

A Guide to the Moon

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THE MOON

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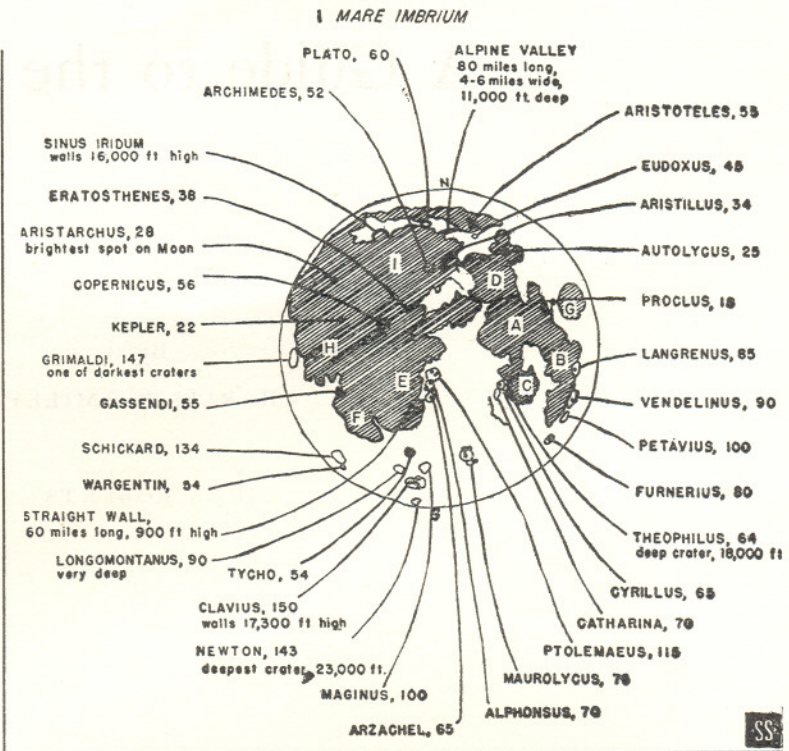
THE MOON is a lifeless body 2,163 miles in diameter, shining only by reflected sunlight. Its distance from the earth varies from 222,000 to 253,000 miles. Its angular diameter as seen in the sky is approximately half a degree. It possesses neither air nor water. The moon revolves about the earth in the same period as it rotates on its axis with respect to the stars; thus it always keeps the same face turned toward the earth. Since 1608, when the invention of the telescope made possible a detailed study of the moon, no change in its surface has been noted. Among the surface features of the moon which can be observed with a pair of field glasses or a small telescope are the craters, mountains, "seas," and rays.

There are about 32,000 lunar craters which are shown on the most detailed maps of the moon. Of these, about 600 of the more prominent craters have been named after astronomers, philosophers and others. A list of these names and a brief account of each of the persons thus honored have been published by the British Astronomical Association in "Who's Who on the Moon," and copied widely by others. To explain the origin of the lunar craters, two major theories and many minor ones have been offered. The principal theories suggest that the craters were formed by the action of volcanoes on the moon, or by the impact of material striking the moon. The presence of a central peak in many craters and the manner in which crater is piled on crater will impress the observer; also notable is the large number of craters on the southern side of the moon.

Besides the individual peaks in craters, there are a number of mountain ranges on the moon which have been named after mountain ranges on the earth, for example, the Alps and the Apennines. Some of the mountains on the moon are as much as 25,000 feet above the surrounding terrain. The mountains and craters are best seen when the moon is near first or third quarter; shadows then serve to measure heights and depths.

The "seas," or maria as they were called in Gali-

- A. MARE TRANQUILITATIS
- B. MARE FECUNDITATIS
- C. MARE NECTARIS
- D. MARE SERENITATIS
- E. MARE NUBIUM
- F. MARE HUMORUM
- G. MARE CRISIUM
- H. OCEANUS PROCELLARUM



leo's day, are large relatively smooth areas of solid material. That they are *not* bodies of water can easily be seen with even a small telescope; they are marked by small craters.

The rays are narrow light streaks radiating from some of the deeper craters. They are best seen at or near full moon. The crater Tycho in the southern part of the moon has one of the best ray systems; some of its rays extend a quarter of the way around the moon.

Rills are narrow, crooked, deep valleys which often run several hundred miles along the moon's surface. None are shown on the maps presented here, since to see them, one needs an instrument more powerful than a pair of field glasses.

The observer will enjoy watching changes in the appearance of the moon from night to night as the terminator (or line between light and dark portions of the moon) moves westward. If one finds this interesting, one may wish to make or to purchase a moderate-sized telescope, perhaps a reflecting telescope with a six-inch mirror of approximately 50 inches focal length. In such a case, a larger map of the moon will be needed.

The Maps of the Moon

The two maps presented here were designed as an introduction to the moon, to be used by persons possessing field glasses or small telescopes. No effort has been made to show every detail of the moon's surface. They were prepared at Ladd Observatory of Brown University in 1945 by Miss Jean Roberts under the direction of Professor Charles H. Smiley. They were originally intended

for men in the United States Armed Forces stationed at remote, relatively inactive posts. They appeared first in *Science News Letter* of March 3, 1945, including the Overseas Edition. They are reprinted here by special permission of *Science Service*.

The numbers opposite the names of craters on the index map indicate the approximate diameters of the craters in miles.

