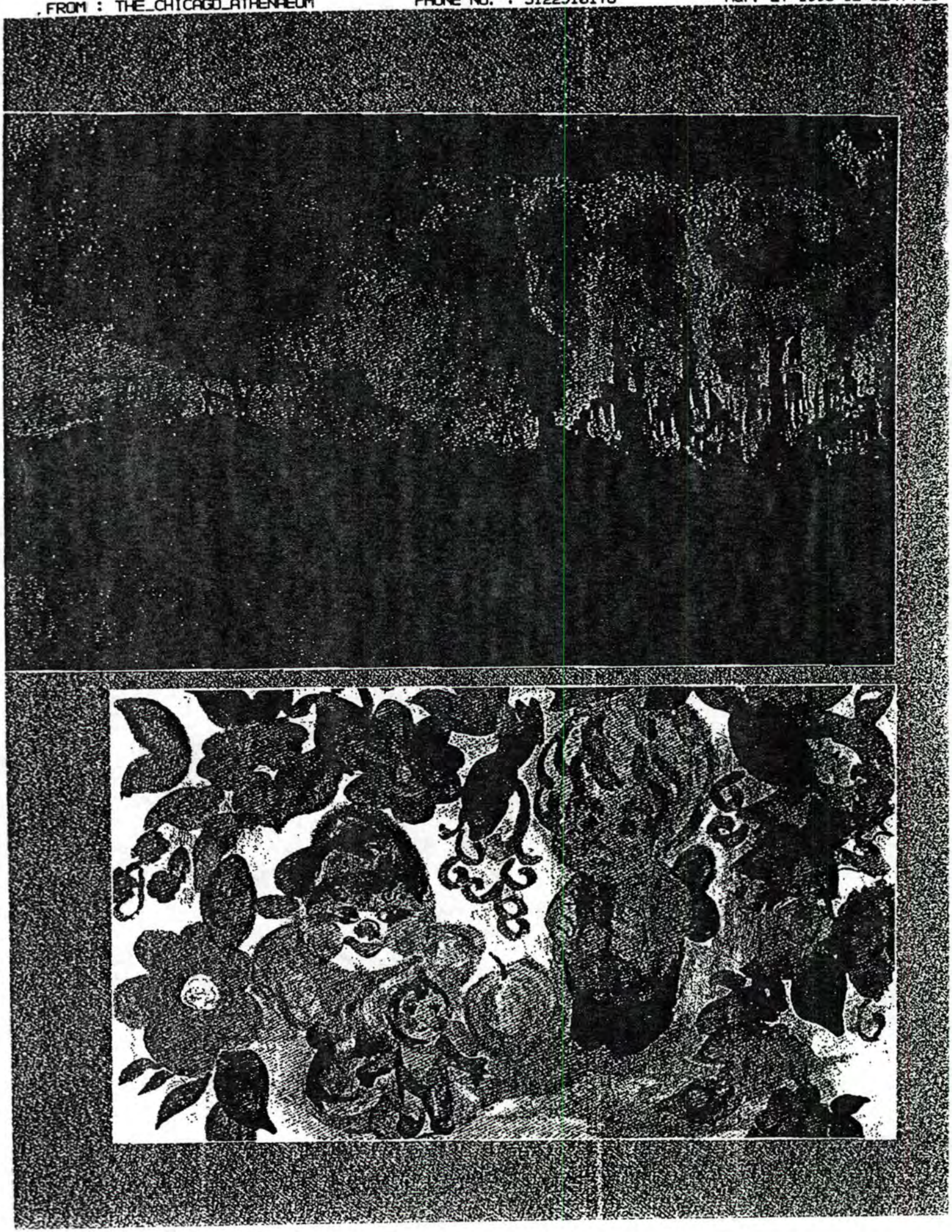
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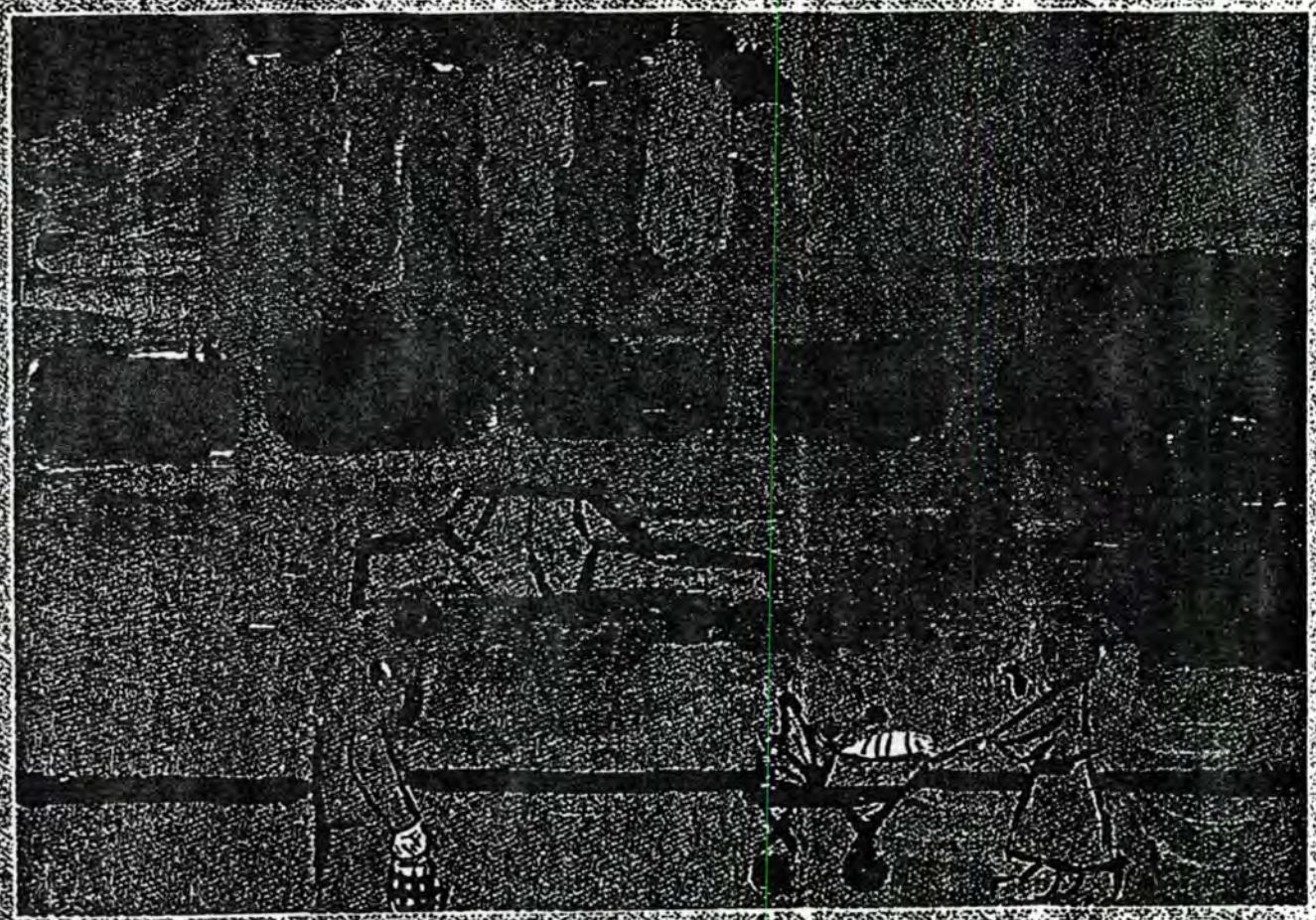
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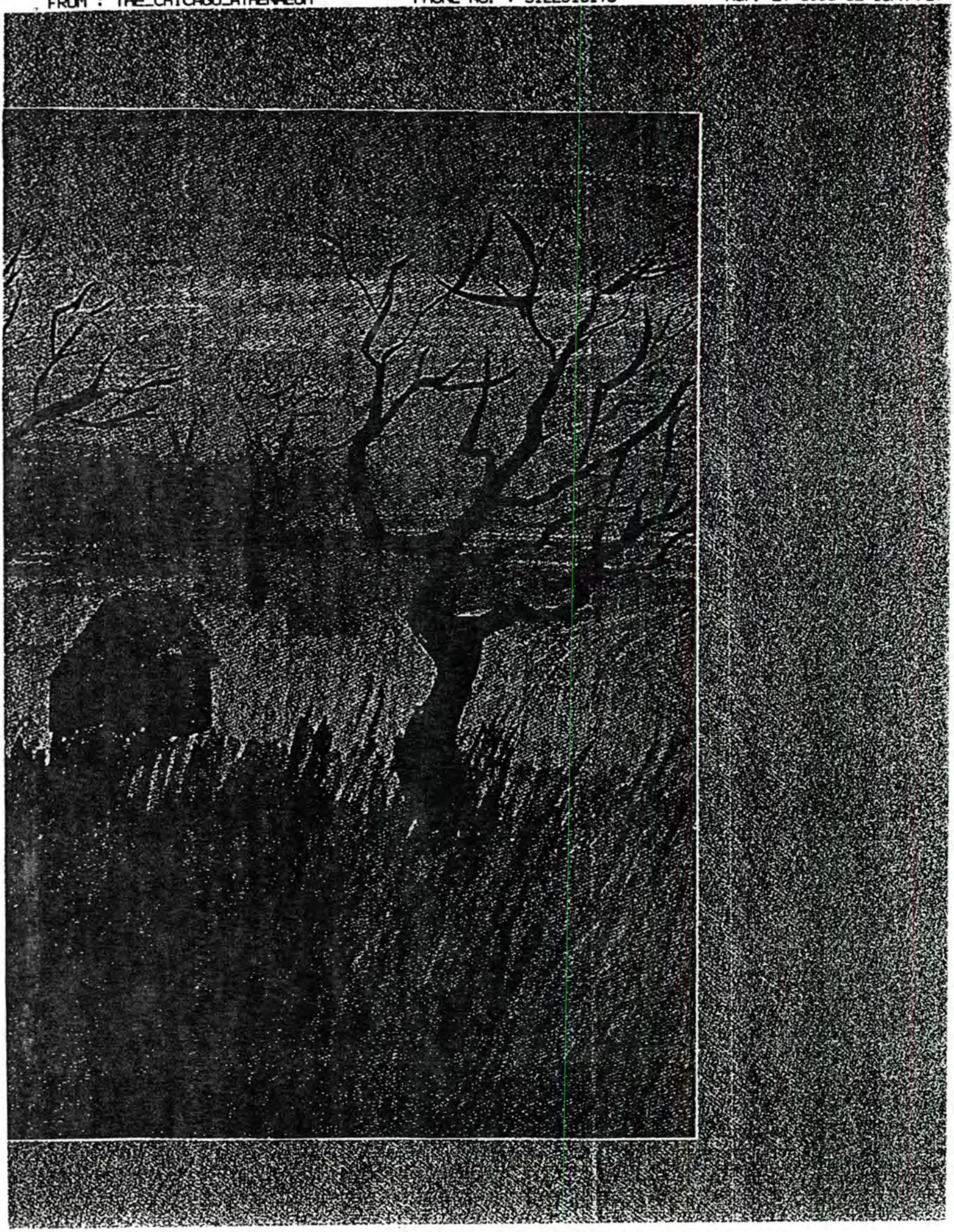
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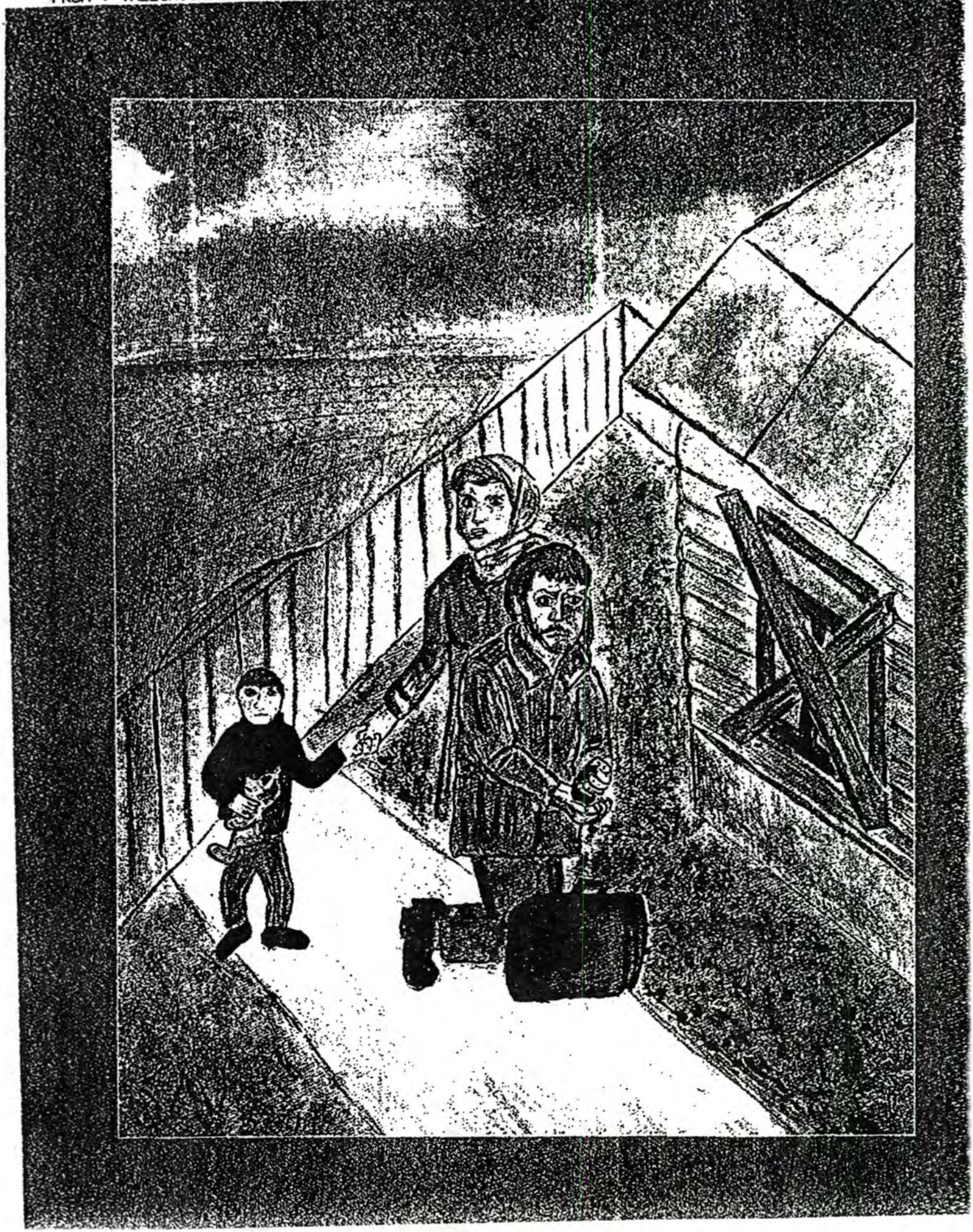







MGAO!





Chernobyl

HRC → frame event

some historic

environmental + health impact

so many ppl and the world came together,

incl. many Americans

MINSK - Never forget visits to Minsk hospitals

(partnerships w/ Child. Hosp / Pittsburgh)

→ talked to children suffering from

severe thyroid cancer

Several hundred – kids

are thousands more like her

Uniform trauma of this event

Fear of future – don't know how it will affect

in the future

→ KIEV

Talked to doctors, nurses, mothers

and heard a lot abt the constant

trials of living abt this problem

→ MOSCOW -

– Doctors, etc – touched on health +

environmental issues -