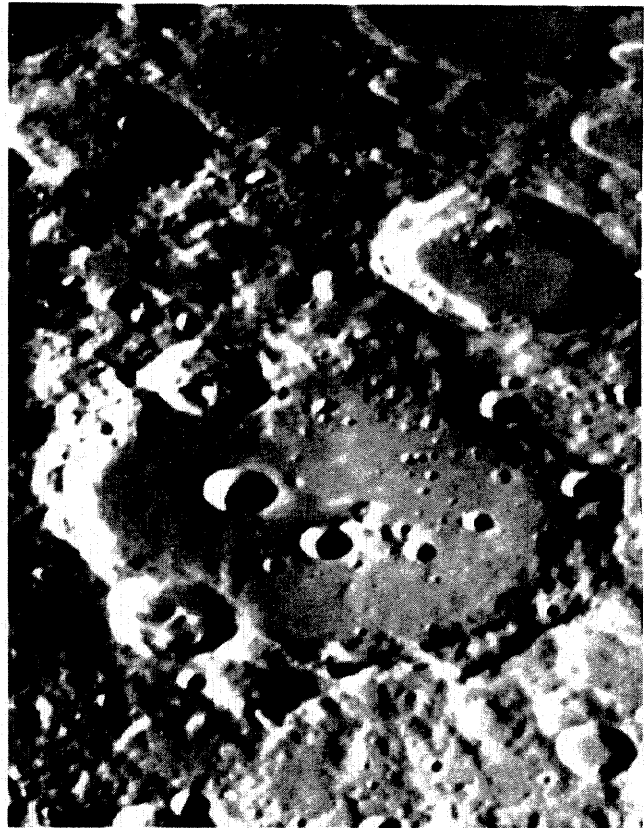


*First moon photograph taken with the 200-inch telescope shows the crater Clavius (just below the center of the picture), 150 miles across and circled by walls 12,000 feet high. Even the smallest of the pits or craters on the floor of this large walled plain are two to three miles in diameter. Because the moon has no atmosphere, it is possible to obtain clear, sharp pictures of its surface.*

## THE MOON AND THE PLANETS



The 200-inch telescope at the Palomar Observatory takes its first look at them. The resulting photographs are shown on these pages.

**S**OME OF THE FIRST photographs of the moon and planets made with the 200-inch Hale Telescope at the Palomar Observatory were released by the Mount Wilson and Palomar Observatories last month. Some impressive samples are shown on this and the following pages.

The 200-inch telescope was expressly designed for, and is engaged in a systematic study of far-off objects, rather than the planets—which are, relatively speaking, earth's next door neighbors. However, photographs of the moon and several planets have been made with the telescope during the past two years, as time permitted. Public interest, coupled with the fact that several years may pass before finely-detailed pictures can be taken, led to release of the best pictures available at this time.

This new series of pictures includes the planets Venus, Mars, Jupiter, and Saturn—which are more interesting pictorially than the distant Uranus, Neptune, and Pluto. These latter show little detail and on photographs appear as pinpoints or very small disks of light.

Mercury is so close to the sun that it is seen rarely, and then appears low on the horizon during the half-light of dawn or twilight.

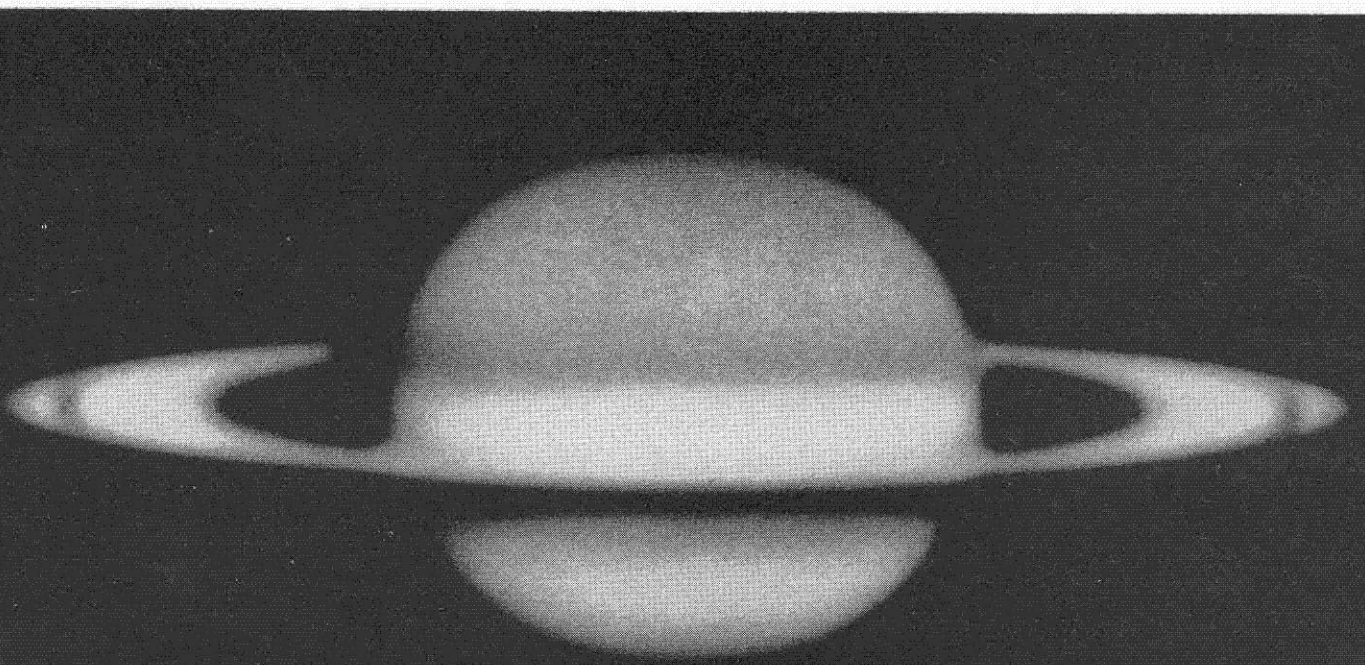
Turbulence in the earth's atmosphere—the mixing of hot and cold air—makes it hard to get good photographs of heavenly objects, whether the telescope used is large or small. Astronomers are always concerned about “seeing,” a term they use to estimate the steadiness and sharpness of the image, both of which vary with the degree of turbulence.

“Seeing” has nothing to do with cloudiness and, oddly enough to the layman, the poorest seeing occurs on clear, windy, wintry nights when the stars twinkle brightly. Then the image dances wildly in the telescope, it is ill-defined, and photographs are fuzzy. Good seeing occurs more often in late spring, summer, and early autumn; excellent seeing—needed to bring out the fine details of nearby objects such as planets—may occur on only a few nights during the year.



*VENUS is similar in size and other physical characteristics to the earth. At intervals of about a year and a half, this planet becomes the evening star—at which time it is a spectacular sight. When it is bright near Christmas time, people always call the Observatories to ask if it is the Star of Bethlehem reappearing. Like the moon, Venus shows phases, and in this photograph looks like the new moon.*

*SATURN is encircled by a three-ring system, 171,000 miles across, but only 10 miles thick. Each ring is clearly separated from the others, and is composed of countless small particles the size of bits of dust. Saturn takes about 30 years to revolve around the sun. During this time its rings can be seen twice, edge-on, by an observer on the earth. It was only recently that they opened up enough to permit a photograph like this to be taken.*





JUPITER (above) is the largest of the planets. It has an equatorial diameter of 88,800 miles—about 11 times that of the earth. None of its markings are permanent, indicating that they are atmospheric in character. The belts running parallel to Jupiter's equator change their shape and position constantly. The Great Red Spot (upper left) moves about slowly, disappears and reappears. No explanation for the spot has been established. The small bright spot outside Jupiter is Ganymede, one of the 12 known Jovian satellites. Ganymede's shadow appears as a black circle on the upper rim of the planet, just above the Great Red Spot.

MARS (below). Left photograph, taken with a plate especially sensitive to blue light, shows the variable atmospheric conditions and clouds, or haze, in the atmosphere of Mars. In the upper portion of the planet, and at its lower left, the haze is thin. At the top and bottom are the polar caps, which appear in the fall season of Mars, and disappear in the spring. Right photograph was taken in red light 30 minutes before the blue-light picture was made. Because red light penetrates atmospheres, this shows the permanent surface features of Mars. Some of these features show seasonal changes, are green in spring, brown in fall.

