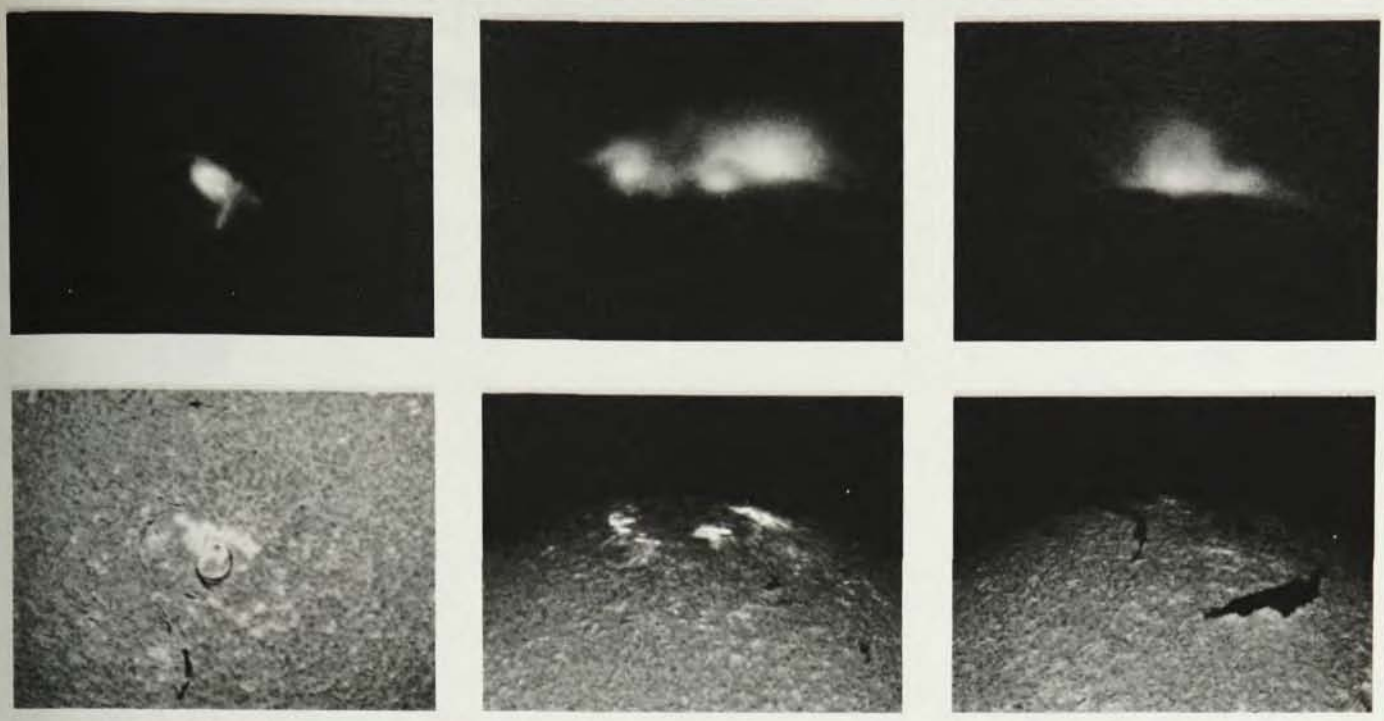

HIGH-RESOLUTION X-RAY PHOTOS OF SUN (top) were taken during solar flare of 8 June with a rocket-borne grazing-incidence telescope that passed soft x rays. Below are Hα photos of corresponding portions taken two hours before flight. Left set shows flare (resolution of 2 arc sec). Middle set shows plages close to limb. Right set shows loop structure that extends 150 000 km above limb. Work was reported (*Science* 161, 564) by Giuseppe Vaiana, William Reidy, Theodore Zehnpfennig, Leon Van Speybroeck, Riccardo Giacconi (American Science and Engineering).

a flux of pions and muons 100–1000 times the present value. The type of experiments that can be performed with such a meson facility have been described in Louis Rosen's article "Meson Factories," PHYSICS TODAY, December 1966, page 21.

James Rainwater is leading the conversion team that began theoretical and model magnet studies in 1965. A $4.4-million grant from the National Science Foundation supports the work. The group hopes to have most of the final components in place for testing by the end of 1969 or early 1970. Sometime in 1970 the present machine operation will be suspended while the modifications are made. The converted machine should be ready for use in late 1970 or during 1971.

The plans call for retention of the present 2000-ton iron magnet and the main copper excitation coils. Pole iron within 76 cm of the median (beam) plane will be replaced with new iron, which will include a spiral-ridge iron configuration having three-fold symmetry. The resulting strong azimuthal magnetic-field variation should yield strong axial focusing starting at small orbit radius (3–15 cm). It is this feature, along with at least a five-fold increase in the frequency-modulation cycling repetition rate from about 70 per sec to over 300 per sec, which should permit a large time-average current increase.

The field will be about 17 kilogauss near the center where the proton injection frequency is approximately 26 MHz. The azimuthal average of the field near 200-cm radius will be about 19.5 kG, where the proton rotation frequency is near 18 MHz. The azimuthal field variation (flutter) and spiral will be sufficient to assure strong vertical focusing and is expected to be favorable for extraction of over 50% of the internal beam.

The modification will involve a new vacuum chamber, a new rf system, a large increase in the shielding enclosure around the accelerator and new extraction and beam-transport systems. A building extension, which will provide a greatly increased experimental area, is nearly completed.

Observing Time Available On Astronomical Satellite OAO-2

NASA has invited astronomers to apply for observing time on the second Orbiting Astronomical Observatory (OAO-2). The satellite is being prepared for launch later this year; guest observers can use about 10% of the observation time beginning about two months after the launch.

OAO-2 will carry the Wisconsin Experiment Package (four stellar photometers, one nebular photometer and two scanning spectrometers) and the Smithsonian Astrophysical Observatory Celescope (which is essentially four wide-field television cameras suitable for ultraviolet wavelengths).

For further information, write Mr C. Dixon Ashworth, Program Manager, Astronomical and Solar Observatories, Physics and Astronomy Programs, NASA, Washington, D.C. 20546.

IN BRIEF

A new Naval Research Laboratory–NASA satellite, Explorer 37, is monitoring solar x-ray and ultraviolet emissions. It will help predict major solar flares. Scientists in other countries are invited to receive direct real-time data from the satellite.

A fifth Orbiting Geophysical Observatory is carrying 24 experiments to measure particles and fields both near the earth and in interplanetary space. It is the next to last in the series. □