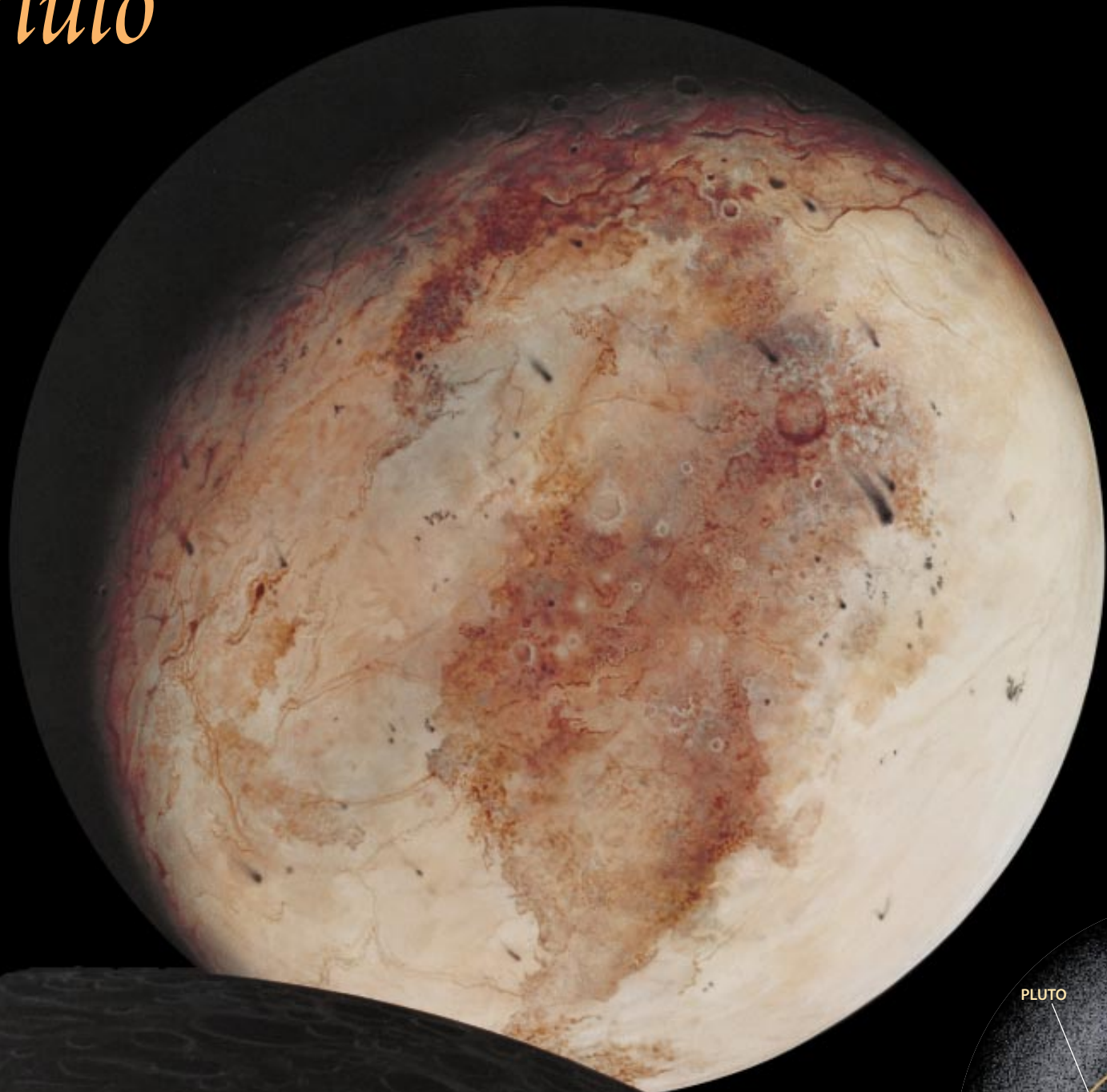
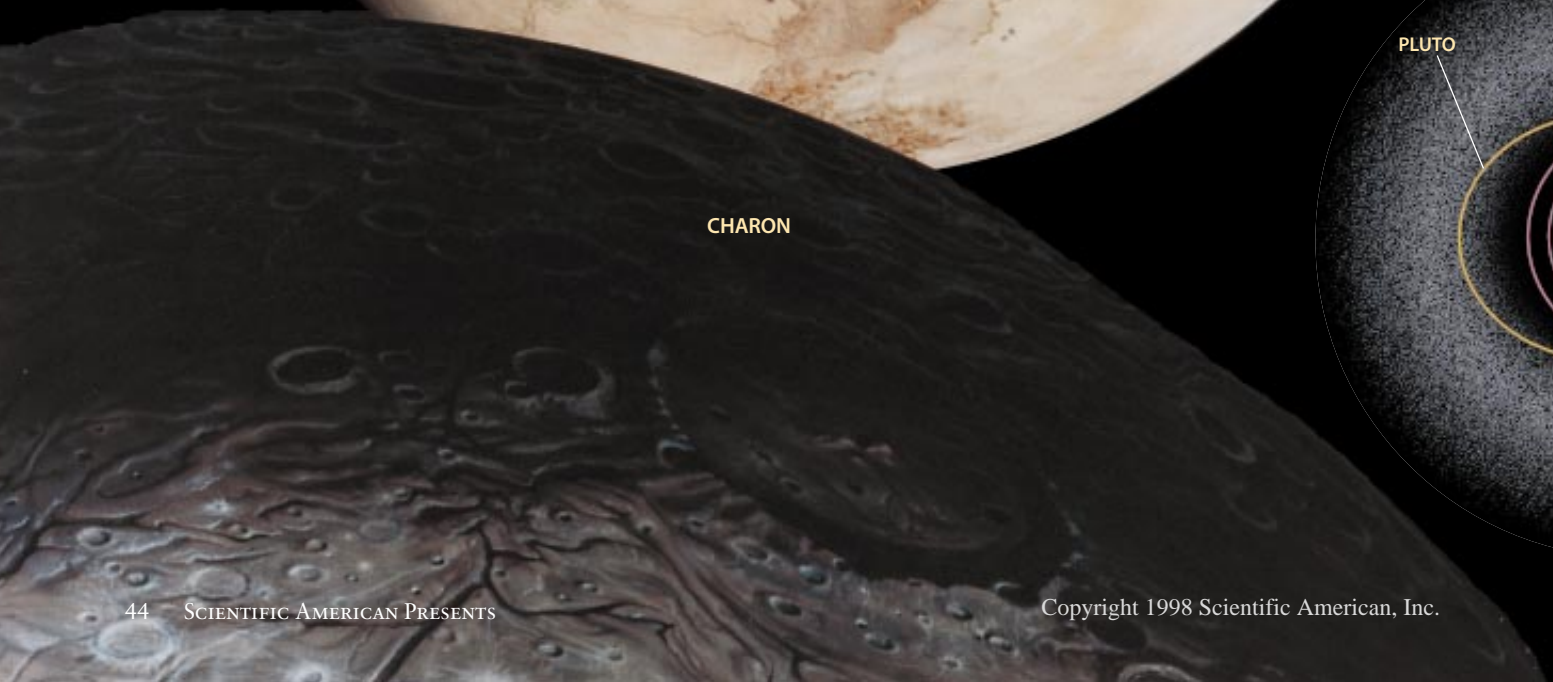


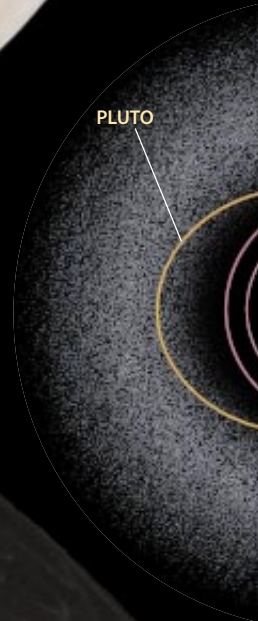
# Pluto



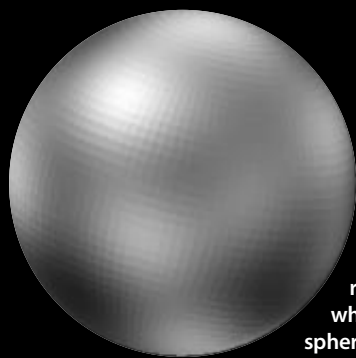
NASA



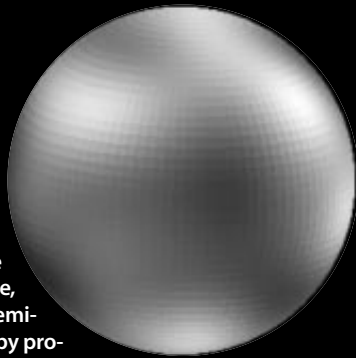
CHARON



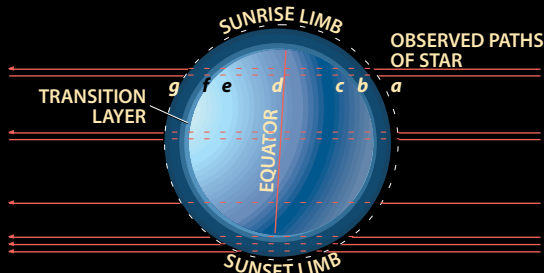
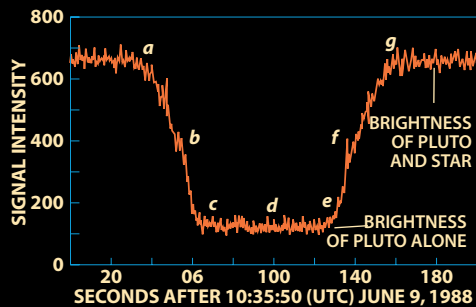
PLUTO



**IMAGES OF PLUTO** generally have no more resolution than these, which show opposite hemispheres and were produced by processing data from the Hubble Space Telescope. The data suggest that the face of Pluto has more large-scale contrast than any other planet, except possibly Earth. This fact and other information about the planet were used to create the artist's conception of Pluto at the far left.

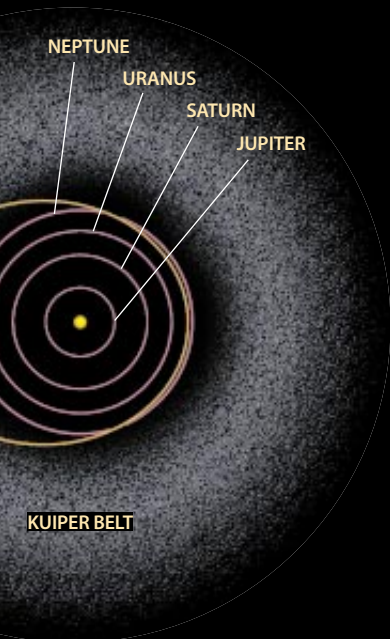


**KUIPER BELT** consists of incipient comets and objects too small to be considered planets. Astronomers estimate that the total mass of all the items in the belt is about one quarter to one half that of Earth. Other than Pluto, the largest objects are only hundreds of kilometers across.



**TWINKLING STARLIGHT**

demonstrated that Pluto has an atmosphere. Astronomers at eight sites watched as Pluto passed in front of a distant star on June 9, 1988. The star dimmed gradually as its light entered the atmosphere. A sharp drop in the light curve (*b* and *f*) indicated a transition layer in Pluto's atmosphere. This layer may be haze or a region of rapid temperature change.



**I**s Pluto really a planet? Until about six years ago, the question would have seemed silly. But in the early 1990s, astronomers found a region of orbiting bodies just beyond Neptune. The region, which was dubbed the Kuiper belt, is populated mostly by bodies too small to be planets and also by comets with relatively short periods, meaning that they approach the sun at least once every couple of centuries.

Most astronomers still consider Pluto a planet. Although its mass is only  $1/400$  that of Earth, it is still easily the largest Kuiper-like object. Also, Pluto seems to be more reflective than the other bodies in the Kuiper belt. Tradition may also have something to do with it; Pluto has been regarded as a planet since Clyde Tombaugh discovered it in 1930.

Pluto has never been photographed with high resolution; the best photographs that exist were made with the Hubble Space Telescope (*above left*). While studying much coarser images in 1978, James W. Christy, an astronomer at the U.S. Naval Observatory, noticed a bump in Pluto's disk. The bump turned out to be a satellite, which was named Charon after the mythological oarsman who ferried passengers across the river Styx to Pluto's realm.

**PLUTONIAN PANORAMA**

could include a brilliant starry sky and a view of Charon over jagged terrain, tinged pink by complex photochemistry, with patches of frozen methane, carbon monoxide and nitrogen. The planet's atmosphere is so thin that the sky probably looks black even in the daytime.



NASA AND ESA (top); BRYAN CHRISTIE (middle); SLIM FILMS (lower left); EDWARD BELL (bottom)