The two circles parallel to this which bounded the sun's path among the stars were called Tropics (тротькai), because the sun turns back again towards the equator when he reaches them. The stars which never set are bounded by a circle called the Arctic Circle (äpктtкоs, from ${ }^{2} \rho \kappa \tau о \rho$, the Bear, the constellation to which some of the principal stars within that circle belong.) A circle about the opposite pole is called Antarctic, and the stars which are within it can never rise to us. ${ }^{11}$ The sun's path or circle of the signs is called the Zodiac, or circle of animals; the points where this circle meets the equator are the Equinoctial Points, the days and nights being equal when the sun is in them; the Solstitial Points are those where the sun's path touches the tropics; his motion to the south or to the north ceases when he is there, and he appears in that respect to stand still. The Colures (kódovpot, mutilated) are circles which pass through the poles and through the equinoctial and solstitial points; they have their name because they are only visible in part, a portion of them being below the horizon.

The Horizon ( $\delta \rho i \zeta \omega \nu$ ) is commonly understood as the boundary of the visible earth and heaven. In the doctrine of the sphere, this boundary is a great circle, that is, a circle of which the plane passes through the centre of the sphere; and, therefore, an entire hemisphere is always above the horizon. The term occurs for the first time in the work of Euclid, called Phoenomena (\$aıvópeva). We possess two treatises written by Autolycus ${ }^{42}$ (who lived about 300 в. c.) which trace deductively the results of the doctrine of the sphere. Supposing its diurnal motion to be uniform, in a work entitled $\Pi \varepsilon \rho \imath \mathrm{K} \iota \nu 0 \nu \mu \varepsilon ́ v \eta{ }^{\circ}$ इфaipas, "On the Moving Sphere," he demonstrates various properties of the diurnal risings, settings, and motions of the stars. In another
 tacitly assuming the sun's motion in his circle to be uniform, he proves certain propositions, with regard to those risings and settings of the stars, which take place at the same time when the sun rises and sets," or vice versa; ${ }^{45}$ and also their apparent risings and settings when they cease to be visible after sunset, or begin to be visible after sunrise. ${ }^{46}$

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[^0]:    ${ }^{41}$ The Aretic and Antarctio Circles of modern astronomers are different from these.

    42 Dolambre, Astron. Ancienne, p. 19.
    ${ }^{4 s}$ Delambre, Astron. Anc. p. 25. " Cosmical rising and setting.
    ${ }^{45}$ Acronycal rising and setting; (dंxpovuklos, happening at the extremity of the uight.)
    to Heliacal rising and setting.

