Figure 6.2: Same magnification, different fields of view. Left: 50 power, 35° apparent field, 0.7° true field. Right: 50 power, 60° apparent field, 1.2° true field. (For realistic views, hold the page close to your face.)

sky you are actually looking at. For example, the telescope might take a 1° circle of sky and magnify it 30×, so that it appears to be 30° across.

In a distortion-free eyepiece,

$$\text{True field} = \frac{\text{Apparent field}}{\text{Magnification}}$$

but in practice, some eyepieces have a slightly different magnification near the edges than at the center, and this relation is not exact.

There are two reasons why a wider field is better, at least up to a point. One is comfort. The human eye naturally takes in a field of about 50° or 60°, and eyepieces with fields in this range are comfortable to use. Narrower fields, such as the 40° that used to be standard, give the impression of looking through a round window.

The other is pointing accuracy. With a wide-field eyepiece, an imperfectly located object will still be in the field even at medium or high power. You

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