

atoms relaxes to about 100 eV. If a collision sequence intersects the surface before it runs out of steam an atom may be ejected, with a maximal energy related to the energy needed to start the focused-collision sequence.

In their experiments Politiek, Rol, Los and Ikelaar used a rotating velocity selector and platinum-tungsten alkali-beam detector to record the intensity and velocity distribution of their potassium beam; they measured a peak current of 2.5×10^{-13} amp and an energy range of 0.5–45 eV (velocity 1000–15 000 meters/sec).

2nd ESRO Satellite Of Year To Study Polar Ionosphere

The second satellite launched by the European Space Research Organization this year achieved polar orbit 3 Oct. Eight experiments on board the

84-kg craft are measuring energies and angles of particles striking the polar ionosphere, the resulting projection of visible light, and changes in the electron and ion density and temperature distribution.

Experiments were prepared in Norway, Sweden and the United Kingdom. Other ESRO members are Belgium, Denmark, France, West Germany, Italy, the Netherlands, Spain and Switzerland (Norway is not a member). Prime contractor for the satellite was the Laboratoire Central de Télécommunications, a French associate of International Telephone and Telegraph. NASA launched it with a four-stage Scout rocket from Lompoc, Calif.

Originally scheduled for launch in 1967, the satellite is known as ESRO I (it has been renamed Aurora since launch). ESRO IIA, launched 29 May 1967, was lost in the South Pacific when the third stage failed. ESRO

IN BRIEF

Three more pulsars have been added to the catalog by teams at Arecibo and Jodrell Bank. The Arecibo group found the tenth (with a period of 0.56 sec) in late August and the 11th (period 0.53 sec) in late September. The 12th, Jodrell Bank's first, was reported in late October to have a 0.36-sec period.

A 500-keV electron microscope went into operation at the University of Virginia 3 Oct. The School of Engineering and Applied Science will use the RCA instrument in materials science, medical studies, chemistry and physics.

A satellite with infrared and visible-light cameras has been proposed by the Interior and Agriculture Departments to provide information on the distribution of vegetation, surface and ground water. Future remote sensors would include radar and microwave spectrometers.

Calibration service for measuring effective noise temperature of noise sources in four additional waveguide sizes are now available from the Radio Standards Engineering Division of the National Bureau of Standards in Boulder. The long dimension of the rectangular cross sections of the waveguides (and their frequency range) are 7.2 cm (2.60–3.95 GHz), 1.9 cm (10.0–15.0 GHz), 5.8 cm (3.30–3.95 GHz)

and 2.8 cm (8.2–10.0 GHz).

Notre Dame University has begun research with its 15-MV FN tandem Van de Graaff accelerator. The National Science Foundation funded the purchase from High Voltage Engineering Corp.

A cryogenic-flow research facility has been established in the metrology division of the National Bureau of Standards. A cryogenic flow loop with dynamic gravimetric mass flow calibration allows study of fluid metering over a wide range of temperatures and pressures.

Effects of severe earthquakes and volcanic eruptions on a small Antarctic island will be measured this month by US scientists operating from a new research vessel, the *Hero*. Other programs planned for the Antarctic summer just beginning include analysis of the physical properties and crystal structure of 2165-meter ice cores, measurement of cosmic-ray flux, and studies of gravitational and magnetic fields.

CORRECTION: Lawrence Radiation Laboratory at Livermore is negotiating to purchase a tandem accelerator as part of a "Cyclo-Graaff" combination, and the tandem is expected to be operational in late 1970. An earlier report (PHYSICS TODAY, September, page 75) said the tandem already existed.



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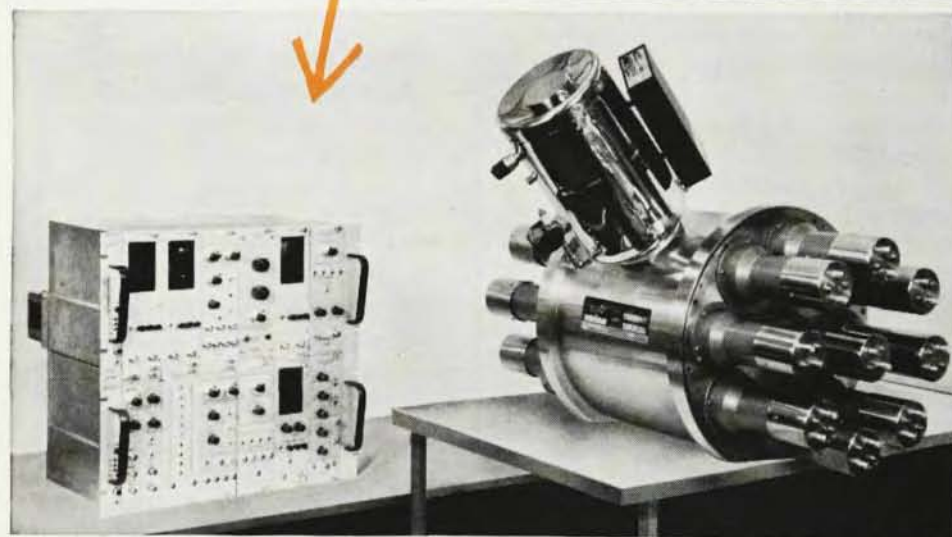
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IIB flew 17 May 1968 and continues to send back data on solar radiation and cosmic rays.

Under the agreement signed in 1964, the European organization was to supply both ESRO satellites and NASA was to launch them. ESRO and NASA will exchange all scientific information resulting from the cooperative project and make it available to the world scientific community.

Potentials in Spinning Rotor Follow Dessler Predictions

Jesse W. Beams (University of Virginia) has measured the electrical strains in a fast rotor.¹ His results show that the periphery becomes slightly positive with respect to the axis and appear to agree with the theories of Alexander J. Dessler and colleagues² and Conyers Herring³ rather than those of Leonard I. Schiff and M. V. Barnhill.⁴ The subject has become controversial in an effort to calculate the fields experienced by freely falling electrons in a vertical shielding cylinder.⁵

Beams has spun a four-armed rotor up to 650 rotations per second in an evacuated metal case and measured the contact potential that rotation induces with capacitive plates facing the top and end surfaces of the arms; he measures these differences by a null method based on amplification of the signals from charges induced on the plates.

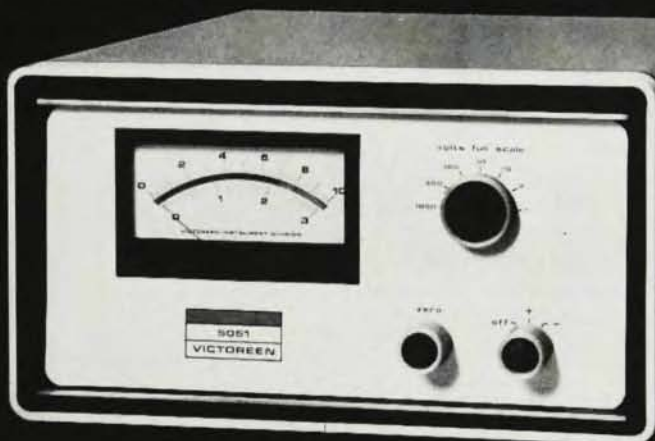
Of course the experiment is delicate and has difficulties: potential differences generated in the liquid-mercury contact to the shaft, compensation of the earth's magnetic field, plastic flow in the rotor, contamination of the rotor surfaces, differential heating between center and periphery by molecular bombardment at 10^{-6} torr. Now Beams is at work on a better version (magnetically suspended rotor, materials that can be outgassed, 10^{-10} torr) and hopes to get results subject to a clear-cut theoretical interpretation.

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