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DOUBLE BRIGHTNESS

Watching an X-ray source

Astronomers are always on the watch for the appearance of new objects in the sky. Some of these, novas and supernovas for example, are short-lived phenomena and must be studied in the first few days after their appearance if anything is to be learned from them. To permit such speed, astronomers have set up an international telegram service to communicate news of such sightings around the world.

In recent weeks that system has been communicating, among other things, news of an unusually intense source of X-rays that suddenly appeared near the border between the constellations Centaurus and Lupus.

"We don't know what it is," says one of the discoverers, Dr. W. D. Evans of the Los Alamos Scientific Laboratory. Suggestions are that it may be a supernova, or a nova, or no one knows what. Dr. Evans and his associates, Drs. J. P. Connor and R. D. Belian are doubtful about any such suggestions at present.

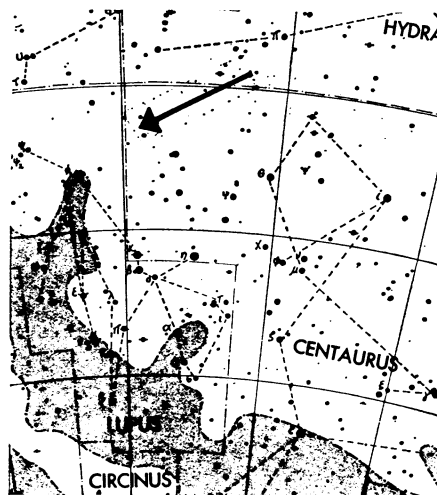
Only once before has an X-ray source been seen to make a similar sudden appearance. That was Centaurus XR-2 in April 1967. In those days observations were made with rockets and more or less continuous monitoring was not possible. The birth of Centaurus XR-2 could be dated only within 17 months; that of the present source is dated within three days. Centaurus XR-2 disappeared sometime between rocket flights of May and September 1967. No one is sure what it was.

The new source first appeared on July 9 in data from X-ray detectors put aboard two Vela satellites by the Los Alamos group. In the energy range between three and 12 kilo-electron volts, where the measurements were made, the object is twice as bright as Scorpius XR-1, the brightest source previously known in this range (SN: 5/17, p. 471).

"When we saw the source," says Dr. Evans, "we started looking backwards in time on the data." They looked back to June 13 and found that the source was not there. The source does not appear in the data before July 6. The Los Alamos scientists conclude that it appeared sometime between 23:30 universal time on July 6 and 04:30 universal time on July 9.

The new source started out about as bright as Scorpius XR-1. Later it became brighter, and the maximum reading so far is twice Scorpius XR-1. The three scientists say they do not have enough data to determine a definite trend in the variation of brightness.

"If it's real," says Dr. Brian Marsden of the Smithsonian Astrophysical Observatory, "it looks to me like a very



Crowell

X-ray source (arrow) puzzles.

exciting phenomenon." He suggests it may be the beginning of a supernova. If so, "it would be the first time a supernova was detected in this manner," he says.

Supernovas occur about once every few weeks in one distant galaxy or another, but the last in the Milky Way was in 1604.

The new object is located at right ascension 14 hours 56 minutes, declination minus 32 degrees 15 minutes. There is no evidence to place it either inside or outside our galaxy, but the discoverers feel that the odds are it is inside. They point out that it lies in the general direction of the center of the galaxy, as do the other X-ray sources that are thought to belong to the Milky Way galaxy.

By midweek no optical or radio sightings of the object had been reported.

CANCER INSTITUTE INTERESTED

Navy accelerator goes begging

For the last two years economy has been the watchword where Defense Department funding of scientific research is concerned. Budget stringencies have led the once generous source of funds for science to put on the clamps.

The Navy, as an example of what it could dispense with, announced last year that it would gradually phase out its support of particle physics. Later it announced that it would consolidate its remaining research facilities in a few large centers instead of having them spread out as they have been.

These zigs in official policy, after 20-odd years of zag, have played crack the whip with a brand-new cyclotron at the Navy Radiological Defense Laboratory in San Francisco. The cyclotron, which cost \$6 million to build and produces a

highly intense (75-kilowatt) beam of positively charged ions, was completed 18 months ago. It was declared surplus and ordered shut down four months ago.

An attempt to have the San Francisco installation turned into a national laboratory failed, but now there is new hope that the cyclotron may find a willing user. The National Cancer Institute is interested in buying it.

A team from NCI will probably visit the cyclotron in the next few weeks to perform an in-depth feasibility study into its purchase. The possibility of NCI buying the cyclotron came about following a request from University of California Medical School chancellor, Dr. Philip Lee. Dr. Lee, former assistant secretary for science of the Department of Health, Education and Welfare, feels the accelerator, installed at the U.C. medical school, could be of great use to the medical center as a biomedical research tool.

The Navy has delayed mothballing the cyclotron until NCI decides.

The closing order described NRDL as "too confined to undertake major systems responsibilities." Accordingly, it called for a halt to all research by July 1 and for the laboratory to be completely shut down by the end of the calendar year. Both Government and non-government scientists, however, felt the newly completed cyclotron made NRDL a special case. The accelerator should definitely be saved, they thought, and hopefully the entire lab might somehow be kept open.

Laboratory scientists dug into their own pockets to send a small group to Washington to gather support to keep the laboratory and cyclotron open. The group managed to win over some influential people including Rep. Emilio Q. Daddario (D-Conn.), of the House Subcommittee on Science, Research and Development. For a brief time there was hope an executive order might be obtained to turn NRDL into a new Federal research laboratory. But that possibility proved short-lived.

At the end of June, the Department of Health, Education and Welfare sent a team to evaluate the possibility of taking over the lab and the cyclotron. The group returned to Washington and reported to HEW Secretary Robert Finch, but the plan died when Finch failed to act on the proposal in an allotted 30-day period.

As a consequence the possibility of saving the entire laboratory seems remote and only the chance of NCI acquisition stands between the cyclotron and the scrap pile. But only time will tell whether the scientists can accomplish their goal: to keep their accelerator operating. ◇

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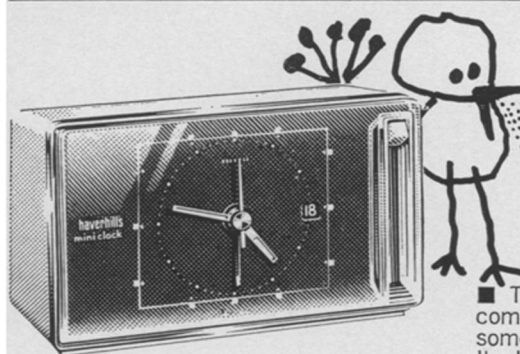
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