ASTRONOMY

New Flashing Star Seen

Faint red star, member of double star team, suddenly quadrupled its brightness and then returned to normal within a few minutes. Found on photographic plate.

➤ A NEAR-BY red star suddenly quadrupled its brightness, then within a few minutes returned to normal, Dr. Peter van de Kamp and Sarah Lee Lippincott of Sproul Observatory, Swarthmore College, Swarthmore, Pa., have just reported.

This is the sixth star known to have such sudden spurts of energy, the first of these being discovered less than a decade ago. All have been faint red stars, comparatively small and cool.

"The faint red star named Kruger 60 B, during a two-minute exposure, averaged four times its normal brightness," the Swarthmore astronomers state. "An exposure taken 11 minutes earlier, and another taken two minutes later, show the star at normal brightness."

Although this star has been photographed off and on for 20 years, only one such flare-up has been found among over 500 plates. This occurred the summer of 1939.

This new flare star is the faint member of a double star team relatively near us, astronomically speaking. It is about 75 million million miles away. The larger star of the pair is a quarter as massive as our sun, the smaller flaring one only a seventh, the smallest mass measured for any visible star.

Both stars of the pair are quite faint. Five hundred stars like the larger or 2,000 as bright as the smaller would be needed to give forth as much light as our sun. During the outburst the fainter star equalled its companion in brilliance.

Late last fall our nearest star neighbor, Proxima Centauri, was found to have had some 50 of these flare-ups within the last 25 years. Only one star has been caught in the actual act of flaring and its changes in brilliance studied. Telescopes have been used to discover each flaring star.

No novae or "new star" these, but tired old stars so faint that geysers of blue-hot gas shooting out into space markedly increase their brightness.

These stellar flares are believed similar to those occasionally seen on the sun when an area near a sunspot flares up for several minutes. But these flares on the more distant stars cover a proportionally larger area of the surface and the eruptions represent a much more catastrophic outburst than those seen on our relatively brighter and hotter sun.

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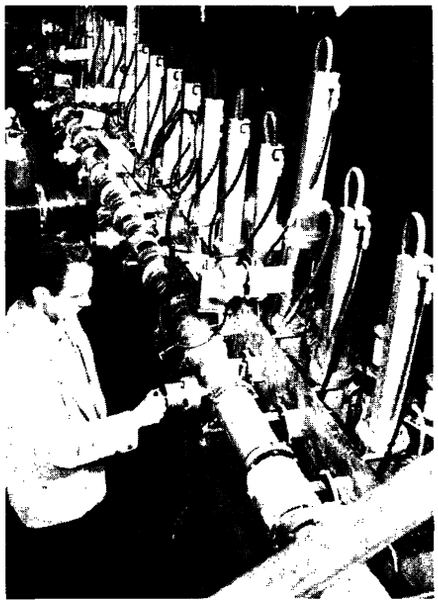

LINEAR ACCELERATOR — Electrons shoot into this 21-foot length of pipe where they are pushed along, riding on waves of high-frequency electricity and building up as much as 17 million volts of energy. This new machine, now in use at the Massachusetts Institute of Technology, will add to our knowledge of the nature of matter.

ENGINEERING

Need To Mine Coal Better

Cheaper and more efficient methods are two great needs of industry. Engineers urged to promote technological research to this end.

➤ CHEAPER methods of mining coal and more efficient methods of using the product are two great needs in the coal industry, it was indicated at the meeting of the American Institute of Mining and Metallurgical Engineers in St. Louis.

There is probably no large industry in the United States that is in greater need of technological research leading to economic improvement than the coal industry, the engineers were told by Dr. Arno C. Fieldner and Dr. Ralph L. Brown of the U. S. Bureau of Mines. The research is necessary if coal is to hold its own in the fuel field in competition with oil and gas, relative to which much research has been conducted during the past two decades.

Before 1930, the coal industry conducted very little research, these government scientists stated. The principal problems of the industry were mining coal from the beds and handling it at low cost. Research on better utilization was left to coal-burning equipment builders and to the government and educational research agencies.

The situation changed during the 1930s. Today there is a vast amount of research on synthetic liquid fuels, mechanical coal miners, gasification of coal, production of power gas by underground burning of coal beds and better methods of recovering fine coal from washery waste.

Obviously the greatest research development in the coal industry from an economic point of view has been in the mechanism of mining. Loading machines of large capacity are in common use. New continuous coal mining machines, which cut coal from the face without drilling or blasting and also load it, have increased the tonnage mined per man up to 200%.

In the combustion field, with improved equipment less than one-half as much coal is now required to develop a kilowatt-hour of electrical energy by public utility power plants than some 30 years ago. In home heating, much progress has been made in providing smokeless and convenient automatic heat from solid fuels with stoker-fired, bin-fed, and ash-removal furnaces in the last two decades.

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ENGINEERING

Colored Glasses Unsafe For Night Driving

➤ USE of colored glasses to reduce glare during night driving is dangerous, warns Dr. A. R. Lauer of Iowa State College.

Some colors seem to reduce glare and in fact actually do. But they also reduce what can be seen.

Dr. Lauer tested the effects of 17 different color filters, ranging from violet to deep red. None aided vision in any way when the light level was low, as it is during night driving. Details of the tests were reported to the Highway Research Board in Washington, D. C.

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