

CHAPTER 2

LUNAR DAY ONE

As we start our explorations of the lunar surface together, let us start by talking about how this section is divided. Factually, a lunar day is the period of time it takes for the Moon to complete one full rotation on its axis with respect to the Sun. Equivalently, it is the time it takes for the Moon to make one complete orbit around the Earth and come back to the same phase. It is marked from a New Moon to the next New Moon. To find these times and calculate the lunar day, just reference the tables you will find in the back of this book – but first you will need to learn just a little bit more!

Each lunar cycle takes 27 days, 7 h, and 43.2 min, but it just is not quite that easy (Fig. 2.1). Since the Earth and Moon are also orbiting the Sun, our perspective from anywhere here on terra firma is also slightly different. For example, from full Moon to full Moon takes 29 days, 12 h, and 44 min. Thus, our very first lesson on Day 1 is to learn Universal Time – sometimes referred to as UT or GMT (general meridian time). While it may seem a little confusing at first, it would not take long until you understand how to make the calculations for where you live, and by using the table (also included in the back of this book), you will quickly understand what “Day” it is on the Moon! Day One would be 24–36 h from the date and time of New Moon, Day Two would be 48–60 h from the date and time of New Moon, and so on.

Because each observer is positioned in a different area around the planet Earth, not everyone will see the Moon’s features alike (Fig. 2.2). For a fellow observing Plato crater at 8:00 p.m. local time in Nottingham, England – an observer in New York, NY would need to be watching at 3:00 p.m. local time to catch the terminator (the line between darkness and shadow) in exactly the same position. That would be quite a feat considering that the Moon might not even be visible at that time! So, if the same New York observer were to view the Moon at 8:00 p.m. at his local time, the terminator will have progressed by 5 h. The Moon will have become “older” and the features will have changed just slightly. By understanding this, you also understand that a feature that is listed on a particular day may or may not be visible depending upon the exact age of the Moon when you observe.

**Fig. 2.1**

There may be times when you will need to wait a few hours for something to come into view – or a particular crater will be better the day before or the day following the given day. It is all a matter of time!

Now that we understand time, let us take a look at “how” to observe. Each of the following days is fairly well divided into sections of things that can be seen without any type of visual aid, what can be seen with binoculars, small telescopes, and what needs a larger telescope at high

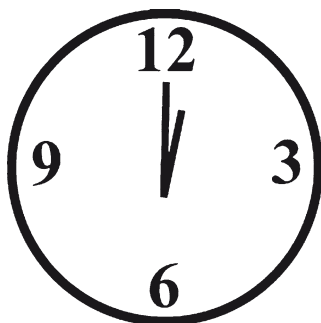


Fig. 2.2

magnification to resolve. No matter where you choose to observe from, comfort and safety are your primary issues. Before you begin seriously using this book, take the time to study the night sky and find a place where you can easily observe the Moon throughout most of its phases. Do not be surprised if you need to drive away from obstructions such as houses or trees to see the Moon's beginning or end. It is very low to the horizon at that time, and very few of us are lucky enough to see it. Do not worry though... Even if you do need to travel a bit away, your eyes and binoculars are usually quite enough to take on all the early challenges!

I know not that there is anything in nature more soothing to the mind than the contemplation of the moon, sailing, like some planetary bark, amidst a sea of bright azure. The subject is certainly hackneyed; the Moon has been sung by poet and poetaster. Is there any marvel that it should be so?

William Gilmore Simms

Once you have selected your observing area, learn to prepare yourself in advance (Fig. 2.3). Optics such as binoculars, telescopes, and telescope eyepieces need a little time to reach ambient outdoor temperature. Collect other things you might need, such as a red flashlight (to help preserve your night vision), notepad, and writing instrument. Although taking notes and making sketches certainly are not mandatory, these are practices that I highly recommend. Why? As strange as it may sound, the act of making notes will help to reinforce what you are learning – and make those strange names and places stay in your head. After all, if you

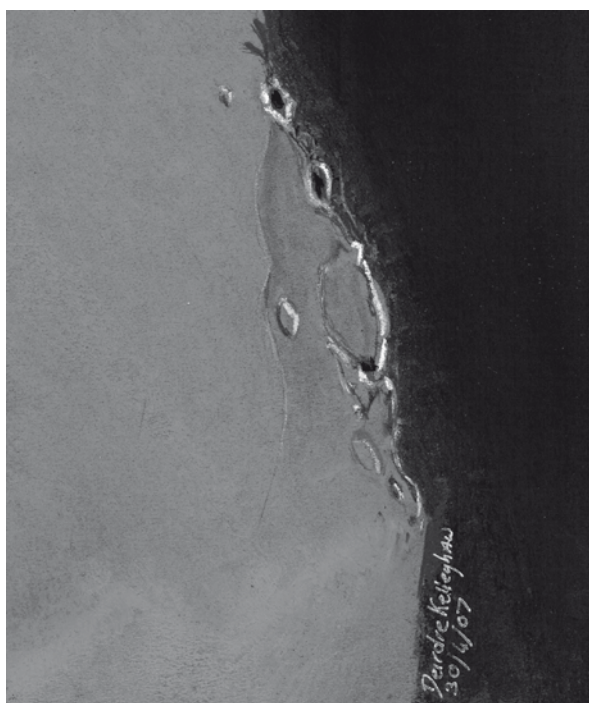


Fig. 2.3 Lunar sketch – Deirdre Kellegahaw.

bought this book, that means you admire those who can tell you crater names and places without ever looking at map, and it would not be long until you can do the same! The same holds true of sketching. No one will ever come to “grade” your sketches, and you never need to show them. But, the act of sketching allows you to see much finer details than you will notice by just observing. Even if you only draw a circle with some lines going through it, you will find yourself going back to add more and more details, because you will see more and more to add. Besides, one day when you look back at your notes and sketches, it is great fun to see all that you have accomplished!

Now that you are set up and ready to go, the next thing to know is... Do not rush. The Moon has been up there for thousands of years before you and it will be there thousands of years after. While it would be wonderful to

accomplish everything on each day and do it all within one lunar cycle – chances are that will never happen. What happens is that clouds, rain, and snow demand on our time and just life in general! You will get the most pleasure from “Moon Walk with Your Eyes” if you just spend a quiet evening here and there learning. There may be nights when you only identify one or two things we discuss and others when you catch them all! That is the beauty of our ever-changing Moon... There is always something new to learn or see – or a challenge to revisit.

Are you ready? Then let us talk about Day One...

At 24–36 h old, tonight’s Moon is going to be a huge challenge to even spot in the twilight sky (Fig. 2.4). To see it, you will need to be well away from any horizon obstructions and begin looking just before the Sun is officially set (check your local sunrise and sunset times). Because the sky will still be very bright, you may need your binoculars to assist you. Look for the most slender crescent that you can imagine, and you will find that the lighted



Fig. 2.4 One day Moon – Peter Lloyd.

side is aimed exactly in the same direction as the setting Sun. This will help us to learn lunar east from lunar west!

Just like on Earth, the lunar terminator always progresses from east to west – no matter how it appears oriented in the sky. Lunar north and south is the same as our cardinal directions, but not quite so easy to distinguish in a telescope. For binoculars and refractor telescopes, the view is oriented correctly, but reflector telescopes produce a mirror image – things are reversed from left to right and upside down. Confusing? Not really. You get used to it very quickly if you just remember that the terminator always moves from east to west and that the north section of the Moon is far more barren than the heavily cratered south section.

If you have checked your Universal Time and the Moon is older than approximately 32 h at your time of observation, you may wish to advance to Day Two and see if you can spot any features!

*Then the golden hour
Will tick its last
And the flame will go down in the flower.
A briefer length of Moon
Will mark the sea-line and the yellow dune.
Then we may think of this, yet
There will be something forgotten
And something we should forget.
It will be like all things we know:
A stone will fail; a rose is sure to go.
It will be quiet then and we may stay
Long at the picket gate
But there will be less to say.*

Arna Bontemps

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