

3.4 J. Kepler, *Astronomia Nova*, Heidelberg, 1609, trans. C. A. Russell, in D.-C. Goodman (ed.), *Science and Religious Belief, 1600-1900: A Selection of Primary Sources* (John Wright and Open University Press, 1973), pp. 22-3

See Chapter 10 of my *Astronomy: the Optical Section* where you will find reasons why the sun in this way seems to all men to be moving, but not the earth: namely, because the sun seems small, but the earth truly appears to be large. Nor is the motion of the sun to be grasped by sight (since it gives the appearance of being slow) but by reason alone on account of the changed relationship to the mountains after some time. It is therefore impossible that reason not previously instructed should imagine anything other than that the earth is a kind of vast house with the vault of the sky placed on top of it; it is motionless and within it the sun being so small passes from one region to another, like a bird wandering through the air.

This universal image has produced the first line in the sacred page. *In the beginning*, said Moses, *God created the heaven and the earth*; this is a natural expression because these two aspects of the universe are those that chiefly meet the eye. It is as if Moses were saying to man 'all this architecture of the universe that you see, the brightness above, by which you are covered, the widespread darkness below, upon which you stand - all this had been created by God'.

In other places man is questioned whether he has learned how to penetrate the height of the sky above or the depth of the earth beneath. This is natural because to the mass of men each of these appears equally to project into infinite space. Nevertheless, there never was a man who, listening rationally, would use these words to circumscribe the diligence of the astronomers, whether in demonstrating the most contemptible weakness of the earth by comparison with the sky, or through investigations of astronomical distance. These words do not speak about intellectualised dimensions, but about the dimension of reality - which, for a human body fixed on the earth and drinking in the free air, is totally impossible. Read the whole of Job Ch. 38 and compare with it the matters that are disputed in astronomy and physics.

If anyone alleges on the basis of Psalm 24 *The earth is founded upon the seas* (in order to establish some new philosophical dictum, however absurd to hear) that the earth is floating on the waters, may it not be rightly said to him that he ought to set free the Holy Spirit and should not drag Him in to the schools of physics to make a fool of Him. For in that place the Psalmist wishes to suggest nothing other than what men know beforehand and experience each day: the lands, uplifted after separation of the waters, have great rivers flowing through them and the seas around them on all sides. Doubtless the same is spoken of elsewhere, when the Israelites sing *By the waters of Babylon there we sat down*, i.e., by the side of the rivers, or on the banks of the Euphrates and Tigris.

If anyone receives the one freely, why not the other, so that in other places which are often quoted against the motion of the earth we should, in the same way, turn our eyes from physics to the tradition of scripture?

*One generation passes away, says Ecclesiastes, and another generation is born, but the earth abides for ever.* Is Solomon here, as it were, disputing with the astronomers? No, he is rather warning men of their changeableness whereas the earth, the home of the human race, always remains the same; the movement of the sun keeps returning it to its starting-point; the wind is driven in a circle, and returns to the same plan; rivers flow from their sources to the sea, and thence return to their sources. Finally, while some men perish others are born, and always the drama of life is the same; there is nothing new under the sun.

You are listening to no new principle of physics. It is a question of ethical instruction in a matter which is clear on its own, observed universally but receives scant consideration. That is why Solomon insists on the matter. Who does not know the earth to be always the same? Who does not see that the sun rising daily in the East, that the rivers run perpetually down to the sea, that the pattern of changes of the wind is fixed and recurring and that one generation succeeds another? Who in fact considers that the drama of life is being perpetually performed, with only a change of cast and that there is nothing new in human affairs? And so, by rehearsing things which everyone sees, Solomon warns of that which the majority wrongly neglect.

But some men think Psalm 104 to be wholly concerned with physics, since it is wholly concerned with physical matters. And there God is said to have

*laid the foundations of the earth so that it should not be moved*, and that stability will remain from age to age. Nevertheless the Psalmist is a very long way from speculation about physical causes. He rests utterly in the greatness of God who made all these things and is unfolding a hymn to God the Creator, a hymn in which he runs in order through the whole world as it appears to our eyes.