A Soviet Nuclear Accident in 1958?

"Facts Behind the Soviet Nuclear Disaster" by Zhores Medvedev, in *New Scientist* (June 30, 1977), King's Reach Tower, Stanford St., London SE1 9LS, England.

In 1976, Russian émigré Zhores Medvedev called attention to a Soviet nuclear disaster in the late 1950s caused by an explosion of nuclear waste stored in underground shelters. According to Medvedev, the blast contaminated thousands of square miles and caused several hundred deaths in the sparsely populated South Urals region of the U.S.S.R., where the first Soviet military reactors were built in the late 1940s.

Although Western scientists scoffed at his initial report, Medvedev, a biochemist at London's National Institute for Medical Research, now offers supporting evidence from Soviet sources. He describes the devastating effect (including chromosomal aberrations) of strontium 90 and cesium 137, radioactive isotopes with a half-life of about 30 years, on the natural habitat of the Ural region.

According to Medvedev, the South Ural region has become a laboratory for Soviet scientists; they have published more than 100 books and articles since 1958 on the effects there of nuclear pollution. Ural lakes have thick bottom silt deposits, which easily accumulate radioactive materials; one unidentified lake was found to contain 50 million curies (equivalent to the radiation from thousands of tons of radium). Clearly, Medvedev observes, such high levels of radioactivity were not created deliberately for experimental purposes.

Russian researchers, he writes, make clear when and where the explosion took place. Research in 1971 noted that the animal life under study had been nurtured in a radioactive environment for about 14 years, that is, since 1957 or 1958. In a censorship slip, one published scientific article identified the contaminated site as the Urals' Cheliabinsk area. Medvedev urges the West to place less emphasis on monitoring global fallout and more on analyzing such Soviet research journals as *Genetika* and *Zoologicheskii Zhurnal* "to ensure that such a tragedy does not happen again."

On the Trail of X-Ray "Bursters"

"X-Ray Outbursts in Our Galaxy" by Walter H. G. Lewin, in *American Scientist* (Sept.-Oct. 1977), 345 Whitney Ave., New Haven, Conn. 06511.

In 1975, Dutch and American scientists detected two brief x-ray outbursts in outer space apparently coming from "globular cluster" NGC 6624. Since then, writes M.I.T. physicist Lewin, a systematic search conducted by scientists around the world has identified more than 30 x-ray burst sources (see map on following page).

X-ray bursts result from giant explosions in the earth's galaxy, each lasting no more than a few minutes or even seconds but releasing as much energy as the sun does in several months. Some "bursters" explode regularly, at intervals of hours or days. None of the explanations

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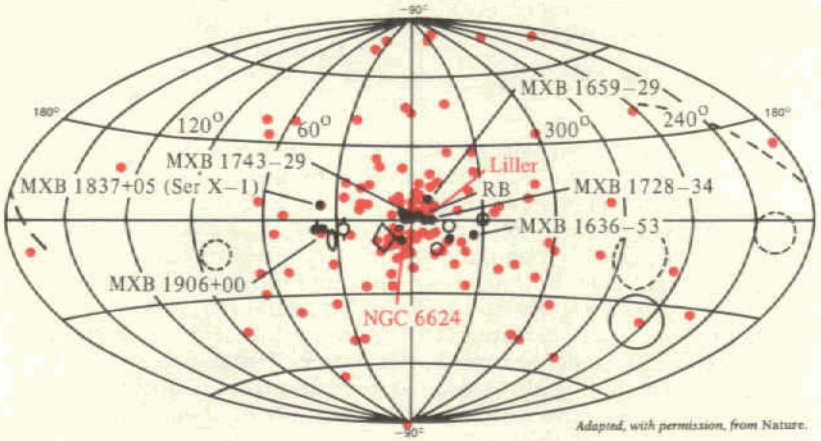

Positions of bursters (black) and globular clusters (red). Open areas indicate bursters whose positions are known only approximately.

offered so far has proved entirely adequate, but scientists speculate that the mechanism may be similar to that governing "persistent" x-ray sources—systems in which a small but dense object (as little as 25 kilometers across) and a much larger star rotate around a common center. The small object, perhaps a neutron star or black hole, attracts gas from its larger companion; as the gas "falls," it heats up. When the temperature reaches between 10 and 100 million degrees centigrade, x rays are emitted.

In x-ray bursters, this process may be interrupted by recurrent "chokes" that hold back the fall of gas, then suddenly release it, resulting in a blast of x rays. While the precise nature of the burst continues to elude scientists, 40 observatories in 17 countries joined last summer in a four-week "burst watch" that may yield important new data.

Beggaring Biology

"Biology and the Social Sciences" by Edward O. Wilson, in *Daedalus* (Fall 1977), 165 Allandale St., Jamaica Plain Station, Boston, Mass. 02130.

For every academic discipline (such as molecular biology), there exists an "antidiscipline" (such as chemistry), which helps maintain a healthy tension. Where a discipline is concerned with the discovery and classification of new phenomena, an antidiscipline uses existing theory to search for fundamental laws. It is as an antidiscipline, suggests Harvard biologist Wilson (author of *Sociobiology*), that biology can revolutionize sociology, anthropology, and other social sciences—a proposition troubling to many scholars who feel that human behavior is almost exclusively determined by environment.

In anthropology, for example, the link between cultural and biologi-