

ASTRONOMY

Flare Stars May Also Hiss

Sudden brightness spurts may come from same stars that send radio signals picked up on earth. About a fourth of near-by red dwarf stars flare.

► STARS THAT suddenly flare up to several times their usual brightness, then within a few hours apparently return to normal, may be the same stars that are sending forth radio signals picked up here on earth, reports Dr. Harlow Shapley of Harvard College Observatory.

Flare stars are small stars of low radiation efficiency so that they give off little light and thus are seldom seen. Yet they may signal their presence in another way, for they may be the very noisy stars that hiss at the earth just as does our own sun.

A fourth of the near-by red dwarf stars are flare stars, which from time to time send such great geysers of flaming gases into space that they temporarily double, triple and even quadruple in brightness. These newly-discovered stars possibly provide the background radio static picked up in the direction of the Milky Way, Dr. Shapley reports in the journal, *SCIENCE* (June 8).

About half the 50 stars nearest the sun are dwarf, reddish stars whose intrinsic brightness is less than one-thousandth, sometimes less than one ten-thousandth, that of the sun, Dr. Shapley states. Having radiated away most of their available energy, they are presumably approaching a cold old age. Not many of these dwarfs are known as yet because they are so faint, but they are probably more numerous than any other kind of star in the universe.

TECHNOLOGY

Portable Degreaser Cleans

► "MOTHBALLED" machines in army arsenals, which were given a protective coating of petroleum-base compounds at the close of World War II, are now being made ready for re-use with the help of a portable degreaser described in *ORDNANCE*, official publication of the American Ordnance Association (May-June).

In the process of preserving machines in standby condition for re-use when needed, the machinery is carefully cleaned of operating sludge and contaminants, then coated with the petroleum-base compounds which give them a tough elastic protective coating against moisture, air and contaminants in the atmosphere. The treatment process is sometimes called mothballing. To put them in use again, the coating must be removed. Hand removal is a time-consuming process.

Only a few years ago was it first suspected that these near-by dwarfs are not dying off calmly. The first star known to have such short periods of great brightness, a star that obviously was not double or a nova, was discovered less than a decade ago.

To date only about half a dozen flare stars have been found. One was caught in the actual act of flaring and its change in brilliance studied as it occurred. For another, 50 such flare-ups within the past quarter century have been photographed.

No radio star has knowingly been observed, and only in a few instances have definite sources for the radio noise been spotted in the heavens. The expanding Crab Nebula, which nine centuries ago was a supernova more than a million times the sun's brightness, now sends out faint radio signals. This cosmic static presumably comes from the blue-hot nucleus that remains buried in the dissipating gas.

The great Andromeda galaxy and three other spirals of myriads of stars, Messier 33, 51 and 101, have recently been found to be radio transmitters. The flares on red dwarf stars, found among the millions of stars making up these galaxies, may be one of the sources of such radio noise, Dr. Shapley calculates.

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The diluent is applied by means of spray jets. The spray heads are automatically oscillated to assure coverage of every part of the machine. Movable timber catch-basins are used to retain the solvent at the base of machine being cleaned, from which it is picked up by pumps. It is re-heated with electric coils.

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MEDICINE

War Gas Chemical Called Practical for Dropsy Relief

► PATIENTS with dropsy from certain kinds of kidney disease may in the future have a war gas chemical injected into their veins. The chemical is nitrogen mustard, which has temporarily helped patients with some kinds of leukemia.

"It seems to be a practical means of relieving massive edema," Drs. Robert D. Taylor, A. C. Corcoran and Irvine H. Page of the Cleveland Clinic Foundation reported at the meeting of the American Heart Association in Atlantic City, N. J. Edema is the medical term for the excess accumulation of fluids in the tissues which the layman usually calls dropsy.

They gave the chemical to 15 patients, ranging from two to 69 years old, after earlier reports of a dropsy-relieving effect. Complete or partial relief of the dropsy was accomplished in 11 of the patients. In three cases one four-day course of daily injections was enough. Others had from two to six courses of treatment.

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OCEANOGRAPHY

Pick Up 50 Cents with Drift Bottles at Shore

► YOU CAN meet part, if not all, of your expenses while on vacation at the seashore by keeping a sharp lookout for drift bottles tossed up on the beach.

Since about the middle of May, 2,000 of these bottles have been set out between Cape Hatteras off the North Carolina shore and Block Island, south of Rhode Island. The Woods Hole Oceanographic Institution, Woods Hole, Mass., is offering 50 cents for the return of each of these drift bottles.

The bottles are used to help trace the ocean currents along the eastern Atlantic coast. They were set overboard during a recent two-week cruise of the vessel, *Albatross III*, owned by the U. S. Fish and Wildlife Service but operated by the Woods Hole Institution.

Scientists on the vessel also made observations during the cruise of the temperature and amount of salt in the water at various depths. Activity of plant and animal life was also investigated, using photoelectric measurements of the amounts of oxygen and plant pigments present in the water at various levels.

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