BEHAVIOR

Signs of distress near TMI

Three Mile Island. The words have become a symbol of nuclear power since the March 1979 accident at the Pennsylvania power plant. It is not known whether or how that incident will affect the physical health of nearby residents, but research indicates that it took a psychological toll. Two investigators reported last year that TMI substantially increased as a source of stress for area residents after the accident (SN: 4/12/80, p. 230). It now appears that physical proximity to the plant was closely related to the duration of stress symptoms. Peter S. Houts and Robert W. Miller of Pennsylvania State University and George K. Tokuhata and Kum Shik Ham of the Pennsylvania Department of Health conducted three telephone surveys of over 30,000 people living within 55 miles of the reactor. In attempting to assess the extent, severity and duration of stress related to TMI they contacted area residents in July 1979 and January 1980. Between 10 and 20 percent of the population within 15 miles of the reactor had heightened levels of distress, whereas people beyond 20 miles reported significantly less stress. This was indicated by statements of being upset about TMI, concern about safety for themselves and their families and reporting of symptoms associated with stress. Residents most stressed by TMI tended to be younger, more educated, female, married and homeowners and had more chronic health or emotional problems. Active coping strategies, such as working harder or sleeping more than usual, did not decrease distress either during the crisis or over time. This may be due, say the researchers, to the frustration of dealing with an unresolved and uncertain situation. But they add that their findings are subjective and depend on recall, making them vulnerable to conscious and unconscious distortion. Also, distress was not measured for groups outside the 55-mile radius. This limits the extent to which generalizations can be made. It is still possible to conclude, they say, "that distress (whether expressed through actual symptoms, increased tendency to notice and remember symptoms or conscious distortion in reporting symptoms) is higher close to Three Mile Island."

Educational TV: Keeping a fast pace

The success of television shows such as "Sesame Street" and "The Electric Company" in attracting large audiences has been attributed to their skillful use of humor intermingled with educational information. Some educators have reservations about the use of humor to encourage learning and feel that learning for its own sake should be encouraged. Others are convinced that learning is enhanced if humor is used properly. Jacob J. Wakshlag, Kenneth D. Day and Dolf Zillman of Indiana University now report that not only do young children much prefer humorous educational television programs, but the pacing of humor within the show strongly affects their viewing behavior. Sixty first- and second-graders watched television after being told they were in a waiting period. Three educational programs were available to them at any one time: One never contained humor and the other two were systematically rotated to contain no humor and humor in a slow, intermediate or fast pace. Program choice was monitored, and the researchers found that fast pacing, the frequent placing of short humorous inserts, was the most effective in quickly attracting and maintaining exposure to a show. The amount of time a child spends watching a television show may increase as pacing of humorous inserts becomes faster, but the constant disruption of the educational message may hinder learning. As long as humor is used reasonably and takes up a minor portion of the program, say the researchers, it will have no ill effects on learning. They conclude that "the point at which the employment of humor becomes excessive . . . still awaits empirical determination."

EARTH SCIENCES

Law of the Sea treaty jeopardized

Completion of the long-embattled Law of the Sea (LOS) treaty, which was to enter its final stages of negotiations at the United Nations last week, appears to have been thwarted by recent actions of the Reagan administration. Citing "serious problems" with some sections of the draft treaty, in particular the provisions concerning mining of deep seabeds in international waters, U.S. negotiators were initially instructed to block plans to complete the treaty until the administration could review those sections of the draft document. Then, in an unexpected move, President Ronald Reagan dismissed the top U.S. negotiator as well as several aides to the delegation. James L. Malone, who is awaiting confirmation as assistant secretary of state for oceans, environment and science affairs, will replace George H. Aldrich as head of the delegation. Adding further to the disruption, Malone told the first session of the LOS conference on March 9 that the Reagan administration wants to reopen the entire text of the treaty, a move that other representatives warned could destroy the tentative agreement on the pact.

The treaty, now in its seventh year of negotiations, has been hung up on the respective rights of industrialized and nonindustrialized countries to the "common wealth" of the minerals of the sea floor. In the current draft text, the U.N. would set up an International Seabed Authority, which would control taxes and royalties paid by those nations with the technology to mine the seabed. The money would be distributed to the nonindustrialized nations on an as yet unspecified basis. U.S. mining interests have objected to the provisions.

Coordinating earthquake monitoring

An earthquake is to a seismologist what a heartbeat is to a physician. Earthquakes can tell a seismologist what the interior of the earth is composed of, where minerals and energy resources may lie, where to build and how strong to build sensitive structures such as nuclear reactors and where future quakes might occur. Also like physicians, seismologists need the proper equipment in order to monitor that geologic "pulse." But seismologists do not currently have that equipment, according to a recent report from the Panel on National, Regional and Local Seismograph Networks of the National Research Council. The panel recommends, in its report titled "U.S. Earthquake Observatories: Recommendations for a New National Network," that a technologically up-to-date and coordinated United States Seismograph System be established.

That system, according to the report, should consist of a network of permanent stations that can digitally record three components of ground motion — most existing stations record only one component and are not digital. Setting up this core system, which the panel calls the National Digital Seismograph Network, should be a four-year project begun in the 1981-1982 fiscal year with $15 million funding. In order that any earthquakes in the coterminous United States with a magnitude as low as 3.0 could be recorded at five stations — the minimum number for determining a precise location — the panel recommends that 29 stations be established in the contiguous United States. In addition, because of regional high seismicity, five stations should be established in Alaska, one in Hawaii and one in Puerto Rico, and four ocean-bottom seismometers should be placed off the East and West Coasts to provide information on tsunamis (seismically generated giant sea waves). The panel also recommends that the operation of present regional networks should be reviewed in order to integrate them into the system, and that a central advisory service be established within the U.S. Geological Survey to guide the network and maintain quality control and data flow.