ESO COMET

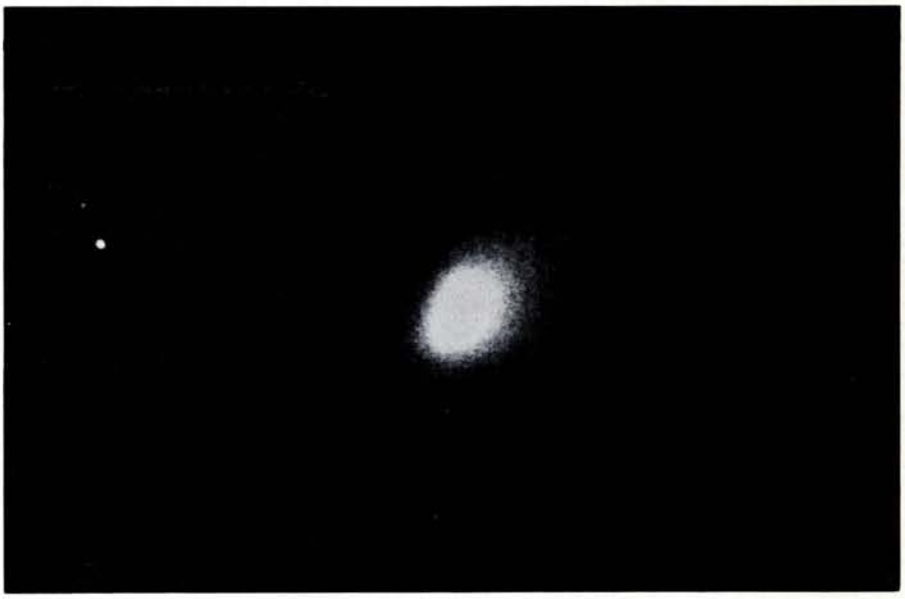

Photo of the latest comet discovered by astronomers working at the La Silla observatory in Chile of the European Southern Observatory, taken by the 3.6 m telescope. The Comet was first detected by Hans-Emil Schuster on a plate exposed in the 1-m Schmidt telescope that is used by ESO for mapping the southern celestial sphere. Computations made at the Smithsonian Observatory in Cambridge, Mass. show that the comet, whose magnitude was around 16.5 at the time the photograph was taken, moves in an elliptical orbit round the sun with a period of 7 1/2 years.

European Satellites This Autumn

Since the ill-fated launch of the first European communications satellite OTS (Orbital Test Satellite) from Cape Canaveral in September, the European Space Agency has had better luck with its more recent scientific missions. The OTS, it will be recalled, was intended to demonstrate the performance and reliability in orbit, of all the communications equipment on board, carry out experiments on the transmission of radio waves through the atmosphere, as well as provide the equivalent of 6000 telephone circuits carrying capacity. One of the experiments included, was due to provide a high-speed data link between the high energy physics laboratories of Desy in Germany, Rutherford in the U.K., Saclay in France and CERN in Geneva. Called STELLA (Satellite Transmission Experiment Linking LABoratories), it was hoped to demonstrate the possibility of sending data between computers at these laboratories, at speeds comparable to the data processing speeds of the computers themselves, and with a very low error rate, on the frequency band of 11-14 GHz. This must now await the second attempt.

International Sun-Earth Explorer

More successful was the launch of the twin International Sun-Earth Explorer satellites, the U.S. ISEE-A and the European ISEE-B which were sent up in tandem in October and then separated. The European satellite after a series of tests when its hinged booms were deployed, was then oriented in a new attitude with its spin axis perpendicular to the plane of the ecliptic. The two satellites, which will be joined by a third next summer, are designed to make simultaneous measurements of magnetospheric phenomena and solar wind/planetary interactions as well as explore the plamasphere and bow shock-magnetosheath regions, taking data on plasma and particle physics *(Europhysics News,* **7** (1976) 5 p. 6). The mission is designed to key in with other research coordinated through the 1976-79, four-year International Magnetospheric Study aimed at obtaining a much better understanding of near-Earth phenomena. Contributing to the Study are satellites from Japan, western Europe, the Soviet Union and the U.S.A.

ISEE-A and B follow the same highly elliptic orbit (perigee : 280 km; apogee: 140 000 km with an inclination of 28.6°) but at known and controllable distances apart, so eliminating the ambiguities associated with measurements made by a single space craft which cannot readily distinguish between time and space dependent features. ISEE-C will be put into a heliocentric orbit outside the magnetosphere, at one of the Earth's five libration points, 234 earth radii towards the Sun on the Earth-Sun line. From this point, the satellite will be able to take its own measurements and act as reference for the other two.

Included in the programme of ISEE-B are the measurement of : electric waves in the range 5.6 Hz-2 MHz and magnetic waves in the range 5.6 Hz-31 kHz ; magnetic fields up to 8000 gamma with a maximum sensitivity of 0.008 gamma ; particle measurements on solar wind ions, electron density, high time resolution at energies up to 40 keV in one group and 380 keV in another ; high angular resolution up to 300 keV.

Meteosat

More recently, a new weather watching satellite was launched designed to help in making more accurate long-range weather forecasts and in addition make a contribution to two programmes set up by the World Meteorological Office, namely the World Weather Watch and the Global Atmospheric Research Programme. Meteosat forms one of the links in a chain of five geostationary satellites which includes one Japanese, one Soviet Union and two American stations. The duties of Meteosat consist of making a half-hourly scan of cloud cover taken in the visible and IR spectra, and transmission to the users of the pictures and radiometer data collected, as well as onward transmission of data picked up from other stations.

Space Telescope

Meanwhile the European Space Agency has signed a Memorandum of Understanding with NASA, stating the terms for cooperation between the two agencies in the NASA Space Telescope Programme, which has for objective the establishment of a space observatory in 1983. Europe's contribution will include the faint-object camera and its associated photon counting detector and the solar array.

For its contribution, ESA will be allocated 15 % of the observing time throughout the duration of the programme.