

THREE MILE ISLAND REVISITED

Gordon K. MacLeod, M.D.

The report of the President's Commission on the Accident at Three Mile Island is prefaced by the pronouncement, "On March 28, 1979, the United States experienced the worst accident in the history of commercial nuclear power generation." More than any other single event, the accident at Three Mile Island proved dramatically--and abruptly--that the Pennsylvania Department of Health lacked the tools to deal with the extraordinarily serious health consequences that occurred during and after this emergency. Fortunately, only low levels of radiation reached the off-site population, and the Commission reported that "there will be no detectable additional cases of cancer, developmental abnormalities, or genetic ill health."

That is the good news. Now, let me tell you the bad news about Pennsylvania's readiness for the TMI accident, and perhaps the next nuclear emergency. On day one, just 12 days after being sworn in as Secretary of Health, I found a woeful lack of public health preparedness at the state and national levels. That condition prevails today. In the Department of Health, there was no Bureau of Radiation Health, no office of Mental Health, not even a book on radiation medicine--the medical library had been disbanded for budgetary reasons two years earlier. In short, the Department of Health had little or no capability to deal with this extraordinarily serious emergency.

On the second day, because of wildly conflicting reports about the levels of radiation emissions, I recommended in the strongest possible terms that the governor call for the evacuation of pregnant women and young children from an area within five miles of the disabled plant. The state's nuclear engineers did not agree with me, so a nonmedical decision was accepted.

On the third day, the endorsement of the Nuclear Regulatory Commission's Chairman, Joseph Hendrie, a nuclear power engineer, finally convinced the Governor to issue his evacuation directive. Hendrie said, "If my wife were pregnant,...I would get (her) out. Because we don't know what is going to happen." Isn't that interesting? A physician's warning of potential health effects from radiation goes unheeded while an engineer's warning is accepted. Certainly, an Alice In Wonderland approach to sound public health practice!

Professor of Health Services Administration and Clinical Professor of Medicine, University of Pittsburgh, Pittsburgh, Pennsylvania.

By the fourth day, anxiety and stress compelled some tens of thousands to flee the Harrisburg area, including many hospital workers. Only one of the seven Harrisburg area hospitals had been prepared to handle some four to six nuclear accident victims, presumably workers contaminated at the Three Mile Island plant. Apparently the offsite population was not even considered. There was no established protocol for decontaminating the community residents exposed to high levels of radiation. The absence of health planning continued for the next several weeks, if not months. Even six months after the accident the governor called officials from several departments together to plan for future clean-up procedures, but no one from the Department of Health was invited.

Rather than impose on you a set of personal reflections from seven years ago, let us view the TMI episode through the eyes of newspaper reporters. Although the President's Commission on the Accident at Three Mile Island found that the public's right to information during the emergency was not well served, the Commission wrote that "There were only a few cases of irresponsible reporting."

On the first day after the meltdown began, The New York Times had a report in the middle of the first page (Figure 1). By the third and fifth days, the Times was running large, three-column headlines with lengthy stories, including one about President Carter's visit to the site (Figures 2 and 3). On April 10, the news from TMI still rated two-column headlines and stories on the front page (Figure 4). Needless to say, major stories with banner headlines also ran in the Philadelphia and Harrisburg newspapers. The Lancaster Sunday News on May 20 reported that the crisis destroyed the region's "quality of life."

A thought-provoking editorial with a message for all physicians appeared in a publication of the American College of Physicians (Figure 5). The message emphasized that physicians had inadequate factual information available on the character of the event and the radiation released at TMI, yet they were deluged with questions about the significance of the event in terms of patients' health. Unfortunately, many physicians did not have the knowledge to advise their patients adequately. Another important point: hospitals' disaster plans were lacking in terms of mass evacuations of patients.

The New York Academy of Sciences concluded that the TMI episode had immediate psychological effects on persons living in the region and a lasting impact on people in terms of their trust of authorities (Figure 6).

All of this represents just a single tick of the clock in the nuclear age!

We now need to focus our attention on improving the engineering and technical aspects of nuclear power, but even more importantly we need to improve the quality of medical and health preparedness for

future radiation emergencies. It seems to me that Pennsylvania is not much better off today than it was seven and one-half years ago. There is still no Bureau of Radiation Health or Bureau of Mental Health in the Department of Health, and the lack of a physician alert system is a serious deficiency. Were another accident to take place at any one of Pennsylvania's nuclear reactors, irreparable physical and psychological damage could occur.

Despite the relative safety of nuclear power generation, we must be better prepared for the health and medical consequences of serious radiation emergencies within the state as well as in the country and the world.

"All the News
That's Fit to Print"

The New York Times

LATE CITY EDI

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ARABS, DEEPLY SPLIT, BAR STRONGER STEPS AGAINST U.S. EGYPT

SYRIA, LIBYA AND P.L.O. LEAVE

Saudi Block Response to Treaty Beyond Sanctions Approved in Baghdad in November

By ABAYIVE PERE
Special to The New York Times

BAHIGAH, Iraq, March 28 — Arab members opposing the Egyptian-Libyan peace treaty signed in November last year, and the United States at a meeting here today, said Syria, Libya and the Palestine Liberation Organization would not support the treaty.

When the Arab League met in Baghdad in November, it had to be held in secret because the United States, Egypt's major industrial ally, threatened to go to the United Nations to demand that the Arab League be suspended. The Arab League members approved a resolution that the United States should be expelled from the organization.

When the Arab League approved the treaty in November, the thinking of foreign and Islamic leaders of the Arab League was that the treaty would bring peace to the Middle East and end the Arab boycott of Israel.

Opposition Intensifies Following

It was not clear whether the meeting will succeed in putting pressure on the United States to lift its embargo against a group of Arab countries. It was not clear whether a group of Arab countries will be able to lift the embargo.

The differences among the Arab League members are deep. Syria, Libya and the P.L.O. are opposed to the treaty. Saudi Arabia is in a difficult position. It is a member of the Arab League and has a close relationship with the United States.

The Arab League members are divided into two groups. One group is in favor of the treaty and the other group is opposed to it. The Arab League members are divided into two groups. One group is in favor of the treaty and the other group is opposed to it.

NIGERIA JOINS MOVE FOR A \$4 SURCHARGE ABOVE 9% OIL RISE

Follows Lead of Algeria and Libya — Other Nations Voice Fears — Air Fares May Go Up

By ANTHONY J. PARSE
Special to The New York Times

LAGOS, one of the world's major oil producing nations, joined Algeria and Libya today in a move to impose additional surcharges on crude oil, above and beyond the 9 percent increase established by the Organization of Petroleum Exporting Countries on Tuesday.

Nigeria passed a resolution at a meeting of the OPEC members in Geneva, in which the 12 other members authorized surcharges of one dollar per barrel. The surcharge would be in effect on the first day of the month of April.

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Radiation Is Released in Accident At Nuclear Plant in Pennsylvania

By DONALD J. JAMON
Special to The New York Times

MIDDLETOWN, Pa., Thursday — The Department of Energy today said that a small amount of radioactive gas was released from a nuclear reactor at the Three Mile Island power plant in Pennsylvania.

The release of the gas was the result of a problem with the reactor's cooling system. The release of the gas was the result of a problem with the reactor's cooling system. The release of the gas was the result of a problem with the reactor's cooling system.

LABOR GOVERNMENT IS OUSTED IN BRITAIN BY VOTE IN COMMONS

Margaret Thatcher, Leader of Britain's Conservative Party, Wins — Election Likely by Early May

By WILLIAM BORDERS
Special to The New York Times

LONDON, March 28 — Prime Minister James Callaghan's Labor Party Government today was ousted in a vote in the House of Commons.

The Conservative Party, led by Margaret Thatcher, won a majority in the House of Commons. The Conservative Party, led by Margaret Thatcher, won a majority in the House of Commons.

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Callaghan Beaten by Margin of — Election Likely by Early May

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BRITISH TORY IS SLAIN IN PARLIAMENT YARD, APPARENTLY BY I.R.A.

Bomb in Car Kills a Close Adviser to Mrs. Thatcher — 2 Groups Claiming Responsibility

By WILLIAM BORDERS
Special to The New York Times

LONDON, March 28 — A leading Member of Parliament was killed today in a bombing in Parliament Yard in London.

The victim was a close adviser to Mrs. Margaret Thatcher. The victim was a close adviser to Mrs. Margaret Thatcher. The victim was a close adviser to Mrs. Margaret Thatcher.

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U.S. AIDES SEE A RISK OF MELTDOWN AT PENNSYLVANIA NUCLEAR PLANT; MORE RADIOACTIVE GAS IS RELEASED

By DONALD J. JAMON
Special to The New York Times

MIDDLETOWN, Pa., Saturday — U.S. nuclear safety officials today said that a small amount of radioactive gas was released from a nuclear reactor at the Three Mile Island power plant in Pennsylvania.

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FIGURE 2

CHILDREN EVACUATED

But Governor Says Later Further Pullouts Are Not Thought Likely

By DONALD J. JAMON
Special to The New York Times

MIDDLETOWN, Pa., Saturday — Gov. Dick Thornburgh today ordered the evacuation of children from the Three Mile Island nuclear power plant in Pennsylvania.

The evacuation was the result of a problem with the reactor's cooling system. The evacuation was the result of a problem with the reactor's cooling system. The evacuation was the result of a problem with the reactor's cooling system.



CONGRESS IS BRIEFED

Carter Aide at Scene Says Danger to the Public Is Believed Likely

By DONALD J. JAMON
Special to The New York Times

WASHINGTON, March 28 — The House of Representatives today held a hearing on the Three Mile Island nuclear power plant in Pennsylvania.

The hearing was the result of a problem with the reactor's cooling system. The hearing was the result of a problem with the reactor's cooling system. The hearing was the result of a problem with the reactor's cooling system.

Call for Lockout rike by Teamsters

Proposal for a Single Trial Tribunal
Needs Vote by 2 Legislatures
and a Public Referendum

By TOM GOLDSTEIN
Congress is now preparing to take the Legislature ready for legislation that would merge 11 types of trial courts in the State into one statewide court and would recommend how to choose the several hundred judges involved.

WALKOUT IS STARTED BY TUGBOAT CREWS

2,700-Member Union on Strike
Barges and Tankers Affected

By TOM GOLDSTEIN
A walkout of 2,700 tugboat, barge and tanker crews in the New York State waters today began a strike that will affect the State's waterborne commerce.

CAREY SEEKS POWER TO MERGE 11 COURTS AND SELECT JUDGES

Proposal for a Single Trial Tribunal
Needs Vote by 2 Legislatures
and a Public Referendum

By TOM GOLDSTEIN
Governor Carey today announced that he is ready to propose legislation that would merge 11 types of trial courts in the State into one statewide court and would recommend how to choose the several hundred judges involved.

CARTER VISITS NUCLEAR PLANT, URGES COOPERATION IN CRISIS; SOME EXPERTS VOICE OPTIMISM



President Carter with Harold R. Dennis, left, chief operating officer of Nuclear Regulatory Commission, and Gov. Dick Thornburgh, behind Mr. Carter, in control room of Three Mile Island. Understaffed employees left here.

PROBLEM SEEN EASING

Government Officials Say
Evacuation Possibility
Seems to Diminish

By MICHAEL S. LYONS
WASHINGTON, Pa., April 17 — President Carter visited the Three Mile Island nuclear power plant today, and urged cooperation in the crisis. Some experts voice optimism.

Nuclear Power's Future Is Clouded; Brown Asks Plant Closing on Coast

By PETER DILLON
The chairman of the House Select Committee on Energy and Commerce today asked that the Three Mile Island nuclear power plant be closed.

Provisionary Action Urged

By HALLAC TURNER
SAN FRANCISCO (AP) — Gov. Jerry Brown today urged that the Three Mile Island nuclear power plant be closed.

"All the News
That's Fit to Print"

U.S. Aide Calls Plant's Crisis Over; Control at 43 Reactors Questioned

Pennsylvania's Governor
Says Area Is Now Safe
for Pregnant Women

By ALAN BRIDGMAN
HARRISBURG, Pa., April 18 — Harold R. Dennis of the Nuclear Regulatory Commission declared today that the crisis at Three Mile Island was over, and Gov. Dick Thornburgh said it was safe for pregnant women to live near the plant.

Operator May Be Fined by Pressure Readings, Advisory Unit Warns

By ALAN BRIDGMAN
WASHINGTON, April 18 — The Commission's advisory committee on nuclear safety has concluded that the operator at Three Mile Island nuclear power station must be fined for "gross negligence."

Canadian Concern Seeks Woolworth

By PAUL HOFFERMAN
OTTAWA (AP) — A Canadian official today sought to obtain information on the Three Mile Island nuclear power plant crisis.

Pope, in Letter to Priests, Reaffirms Celibacy Rule as Holy Commitment

By PAUL HOFFERMAN
VATICAN CITY (AP) — Pope John Paul II today reaffirmed the rule of celibacy for priests as a holy commitment.

U.S. Aids Refugees to Escape Fighting Near Lebanon

By PAUL HOFFERMAN
WASHINGTON (AP) — The State Department today announced that it would provide aid to Lebanese refugees.

U.S. Aids Refugees to Escape Fighting Near Lebanon

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TMI: problems for practitioners

Physicians practicing medicine in the Harrisburg area had perceptions of the events at Three Mile Island from a different, but no less important, point of view than Dr. MacLeod. The accident served to underscore two areas in particular that deserve careful study: the flow of medical information during an accident of this magnitude, and hospital disaster plans.

First, physicians were clearly at a disadvantage because factual information available to the medical community was initially fragmentary or nonexistent. With so many conflicting reports in the press, patients trusted neither industry nor government. Thus, practicing physicians were deluged with telephone calls from their patients requesting interpretation of the accident's significance in terms of their personal health. Many of these physicians simply did not have the knowledge or expertise to offer advice on nuclear matters.

I would hope that if any similar accidents occur, the character and amount of emissions will be reported immediately to the medical community. This information could then be interpreted by those skilled in radiation dosimetry (nuclear medicine physicians, therapeutic radiologists, and diagnostic radiologists). Through the information systems of the medical community and the hospitals, these interpretations could be channeled to practicing physicians and, in turn, to anxious patients.

Second, hospital disaster plans do not provide for the evacuation of our institutions. At the time of the TMI accident, there were several hundred locally hospitalized patients on life support systems. To evacuate those patients by surface transportation in the midst of a general evacuation of several million people would have been impossible. Available helicopters were (and still are) limited. Hopefully, there will never be a mass evacuation around a nuclear plant. But we have recently watched, with great interest and sympathy, the demands placed upon our Toronto neighbors in the wake of a disastrous train wreck and the release of toxic chemicals. It is obvious, therefore, that not only a nuclear accident requires well-developed evacuation plans.

George L. Jackson, FACP ACP Governor, Eastern Pennsylvania

Figure 6

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STRESS IN THE COMMUNITY: A REPORT TO THE
PRESIDENT'S COMMISSION ON THE ACCIDENT
AT THREE MILE ISLAND*

Bruce P. Dohrenwend,† Barbara Snell Dohrenwend,‡
George I. Warheit,§ Glen S. Bartlett,¶
Raymond L. Goldsteen,‡ Karen Goldsteen,||
and John L. Martin**

CONCLUSIONS

We conclude, first, that the accident at TMI had substantial immediate psychological effects on the people living in the area, including both adults and teenagers. The majority of families living within 20 miles of the plant left their homes temporarily, and a substantial minority were extremely demoralized in the month or so after the accident. These responses were related to real threats involved in the accident as defined for the public by the authorities. Among both adults and teenagers, demoralization or other symptoms of psychological distress diminished within about two months after the accident.

The second major conclusion is that the accident at TMI has had a lasting impact on the population of the area in terms of their distrust of authorities with respect to nuclear power. Their level of distrust five months after the accident exceeded that reported for national and regional samples immediately after the accident. Mothers of preschool children living within 20 miles were also more distrustful five months later than were comparable mothers living in Wilkes-Barre, about 80 miles from TMI.

Meanwhile, as the president's commission concluded in their report, there is a long term physical threat: "The process of recovery and cleanup presents additional sources of possible radiation exposure to . . . the general population." Although we cannot predict exactly how the long-term psychological consequences of the accident will interact with this continuing threat, we must assume that responses of the population living in the area around TMI to the process of recovery and cleanup will be shaped by pervasive distrust of the authorities responsible for that process.