offered a big increase in his Paduan salary. However, the following year the Grand Duke of Tuscany, Cosimo II de' Medici, made him a still better career offer; and so in September 1610 he returned to Florence, this time with a life appointment as mathematician and philosopher to the Duke.

**News from the Stars**

By the time 1609 drew to a close, Galileo had improved his magnification to some 20x. When he used the instrument to look at the stars, he saw many that had been invisible to the unaided eye – stars that had remained hidden since the Creation, awaiting their discovery by Galileo. The mysterious Milky Way he was able to resolve into myriads of tiny stars, so confirming the speculation reported by Aristotle two millennia before. He also found that whereas the planets appeared proportionately enlarged as expected, the same was not true of stars. This was welcome news for Copernicans. Tycho (see page 111) had estimated that to explain away his failure to detect annual parallax, Copernicans would have to banish the stars to at least 700 times the distance of Saturn; and to appear disc-shaped at such a distance the stars would have to be incredibly big. Now, however, their disc-shaped appearance was exposed as illusory.

His most striking discovery concerned the planet Jupiter. When he first examined it on 7 January 1610, he found the planet in the midst of three little stars ranged – curiously – in a straight line. Jupiter was then moving in westwards (‘retrograde’) motion, and Galileo therefore expected that the following night Jupiter would be west of the supposed stars; but in fact it was to the east. The next night was cloudy, but on 10 January he found the planet to the west of two stars, with the third star nowhere to be seen. By 13 January the number of stars had increased to four; and by 15 January Galileo had realized that the supposed stars must in fact be satellites, moons circling around Jupiter and carried along by the planet as it orbited the Sun.

This was more good news for the Copernicans. Even in the basic model of the Copernican system presented in Book I of De revolutionibus (see page 96), there had been one serious anomaly: the Earth, while in other respects an ordinary planet, still orbited the Sun.