

# Observing the Moon

The Moon is usually the first object to which a newly acquired telescope is turned. Its surface exhibits a wealth of fascinating detail and no description can convey the excitement of observing it for the first time. In addition to the well-known craters and extensive maria there are mountain ranges, valleys, domes, rilles and ray systems. All of these display dramatic alterations in their appearance in the course of a lunation as the Moon's phase changes – the rays, for example, are very conspicuous near Full Moon when most of the other features are less apparent, lacking shadows under the nearly vertical illumination.

Visual observation of the Moon is not as significant today as it was twenty-five or so years ago, when the amateur was at the forefront of lunar research. A decade of intensive exploration by spacecraft has caused a change of emphasis and most work now is concerned with the elusive obscurations and colorations known collectively as transient lunar phenomena, or TLP. (The alternative term lunar transient phenomena, or LTP is also sometimes used.) The reality of these events has been established almost exclusively by amateur observations made in the past twenty years, and only amateurs continue to monitor them. It has been found that they are more pronounced when viewed through certain colour filters, and simple devices have been constructed to allow the filters to be alternated rapidly, giving rise to a 'blink' which can be easily detected by the observer, just as blink comparators work by presenting two photographs alternately to the person examining the plates. Attempts have been made to use photoelectric devices for this task of detecting changes on the lunar surface, but they have proved to have little success when compared with the human eye. When an event is detected it is usual for other observers to be alerted and given just a general description of the area in which the TLP is occurring, so that they may search independently. Needless to say, familiarity with the lunar surface is a prerequisite for anyone wishing to undertake a regular patrol, and the best way of achieving this is by drawing specific areas of the Moon under all conditions of illumination.

Drawing the lunar surface is great fun and can be highly recommended. Although now of little scientific value, with the existence of highly accurate maps made from lunar orbit – although some of the polar regions remain poorly covered – it can still give great personal satisfaction. A series of drawings of a particular crater and its surroundings, for example, under different conditions of illumination, will show striking changes in appearance and prove a very instructive exercise. A medium-power eyepiece should be used, i.e. one which is sufficient to show fine detail without causing the definition to deteriorate, and a soft pencil should be employed to sketch in the relative positions of the major features and their associated shadows, followed by careful positioning of the more delicate features. No alteration should be made to the drawing after leaving the telescope, although the shadows may be painted over with Indian ink and the very bright areas highlighted with a white chinagraph pencil. There is no inherent difficulty in precisely positioning features by eye and almost anyone can become proficient

after a little practice – even those who would not feel that they were particularly 'artistic'.

The Moon is also the ideal subject for photography, offering as it does an abundance of suitable subjects, plenty of light, and a large-sized image. Quite satisfactory results can be obtained by simply applying the lens of a camera, focused at infinity, to the eyepiece of a telescope and making the exposures. Some experimentation may be needed to find the best exposure duration to suit the film in use, but times of between  $\frac{1}{25}$  and  $\frac{1}{2}$  second are

*The lunar crater Inghirami and its environs, on 1966 December 25; a 2-second exposure on Ilford G30 Chromatic Plate (ASA 10) taken by H. Hatfield.*

