Love Canal: A Federal Emergency

With the unexpectedness of the Mt. St. Helens eruption, Love Canal has again exploded into national prominence. Though suspicious tremors have rumbled through the Niagara Falls community on and off for nearly a decade — at times exploding briefly — the most recent upheaval results from the airing of two controversial and admittedly preliminary health-effects studies. Together they direct new suspicions at the latent dangers of the more than 80 toxic wastes buried there and last week served as justification for President Jimmy Carter's declaration of the region as a federal emergency.

This emergency status makes it possible for the government to offer aid for the temporary relocation of 710 families remaining in the affected area. Following a similar emergency-disaster declaration by President Carter last August, the State of New York began purchasing 239 abandoned homes from residents nearest the Love Canal dump site at an eventual cost of $10 million. Many of the families fled in the wake of studies showing abnormally high rates of cancer and other disorders among residents and a recommendation by the state health commissioner that pregnant women and children under two years of age evacuate the region.

Relief offered the 710 families last week — in the form of relocation assistance and funds — is being managed under the direction of the Federal Emergency Management Agency. Funding for the moves — which could last up to a year — will be shared by the state and federal governments. But according to Barbara Blum, deputy administrator for the Environmental Protection Agency, the final tab for relocation expenses and evidence-gathering health-effects studies will be added to restitution claims against Hooker Chemical Co., in four separate suits filed by the Justice Department at EPA's behest last Dec. 20 (SN: 1/5/80, p. 6).

Two controversial human health-effects studies upon which Blum said the government's relocation assistance had been based include one finding chromosome damage in the blood from 11 of 36 Love Canal residents (SN: 5/24/80, p. 325) and another finding the suggestion of a slowing in the speed at which electrical impulses travel along peripheral nerves in 35 Love Canal residents.

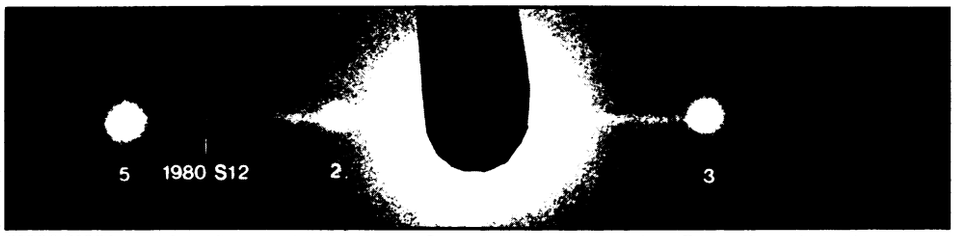
Though the scientific community has not had much chance to review the methodology and findings of either study, both have come under rapid fire. The chromosome study took its heaviest salvos from critics complaining about the lack of a control group of individuals matched to Love Canal participants in every way possible except for their exposure to toxic chemicals percolating up through the soil from their landfill burial site. Additional criticism focused on participant selection: Accepted volunteers included persons known to suffer identifiable problems — such as a history of miscarriages — which need not have been related to Love Canal exposures. The nerve-damage study by Beverly Paigen of Roswell Park Memorial Institute in Buffalo and Stephen Barron at the Veterans Administration Hospital in Buffalo did contain 20 control subjects but lacked the statistical strength to "demonstrate" a serious health problem, according to reports of testimony by Barron before a House committee last week.

What such dubious findings demonstrate is the political nature of the federal move to relocate Love Canal families. Those families — some of whom at one point held two EPA officials "hostage" for six hours last week — have demanded national recognition of the dangers to which they believe they were exposed and government relief in the form of some action.

Both came last week together with a commitment from EPA for more definitive research on potential health hazards experienced as a result of chemical exposures at Love Canal. Blum said a registry of former Love Canal residents will begin and families tracked from now on. Selected groups of these individuals will get complete physical examinations. Other analyses will hunt for chromosome abnormalities, damage to liver enzymes, the presence of unusual chemicals in the urine, lowered sperm counts or signs of dead sperm and evidence of nerve damage. Additional epidemiological studies will look for unusual rates of cancer, liver damage or other problems.

"Ordinarily we would not subject ... families to the disruption of temporary relocation unless conclusions on adverse health effects had been fully documented and confirmed," Blum said. "But this is not an ordinary situation .... Studies completed to date are sufficiently suggestive of a threat to public health that prudence dictates the residents be relocated" until longer-range studies are complete. When asked whether families should be compensated for health problems, Blum answered, "Yes, we feel they should be compensated for the risks. Hooker Chemical will be held liable and I think [the affected] will collect." □

Moons share orbits around Saturn



B. Smith, H. Reitsema/Univ. of Ariz.

"1980 S12" here identifies an object orbiting Saturn in the same path as Dione (not shown). Also shown are satellites Rhea (5), Enceladus (2) and Tethys (3).

Saturn's confusing family of moons, believed from recent observations to number at least 13 and possibly as many as 18 (SN: 3/15/80, p. 167), has now become more complex still with the discovery that two of the "established" satellites may each be sharing their respective orbits with two or three additional objects.

One and perhaps a second of the newly identified objects are in the orbit of Dione, about 377,000 kilometers from the planet. The brighter of the two was about 74.3° ahead of Dione as of March 1, says the University of Arizona's Bradford Smith, and has been increasing its lead by about 0.026° per day. According to Smith (who has been working with colleague Harold Reitsema), the object, temporarily known as Dione B, is probably oscillating around the L-4 libration point of the Saturn-Dione system — a gravitationally stable point 60° ahead of Dione's orbital position. This would tend to keep Dione B centered at that point, although it could gain and lose relative to Dione by many tens of degrees. An object has also been spotted at what may be the L-5 or trailing libration point, although it is much fainter and thus more difficult to confirm. Unsuccessful searches have been conducted in the past for objects at the earth-moon libration points, but dozens of asteroids are known to populate the comparable positions in Jupiter's orbit, where the sun's gravity completes the balance.

Smith and Reitsema have also found a companion (and again, perhaps a second) for a smaller, closer-in Saturn satellite loosely known as the "Fountain-Larson object" for the astronomers who identified it several years ago. Here, however, the companion is tied not to libration points