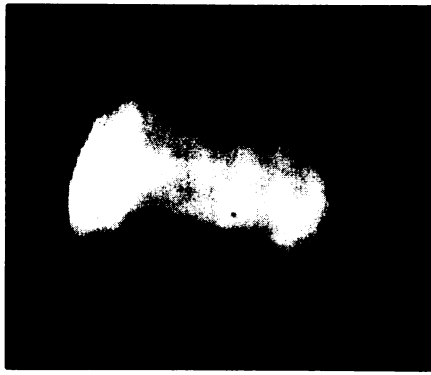


Venus in IR shows dark southern collar.

strikingly by Mariner 10 (though from a different direction). Diner has already made several sets of near-simultaneous infrared and ultraviolet images through the 200-inch telescope, observing the planet during half a Venusian year so that it



Enhancement brings out faint features.

could be seen rotating both into and out of darkness at a variety of solar illumination angles. In addition, he has made infrared images at six much narrower bandwidths to probe different levels in the atmosphere. □

Vitamin C: Alters blood-test results

Vitamin C enthusiasts don't usually agree with this. But taking large quantities of it does little more, in one physician's words, than "make very expensive urine." The intestine can absorb only a certain amount of ascorbic acid (vitamin C). It excretes the rest. A new study now adds one more drawback to the expensive-urine syndrome. Too much vitamin C in the intestine, a team of pathologists have found, can sabotage the results of important blood tests.

Russell M. Jaffe and colleagues at the National Institutes of Health report the case of a woman who underwent certain tests for blood in the stool. The results were negative even though blood was actually present. Such tests are made on body fluids suspected of containing small amounts of blood. Feces or urine are exposed to certain chemicals, and reactions between the reagents and hidden "occult" blood reveal the excretion of amounts of blood too small for the pathologist to detect by eye. The woman was anemic and excreted blood in stools, but, the team found, she also took 1 to 2 grams of vitamin C per day, and this prevented the blood from reacting and showing up positive. She agreed to stop taking vitamin C, and within 72 hours the blood tests showed positive.

At low levels, less than 500 milligrams per day, the team reported in the *ANNALS OF INTERNAL MEDICINE* (83: 824), the human gut can absorb and break down vitamin C. But at higher levels, it is excreted. "Taking between 1 and 2 grams of vitamin C per day," Jaffe says, "is the equivalent of eating 5 or 6 dozen oranges." Some medicines such as ferrous gluconate (an iron preparation) and tetracycline (an antibiotic) are made with ascorbic acid, Jaffe said, and may also cause false negatives.

Occult blood tests are important and frequently used diagnostic tools. More than 20 million such tests are administered in the United States each year during annual check-ups and to detect symptoms of bowel cancer, some forms of anemia, stomach ulcers, ulcerative colitis, regional enteritis and other bowel diseases. "We just don't know how widespread these vitamin C effects are," Jaffe says. "We know that sales have been more than doubling for the last several years, but we don't know what the habits of Americans are in this area." The team advises that patients be required to stop taking vitamin C at least 72 hours before occult blood testing. The team, Jaffe says, is working with physicians to determine how widespread the effects have been and has developed a new occult blood test which is not subject to false negatives due to ingestion of ascorbic acid. □

X-ray pulses from all over

The X-ray sky is bursting out all over. The Astronomical Netherlands Satellite and the third U.S. Small Astronomy Satellite have been giving evidence of sudden sharp flaring bursts of X-rays from different parts of the sky.

The first reported apparently came from a globular cluster of stars (NGC 6624) in the constellation Sagittarius and were recorded by the ANS for a group from Massachusetts Institute of Technology (SN: 2/14/76, p. 101). Then another MIT group, led by Walter H.G. Lewin, a professor of physics, announced in International Astronomical Union Circular 2914 that SAS-3 had recorded similar bursts from the region of the galactic center near R.A. 6h 15m, Dec. +9.3°. In the same circular, C. Jones and W. Forman of the Center for Astrophysics at Cambridge, Mass., reported a burst from somewhere near the globular cluster NGC 1851. Most recently (IAU Circular 2916) George W. Clark, under whose general direction the MIT work on SAS-3 is conducted, reports that the MIT SAS-3 group has recorded a similar burst from the constellation Aquila in a region far from the galactic center. The Aquila burst comes from somewhere in a circle of 12° centered at R.A. 19h 29m, Dec. +7.9°.

Theoretical speculations vary. The bursts from the center of the galaxy hint at a connection with energetic processes there, but the association of more than one burst with a globular cluster suggests a connection with strange doings in the centers of those objects. Say Jones and Forman: "This event, taken together with that reported . . . from . . . NGC 6624, suggests that X-ray bursts may be a common feature associated with globular clusters. . . ." Lewin, referring to his galactic-center bursts, says: "Of course it is conceivable that the newly discovered bursts come from one or more unknown

globular clusters hiding behind dust that obscures our vision of the galactic center. But I would not be surprised at all if there is no unique link between the burst sources and globular clusters."

Theorists have long suspected that there are extremely massive black holes in the centers of globular clusters. Those who would see a unique link between these X-ray bursts and the globular clusters are attributing the X-ray production somehow to those black holes.

Another suggestion is that the bursts represent a kind of X-ray nova erupting in a binary star system in which a neutron star is bound to a more or less ordinary star. According to this model, gravity pulls nuclear fuel from the companion star onto the neutron star until the concentration becomes unstable, and a nuclear explosion occurs. The explosion could generate the X-ray flare. Laura Maraschi of the University of Milan, who was at MIT when the bursts were first recorded, is working on the details of this model to see if it can explain the observed bursts.

"If this model proves to be correct," Lewin says, "one would not expect any unique relation between burst sources and globular clusters. However, one would expect that most X-ray burst sources are then associated with previously known X-ray binary star systems."

Bursts from different sources vary in duration, though all range around 10 to 20 seconds. Periodic repetition has already been reported for the bursts from NGC 6624, and searches for similar periodicity are being made in the other cases. The spectral shapes of the pulses also vary. Dozens of people are at work trying to narrow down the directions from which the emissions come (all the first reports show fairly large error circles) so as to make more certain the attribution of association with visible objects. □