

and early November. These ellipses are very common but they vary with every revolution of the planet.

Eq. Zone.—This is a most active area for differential movements are going on here right the planet. The most striking feature is the fairly regular system of arches with their bases pointing N. This arrangement can be seen at any position of the planets in the course of its revolution. The pillars of the arches are generally vertical, but they are often tilted sometimes to the left and occasionally to the right. Sometimes two arches coalesce into one large arch though the middle base remains. At the lower part of each pillar is invariably a black rectangular spot or base. These arches were a most striking feature from July to November.

A Note on Mira Ceti.

BY MISS M. C. FELINE.

It had long been my desire to see for myself Mira, the "wonderful," but not till this year have I been able to do so. Possibly this account of Mira (imperfect though it is) may be of some interest. The opportunity of watching it night after night was an exceptionally good one as our verandah faces West and gives an unbroken view to the horizon.

It was about the 1st or 2nd of February that I first discerned a very dim Star in the place where Mira should appear. Throughout the month I observed it slowly brightening till by the end of the month it was comparable in brightness to γ and δ Ceti,—about the 4th magnitude.

From March 14th I kept a detailed account till the time when last visible on March 26th.

I had already watched it without intermission each night but hitherto had no thought it could possibly be of use till suggested to me by a friend.

From that time I noted each night's appearance (or non-appearance) thus :—

<i>March 14th. & 15th</i>	... Obscured by clouds.
" 16th	... As bright as α Ceti. (3rd magnitude.)
" 17th	... Clouds again.

<i>March</i>	<i>18th</i>	... α Ceti and β Arietis.
"	<i>19th</i>	... α Ceti.
"	<i>20th, 21st & 22nd</i>	Clouds.
"	<i>23rd</i>	... γ Ceti (4th magnitude).
"	<i>24th</i>	... Visible, but no comparison possible. owing to luminosity of western horizon and thickness of atmosphere.
"	<i>25th</i>	... γ Ceti.
"	<i>26th</i>	... γ Ceti.

By this time the Star became too low for any certain comparison, as the decreasing brightness might be due to the Sunset light in which it was obscured, but it seems as though the maximum had in reality been reached, in which case it never appeared brighter than a star of 3rd magnitude.

The Orbits of Celestial Bodies, as Elliptical, Parabolic and Hyperbolic Plane Curves.

BY REV. A. C. RIDSDALE, M.A., F.R.A.S.

Newton proved in his Principia, that any body which moves around its centre of attracting force, in a manner such that the attraction is always in the inverse duplicate ratio of its distance from that centre, must describe a plane conic curve. And conversely, if any body is found moving round another in a conic curve, the force which effects its motion must be that of the "law of the inverse squares" or gravitation. So long, however, as a body obeys this law of the inverse squares of the distance, it is free to move round the Sun at any distance, in any plane, in any direction, and in any conic orbit. It may describe an elliptical curve, which may be of any eccentricity, ranging from a perfect circle to an extremely elongated oval. And it may be in any plane, and the body may be moving in any direction. Again, a body moving under the law of inverse squares or gravitation, may not be moving in an ellipse at all, but in a parabolic curve. And although the parabola has only one shape, yet it may be of any size, and the perihelion distance may vary to any extent, as also its direction and plane. Again the body under this law of gravitation, may be travelling in a hyperbolic curve, and the hyperbola may vary not only in