

The stars are suns. To put it in another way, the sun is one of the stars, and rather a small one at that. If the sun is moving in the way I have described, may not the stars also be in motion, each on a journey of its own through the wilderness of space? To this question astronomy gives an affirmative answer. Most of the stars nearest to us are found to be in motion, some faster than the sun, some more slowly, and the same is doubtless true of all; only the century of accurate observations at our disposal does not show the motion of the distant ones. A given motion seems slower the more distant the moving body; we have to watch a steamship on the horizon some little time to see that she moves at all. Thus it is that the unsolved problem of the motion of our sun is only one branch of a yet more stupendous one: What mean the motions of the stars; how did they begin, and how, if ever, will they end? So far as we can yet see, each star is going straight ahead on its own journey, without regard to its neighbors, if other stars can be so called. Is each describing some vast orbit which, though looking like a straight line during the short period of our observation, will really be seen to curve after ten thousand or a hundred thousand years, or will it go straight on forever? If the laws of motion are true for all space and all time, as we are forced to believe, then each moving star will go on in an unbending line forever unless hindered by the attraction of other stars. If they go on thus, they must, after countless years, scatter in all directions, so that the inhabitants of each shall see only a black, starless sky.

Mathematical science can throw only a few glimmers of light on the questions thus suggested. From what little we know of the masses, distances, and numbers of the stars we see a possibility that the more slow-moving ones

may, in long ages, be stopped in their onward courses, or brought into orbits of some sort by the attraction of their millions of fellows. But it is hard to admit even this possibility in the case of the swift-moving ones. Attraction, varying inversely as the square of the distance, diminishes so rapidly that, at the distances which separate the stars, it is small indeed. We could not, with the most delicate balance that science has yet invented, even show the attraction of the greatest known star. So far as we know, the two swiftest-moving stars are, first, Arcturus, and second, one known in astronomy as 1830 Groombridge, the latter so called because it was first observed by the astronomer Groombridge, and is numbered 1830 in his catalogue of stars. If our determinations of the distances of these bodies are to be relied on, the velocity of their motion cannot be much less than 200 miles a second. They would make the circuit of the earth every two or three minutes. A body massive enough to control this motion would throw a large part of the universe into disorder. Thus the problem where these stars came from and where they are going is for us insoluble, and is all the more so from the fact that they are moving in different directions, and seem to have no connection with each other or with any known star.

It must not be supposed that these enormous velocities seem so to us. Not one of them, even the greatest, would be visible to the naked eye until after years of watching. On our finger-ring scale, 1830 Groombridge would be some ten miles, and Arcturus thirty or forty miles away. Either of them would be moving only two or three feet in a year. To the oldest Assyrian priests Lyra looked much as it does to us to-day. Among the bright and well-known stars Arcturus has the most rapid apparent motion, yet Job himself would not to-day see that its position