carry us towards an explanation, probably when we can find some definite law (other than that just mentioned) which governs the association of the third planet with the other two, we shall have some prospects of discovering the physical law which is the basis of this geometrical relationship.

The Revolution of the Components of Zeta Ursae Majoris

By P. C. Bose.

The star in question is the middle star in the tail of Ursa Major. It is in reality composed of three stars—a pair called Mizar and another companion to them called Alcor or g in the map. There is another star of about the 8th magnitude near Mizar just a little to the right of the line joining the two stars and nearer to the smaller. These two stars of Mizar, I shall, for the sake of convenience, henceforth call ζ_1 and ζ_2 in order of magnitude—[*see* Fig. 1]. Sometime ago I happened to note this small star to which attention was drawn by a subsequent issue of the "monthly notices" of our Society. I am sorry to say that none of our many members could give me any information about it. I hunted the charts, but they were mute on this point, as charts in general do not deal with stars of magnitude lower than the 7th. It was about this time that I came across Admiral Smyth's excellent book "A Cycle of Celestial Objects," revised by Mr. George Chambers, F.R.A.S., up to 1881, in which the positions of 1604 double stars and nebulæ are given very accurately. I was baffled here also and I doubt whether this star was known to the author at the time the book was published, because there he mentions of a star of 8th magnitude discovered by a German Astronomer in 1723 in the vicinity of ζ to the south of Alcor and not the one I am talking about, and had this one been known it would not have passed without notice. The chief thing that drew my attention is the relative positions given there of ζ_1, ζ_2 and ζ—[*see* Fig. 2].

You see that the position of Alcor is to the right of the pair of Mizar, but if you see it now with your telescope you will see Alcor in a position almost in a line with ζ_1 and ζ_2.

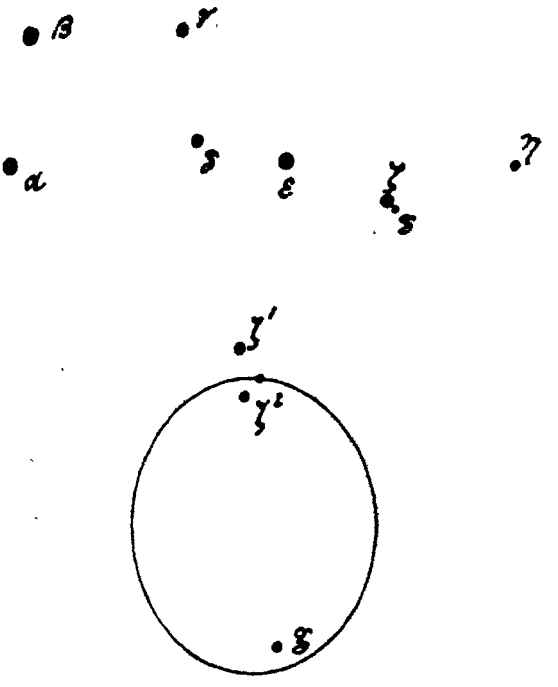

FIG. 1

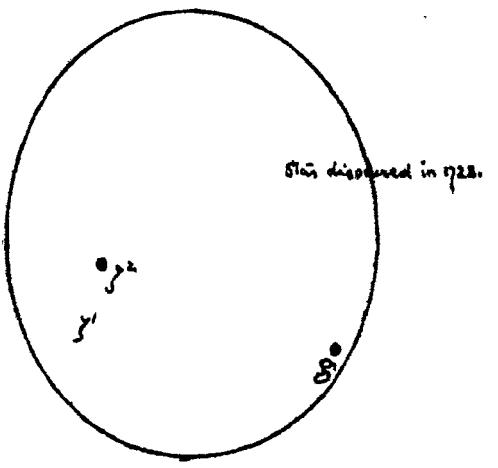

FIG. 2

At first sight it would appear as if Alcor had moved up a little, and there are reasons to believe that it has motion. Thus :—

Bradly found the position to be	...	143°·1	in	1755
W. Herschel ,, ,,	...	146°·8	,,	1779
W. Struve ,, ,,	...	145°·3	,,	1819
Smyth ,, ,,	...	147°·4	,,	1839
Dembowski ,, ,,	...	148°·0	,,	1852
Jidezajewicz ,, ,,	...	148°·6	,,	1878

Peck in his chart published in 1897 gives it to be 148°. So from the table it would seem that the motion is rather erratic. From 1755 to 1839 the movements were fitful and from 1852 to 1897 it had practically stuck at 148°. I don't know what it is at present, but it cannot be more than 148°. So you will see that in 152 years it has moved only 5°, but in order to come to the position it now occupies it must have moved through about 70°. How are we to explain this ? It admits of one explanation only, and it is that ζ_2 must have moved up to its present position. I believe that the little star in question is not a new one, but one of the many low magnitude stars that abound in the vicinity of Mizar, and that it is getting isolated from the rest by a flank movement—to use a military expression—of ζ_2. In their eager desire to detect the movement of Alcor the astronomers have apparently neglected to observe the movement of ζ_2. The thing should be studied by members and instrumental drawbacks could be overcome by dodges, which if not very accurate may yet give us some idea of the conditions obtaining there or elsewhere.