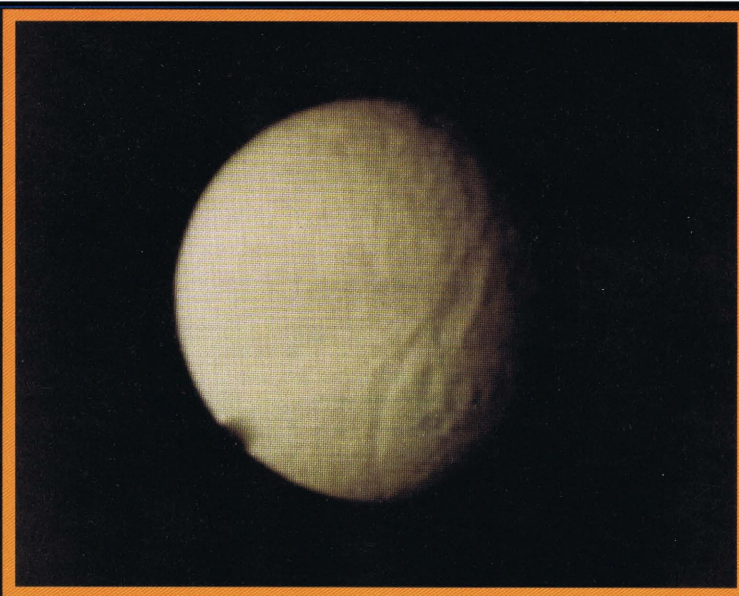


Voyager at Saturn

The Satellites



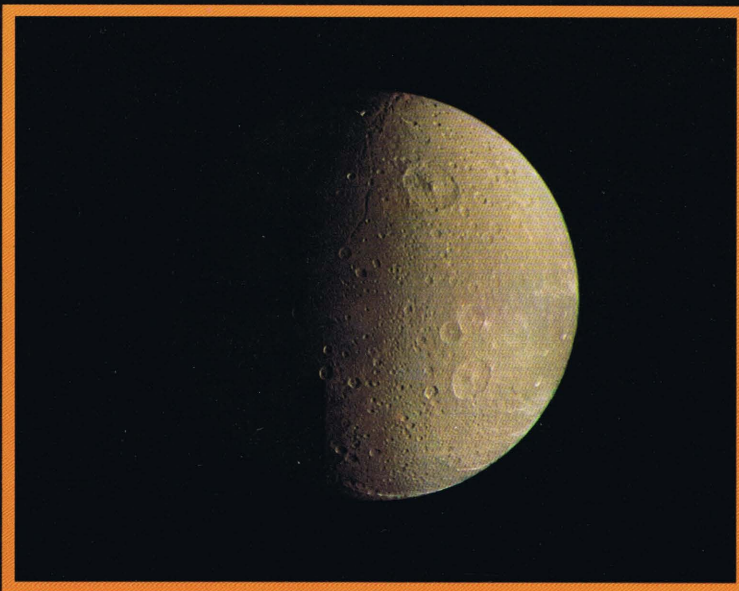
Saturn System



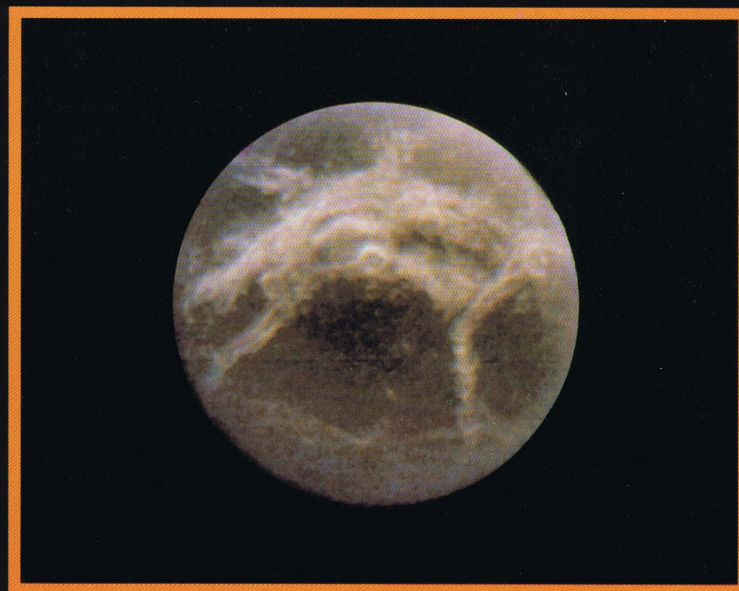
Tethys' Trench



Giant Crater on Mimas



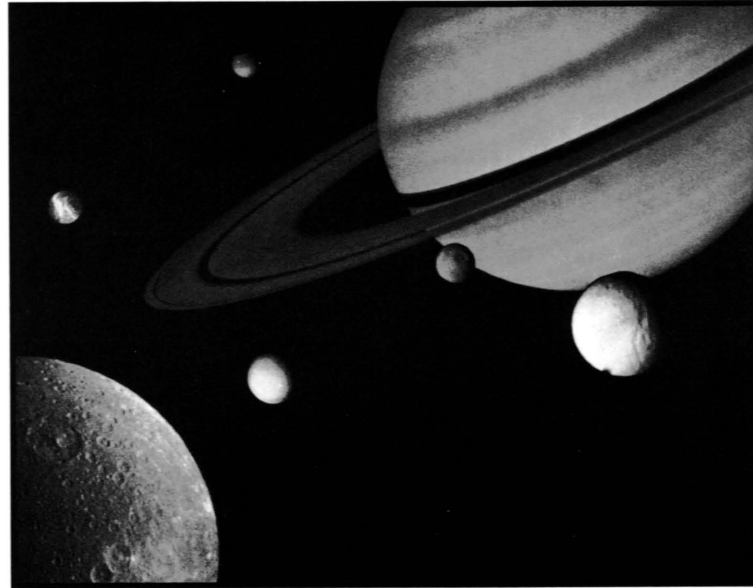
Cratered Face of Dione



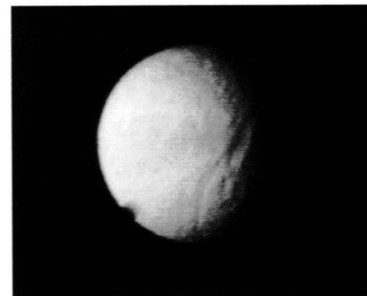
Dione's Bright Streaks

Voyager at Saturn

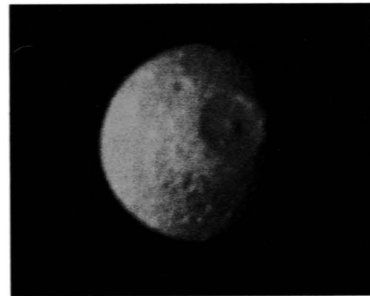
The Satellites



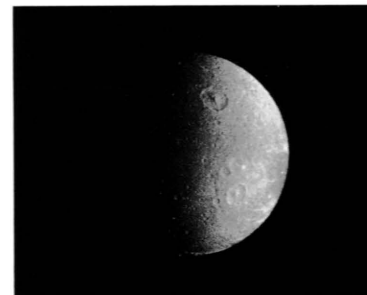
Saturn System



Tethys' Trench



Giant Crater on Mimas



Cratered Face of Dione



Dione's Bright Streaks

Voyager Mission Highlights

Two unmanned spacecraft, Voyagers 1 and 2, completed highly successful fly-through encounters of the Jovian System on March 5 and July 9, 1979, respectively. Voyager 1 went on to rendezvous with Saturn on November 12, 1980, as Voyager 2 will in August 1981. Voyager 2 will continue on to encounter Uranus in 1986 and possibly Neptune in 1989. Both spacecraft will eventually escape our solar system into interstellar space.

The historic Voyager encounters with Jupiter provided startling new information about the Jovian System. Jupiter's atmosphere is complex, with layers of colorful clouds above a deep atmosphere of hydrogen and helium. The atmosphere, more turbulent than had been expected, appears to be controlled by forces far below the visible cloudtops. The Great Red Spot, large enough to hold several Earths, is a tremendous atmospheric storm that rotates counterclockwise, with one revolution every six days.

The most spectacular discovery was that of active volcanoes on Io, Jupiter's innermost Galilean satellite. The largest active volcano observed by Voyager 1, however, had become inactive by the time Voyager 2 arrived 4 months later. Additional Voyager discoveries include a thin ring of material around Jupiter, three new satellites, and auroras and cloud-top lightning bolts, similar to superbolts on Earth.

The Saturn System proved to be equally exciting, with hundreds of tiny ringlets comprising the three brightest rings that are visible from Earth. Several new rings and at least three new satellites have also been confirmed. Lightning-like discharges appear to come from the rings rather than Saturn's atmosphere. Titan, Saturn's largest satellite, was one of Voyager 1's prime targets, and was found to have a thick, nitrogen-rich atmosphere that totally hides the surface from our view. Voyager 1 has completed its planetary observations and is now continuing its journey outward toward the edge of the universe.

These pictures were obtained by Voyager 1 as it swept through the Saturn System in November 1980.

Saturn System — Saturn and its six largest moons are grouped in this artist's collage assembled from images taken by Voyager 1 during its Saturn encounter in November 1980. Clockwise, starting from the far right, the satellites are Tethys, Mimas, Enceladus, Dione (in the left forefront), Rhea (off the left edge of the rings), and Titan (at top). Titan, the only

satellite in the solar system with an appreciable atmosphere, has a deep, nitrogen-rich atmosphere.

P-23400

Tethys' Trench — This heavily cratered surface of Tethys faces toward Saturn and includes a large valley about 750 kilometers (500 miles) long and 60 kilometers (40 miles) wide. The craters are the result of impacts, and the valley appears to be a large fracture of unknown origin. Tethys has a diameter of 1050 kilometers (650 miles), about one-third that of Earth's Moon. The smallest features visible in this picture are about 24 kilometers (15 miles) across.

P-23095 11/12/80 1.2 million km (750 thousand mi)

Giant Crater on Mimas — Mimas, Saturn's innermost large satellite, has a diameter of 390 kilometers (240 miles), and a single impact crater covers more than one-third the diameter of the entire moon. Nowhere else in the solar system has such a disproportionately large feature been seen. In fact, it is believed that any impact larger than this would probably have shattered Mimas into two or more fragments. The crater has a raised rim and central peak, typical of large impact structures on terrestrial planets. Additional smaller craters, 15 to 45 kilometers (10 to 30 miles) in diameter, can be seen scattered across the surface, particularly along the terminator (the line between day and night). Mimas is one of the small, low-density Saturnian satellites, implying that it is composed primarily of ice.

P-23210 11/12/80 425 thousand km (264 thousand mi)

Cratered Face of Dione — Dione reveals two distinctly different hemispheres. This hemisphere has many impact craters — the record of cosmic collisions. The largest crater is less than 100 kilometers (60 miles) in diameter and includes a well-developed central peak. Sinuous valleys (seen near each pole) are probably the result of crustal fracturing in the moon's icy crust. Dione's diameter is only 1100 kilometers (700 miles), much smaller than any of Jupiter's icy moons.

P-23113 11/12/80 162 thousand km (100.6 thousand mi)

Dione's Bright Streaks — Bright radiating patterns on Dione's trailing hemisphere are probably rays of debris thrown out of impact craters; other bright areas may be topographic ridges and valleys.

P-23269 11/12/80 695 thousand km (417 thousand mi)