

THE WORCESTER **Phoenix**



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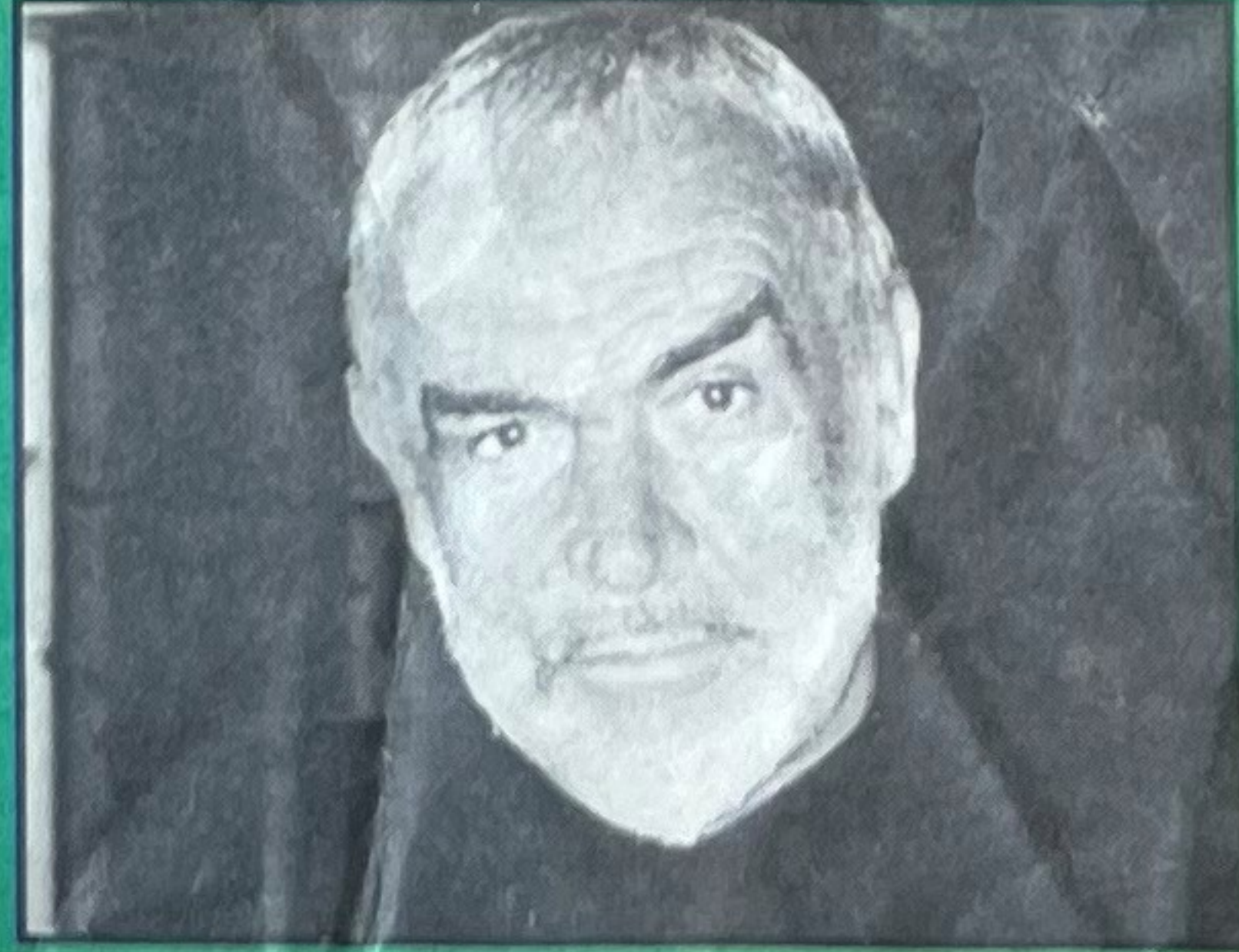
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ENVIRONMENT

High tension

Do power lines kill? Millbury takes on the electric company

by Tim Sandler

The webs and strands of electric-power lines streaking the landscape of Millbury, just south of Worcester, have been part of the town's scenery for decades. Until a couple of years ago, nobody suspected that being home to one of New England's largest electrical substations posed any problem more serious than aesthetic blight.

But as residents of the town began hearing of studies linking leukemia, brain tumors, and breast cancer to exposure to the electromagnetic fields (EMFs) emanating from high-tension wires, they began asking questions.

For example, why were so many dogs living in homes near power lines dying of cancer? Was it a coincidence that women living near a power substation had a high rate of breast cancer? If the New England Power Company knew of the studies Millbury residents were hearing about, why were they doubling the ca-

capacity of a power line 20 feet from the Elmwood Street School playground?

Yet the more questions residents asked, they say, the more they were stonewalled by the utility company. No studies, the company said, prove that EMFs — magnetic fields produced by electrical charges flowing through wires — cause health problems. Repeating an industry-wide mantra, the company concluded that no precautionary measures were necessary.

At a town meeting in 1990, residents took matters into their own hands. Following the lead of seven states, and despite a considerable public-relations campaign waged by the utility, residents passed the state's first municipal bylaw setting maximum levels for electromagnetic fields at the edge of the rights of way for power lines.

"We weren't trying to be tough guys," recalls Terry Burke Dotson, a former Millbury Planning Board chairwoman and vice-chair of the town's Electromagnetic Radiation Hazards Study Committee. "We said, 'Come in, put the lines in,

but just do it safely.' But we found the power company to be very arrogant and totally insensitive. They totally deny that any problem exists."

In dismissing the concerns, the utility industry pointed to inconclusive and contradictory studies of EMFs. Research has failed to prove beyond a reasonable doubt that EMFs pose a health risk, they say. And consequently, they assert, no action should be taken.

Pointing to the same mixed research results, proponents of electromagnetic-field regulation, including some public-health officials, draw another conclusion. They see enough evidence to warrant precautionary action, noting that the burden of proof is so great that a direct cause-and-effect relationship will never be fully established.

It is clear why New England Power and their counterparts nationwide have continued to dismiss any association between health hazards and electromagnetic fields. The cost of reducing emissions by rerouting lines and burying them would be enormous. Also, numerous lawsuits alleging health problems caused by EMFs have been filed against power companies in the last few years. Acknowledging an association between EMFs and health problems would undoubtedly enhance the chances of verdicts against the industry. And, like the tobacco industry with its attempts to dismiss the health hazards of smoking, utility companies understand that one multi-million-dollar verdict could be all that's needed to open the industry to a deluge of EMF-related lawsuits.

Legal impotence

Millbury's success in establishing some regulation was short-lived. The Massachusetts Attorney General's Office soon ruled that the Millbury requirement was unlawful because only the state Energy Facilities Siting Council and the Department of Public Utilities (DPU) have the authority to regulate power companies. And today, New England Power continues to upgrade its trans-

missions in Millbury without the need for so much as a town-issued building permit.

That's troubling to many Millbury residents, who believe they are cutting teeth on an issue that has been virtually ignored by state officials. While some segments of the industrialized world are taking the threat of EMFs seriously, Massachusetts has done relatively little. And whether or not EMFs are a serious threat, advocates of regulation say, residents should be alarmed by communities' legal impotence.

"We've sought to have some kind of control," says *Millbury-Sutton Chronicle* publisher Alexander Belisle, the chairman of the study committee, "but we found out there was nothing that could be done. And DPU is a toothless agency absolutely unwilling to consider some kind of regulation."

The DPU failed to respond to *Phoenix* requests to comment on the issue.

Frustrated and angry, the town study committee decided to advance its cause to the state level. This legislative session, state Senator Matthew Amorello (R-Grafton) and the town study committee drafted legislation that would require three precautions: first, real-estate brokers would have to tell prospective home buyers of the potential harm of EMFs; second, electric-utility companies would have to inform their employees of EMF risks; and third, utility companies would be required to set up a reserve fund to cover the costs of any health injuries caused by EMFs, so future costs would not be passed on to consumers.

But during the hearing on the bill before the Senate Government Regulations Committee, Belisle says, committee chairman Michael Creedon (D-Brockton) subjected him and his colleagues to the same kind of condescension shown to UFO theorists.

"He was arrogant, obnoxious, indifferent," says Belisle. "We were just cut off." When the utility representatives spoke, however, Belisle says Creedon was respectfully attentive. (Over the

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years, Creedon has received contributions from the town. Since 1990, the Committee on Responsible Public Officials in part of Boston Edison has donated \$1500 to Safe Electrical Wiring given him \$400.)

Ultimately, the EMF proposal was rejected by the committee. To prevent a sure from being killed, Amorello asked that it be referred to the Senate Steering Committee, where it is now.

Representative Barbara Harber (D-Holliston) said she met similar opposition from the utility lobby and legislators. Her proposals to direct the Facilities Siting Board to evaluate the biological effects of electromagnetic fields on the House Committee on Energy and Environment. A year approved Gardner bill also authorizes the Massachusetts Department of Health (DPH) to identify and day-care centers within 100 feet of transmission wires. The idea was prompted by an Edison proposal — later drawn under citizen pressure — to build a substation near Hopkinton elementary school.

"Communities are powerless to do anything about their local bylaws," says Belisle, who believes the centralized state control and the companies' influence is crippling Massachusetts to regulate electromagnetic fields. "They are acting in delivering the same message. The jury is still out; we need enough to take more action," Gardner says.

Exactly, says spokesman Mike Monahan. "There has been absolute support for it. There have been studies that show potential health effects. Nothing conclusive, but you legislate some protection. Do you know?" Even so, Monahan is supporting a study by the Electric Power Research Institute (EPRI), Monahan notes, "but no new evidence."

Charles Moser, vice president of retail energy for Massachusetts Electric, a utility affiliate, echoes Belisle. He consulted with experts on government panels. "We need to establish a causality between magnetic field exposure and present time."

What science says

In the scientific community, concern about EMFs' impact has shifted profoundly over the decades. In the early 1960s, scientists scoffed at the notion of a significant effect. Now, studies equivocally show that people are sensitive to even fairly low levels of fields from a myriad of sources, from high-tension wires to toasters, video-cassette recorders, and electric blankets.

The question of sensitivity to EMF-related problems, such as leukemia, birth defects, and some cancers. Some evidence suggests a correlation. For example:

- In 1979, University of Iowa epidemiologist Nancy C. Ed Leeper first linked EMFs. Their study of children living near high-tension substations had a higher rate of leukemia than other children.

- Their findings were confirmed in a late-1980s study of children living near industry-connected power lines. Nevertheless, called "a correlation" that lacked "a causal link," it was granted further research.

- A 1987 Canadian study showed a higher rate of brain tumors in children living near high-tension lines had been exposed to electromagnetic fields and chemical pollutants for several years. Corroborated by a study at the University of South

years, Creedon has received campaign contributions from the utility lobby. Since 1990, the Committee to Elect Responsible Public Officials — comprised in part of Boston Edison employees — has donated \$1500 to Creedon. The Safe Electrical Wiring Committee has given him \$400.)

Ultimately, the EMF-regulation proposal was rejected by Creedon's committee. To prevent the measure from being killed altogether, Amorello asked that it be reviewed by the Senate Steering and Policy Committee, where it is now.

Representative Barbara Gardner (D-Holliston) says she has met similar opposition from the utility lobby and legislators with her proposals to direct the Energy Facilities Siting Board to investigate the biological effects of electromagnetic fields on humans. Despite the utility's efforts, the House Committee on Energy this year approved Gardner's bill, which is now before the House Ways and Means Committee. Her bill also authorizes the Massachusetts Department of Public Health (DPH) to identify schools and day-care centers within 500 feet of transmission wires. The idea was prompted by a Boston Edison proposal — later withdrawn under citizen pressure — to build a substation next to a Hopkinton elementary school.

"Communities are almost powerless to do anything about it in their local bylaws," says Gardner, who believes the combination of centralized state control of utilities and the companies' overwhelming influence is crippling efforts in Massachusetts to research and regulate electromagnetic fields.

"They are acting in unison and delivering the same message: 'The jury is still out; we don't know enough to take measures,'" Gardner says.

Exactly, says Boston Edison spokesman Mike Monahan. "Thus far there has been absolutely nothing to support it. There have been some studies that show potential links, but there is nothing conclusive on it. So how can you legislate something you don't know?" Even so, Boston Edison is supporting a study by the industry-backed Electric Power Research Institute (EPRI), Monahan notes, and will weigh any new evidence.

Charles Moser, vice-president and director of retail engineering for Massachusetts Electric, a New England Power affiliate, echoes Monahan. "We have consulted with experts and looked at the government panels and regulatory panels," he says, "and the evidence does not establish a causality between electromagnetic field exposure and disease at the present time."

What science says

In the scientific community, the thinking about EMFs' impact on living beings has shifted profoundly over the last two decades. In the early '70s, most scientists scoffed at the notion that they had any significant effect. Now, lab experiments unequivocally show that human cells are sensitive to even fairly weak electromagnetic fields from a myriad of sources, ranging from high-tension wires and transformers to toasters, video-display terminals, and electric blankets.

The question remains whether this sensitivity to EMFs translates into health problems, such as cancer, childhood leukemia, birth defects, or depression. Some evidence suggests a considerable correlation. For example:

- In 1979, University of Colorado epidemiologist Nancy Wertheimer and physicist Ed Leeper first raised concerns about EMFs. Their study found that children living near high-tension lines and electric substations had twice the incidence of leukemia that other children had.

Their findings were supported in a late-1980s study by, ironically, the industry-connected EPRI. The institute, nevertheless, called it a weak association that lacked "a clear pattern" and warranted further research.

- A 1987 Cancer Research Institute Study showed a 10-fold increase in malignant brain tumors for workers who had been exposed to microwaves, EMFs, and chemical factors for more than 20 years. Corroborating this finding was a University of Southern California School

of Medicine study of long-time electricians or electrical engineers in jobs with extended exposure to EMFs.

- A 1990 Norwegian study detected male breast cancer at twice the expected rate in men whose occupations involved exposure to EMFs. That same year, a Cancer Research Center study reported that telephone linemen, electricians, and

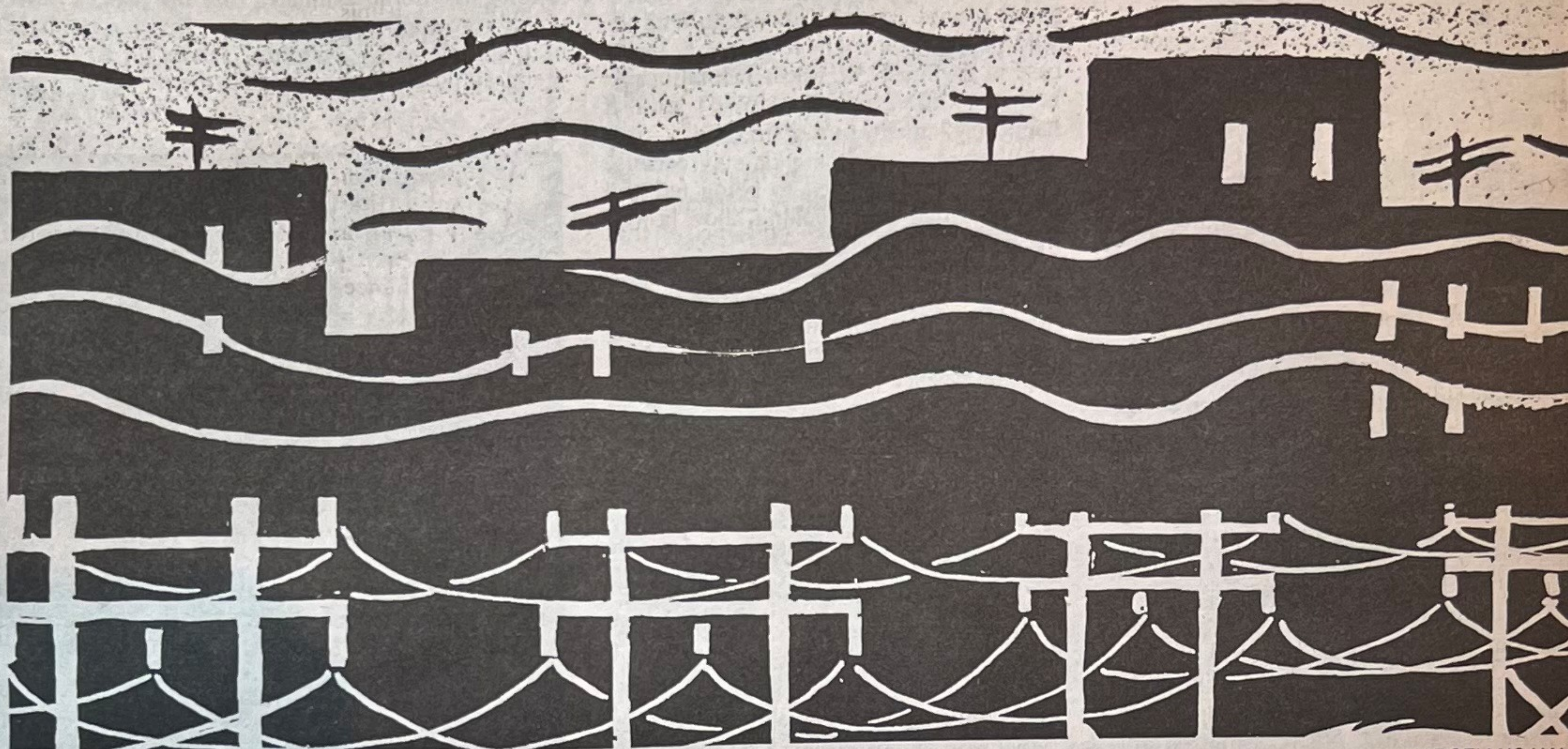
- The findings of a Dutch study, published in this month's *International Journal of Epidemiology*, showed no abnormal levels of leukemia, brain cancer, or breast cancer in people living near power lines and a transformer substation.

- In 1992, British epidemiologist Sir Richard Doll, who is credited with proving the link between smoking and lung

ambiguous on the issue, although it wasn't always. A 1990 EPA draft report linked cancer in adults and children to occupational and residential exposure to EMFs. But before the report was released, at the behest of the Bush administration, a section suggesting that EMFs be classified as a "probable" human carcinogen was, according to several ac-

'The evidence does not establish a causality between electromagnetic-field exposure and disease.'

— Charles Moser, Massachusetts Electric



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electric-power workmen were developing breast cancer at six times the expected rate.

But perhaps the most significant findings connecting EMFs to cancer come from two other recent Scandinavian studies.

One of them, conducted by the National Cancer Registry of Denmark, tracked all Danish children diagnosed with leukemia, brain tumors, or malignant lymphoma for 20 years and concluded that there is a generally increased risk for cancer in children exposed to the highest EMFs.

The other study, in Sweden, reported that men whose jobs exposed them to greater levels of EMFs developed leukemia at a rate three times that of other workers.

The studies were enough to prompt Sweden's National Board for Industrial

cancer, said, after a three-year British-government study that "the evidence is really much too weak to justify the conclusion that here you have a cause-and-effect relationship."

- Oak Ridge Associated Universities, a coalition of 65 universities that conducted an EMF study at the behest of the White House Office of Science and Technology Policy, reported in 1992 that the link between EMF and childhood leukemia and other cancers is "inconsistent and inconclusive."

The research findings are insufficient to warrant immediate action, say some experts.

"My feelings are that the evidence is not compelling," says Dr. Dimitrios Trichopoulos, professor of epidemiology and cancer prevention at Harvard's School of Public Health. Trichopoulos,

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counts, deleted. The *Sacramento Bee* quoted an EPA official as saying that Bush's national science adviser feared the report would cause "widespread panic."

Despite the Bush administration's attempts to stymie the report, it was released, and included sections supporting a link between EMF exposure and cancer. However, a disclaimer cautioned that the report's scientific findings were uncertain and controversial, and therefore did not represent EPA policy.

Since the draft report, the EPA's Science Advisory Board has set a higher standard of proof that must be reached before the agency labels EMFs carcinogenic. The final report on EMFs is expected to be released next year.

State initiatives

Some states, however, are not waiting for federal guidance. Florida and New York have set standards that, in effect, prohibit EMFs from exceeding their current levels. Connecticut has established an independent task force to probe the subject. California has developed a protocol for measuring EMFs.

The issue is also being hotly debated in Rhode Island. Earlier this month, Governor Bruce Sundlun vetoed a popular bill requiring the burial of all high-tension wires near residential and school zones. Last year, after pressure from citizens who complained they lacked control over utility-line placement, the state gave oversight authority to the Rhode Island Energy Facilities Siting Board.

But in Massachusetts, citizens' groups have yet to spark the kind of interest their counterparts did in Rhode Island. With the exception of the Gardner and Amorello bills, Millbury residents say, nothing has been done on the state level. Though the DPU has said it would look into the issue, it has neither formally studied the effects of EMFs itself nor developed a policy based on other findings. The state DPH says it will release its first report on EMFs soon. The report is expected to mirror the EPA's wait-and-see position. As for action, the health department plans to monitor EMF studies worldwide, but has no plans now for its own scientific investigation.

Millbury residents are angry with what they see as bureaucratic time-killing. Terry Burke Dotson is frustrated by the town's inability to enact measures, or to force the hand of the higher authorities to do so. "Nobody has any say," she says. "And I don't think Millbury should be the sacrificial lamb for New England." □

'Communities are almost powerless to do anything.'

— state Representative Barbara Gardner



and Technical Development to assume that "there is a connection between exposure to power-frequency magnetic fields and cancer, in particular childhood cancer." Sweden is now drafting regulations on EMF exposure.

But the methodology of these studies has been criticized, and conflicting findings brought forward — eagerly publicized by the utility industry. For instance:

who was paid by the utility lobby to testify on EMFs at a hearing before the Environmental Protection Agency's Science Advisory Board, says the studies associating EMFs with health problems are suspect because methodological problems plague virtually every study, and because exposing laboratory animals to EMFs has failed to induce cancer and other diseases.

For its part, the EPA is now decidedly