lay it off on the circumference of the given circle.— Hence any regular polygon may be eaſily inſcribed in a given circle,

Use of th*e Line of Polygons on the Sector.* 1. To inſcribe a regular polygon in a given circle. Take the ſemidiameter of the given circle in the compaſſes, and adjuſt it to the number 6, on the line of polygons, on each leg of the ſector: then, the ſector remaining thus opened, take the diſtance of the two equal numbers, expreſſing the number of ſides the polygon is to have; *e. gr.* the diſtance from 5 to 5 for a pentagon, from 7 to 7 for a heptagon, &c. Theſe diſtances carried about the circumference of the circle, will divide it into ſo many equal parts.

2. To deſcribe a regular polygon, *e. gr.* a penta­gon, on a given right line. Take the length of the line in the compaſſes, and apply it to the extent of the number 5, 5, on the lines of polygons. The ſec­tor thus opened, upon the ſame lines take the extent from 6 to 6; this will be the ſemidiameter of the circle the polygon is to be inſcribed in. If then, with this diſtance, from the ends of the given line, you deicribe two arches of a circle, their interſection will be the centre of the circle.

3. On a right line, to deſcribe an iſoceles triangle, having the angles at the baſe double that at the ver­tex. Open the ſector, till the ends of the given line fall on 10 and 10 on each leg; then take the diſtance from 6 to 6. This will be the length of the two equal ſides of the triangle.

*Uſe of the Lines of Sines, Tangents, and Secants, on the Sector.* By the ſeveral lines diſpoſed on the ſector, we have ſcales to ſeveral radii; ſo that having a length or radius given, not exceeding the length of the ſector when opened, we find the chord, fine, &c. thereto: *e. gr.* Suppoſe the chord, fine, or tangent, of 10 degrees, to a radius of 3 inches required; make 3 inches the aperture, between 60 and 60, on the lines of chords of the two legs; then will the ſame extent reach from 45 to 45 on the line of tangents, and from 90 to 90 on the line of the ſines on the other ſide; ſo that to whatever radius the line of chords is ſet, to the ſame are all the others ſet. In this diſpoſition, there­fore, if the aperture between 10 and 10, on the lines oſ chords, be taken with the compaſſes, it will give the chord of 10 degrees. If the aperture of 10 and 10 be in like manner taken on the lines of ſines, it will be the ſine of 10 degrees. Laſtly, if the aperture of 10 and 10 be in like manner taken on the lines of tan­gents, it gives the tangent of 10 degrees.

If the chord, or tangent, of 70 degrees were re­quired; for the chord, the aperture of half the arch, viz. 35, muff be taken, as before; which diſtance, re­peated twice, gives the chord of 70 degrees. To find the tangent of 70 degrees to the ſame radius, the ſmall line of tangents muſt be uſed, the other only reaching to 45: making, therefore, 3 inches the aperture between 45 and 45 on the ſmall line; the extent between 70 and 70 degrees on the ſame, will be the tangent of 70 degrees to 3 inches radius.

To find the ſecant of an arch, make the given radius the aperture between 0 and 0 on the lines of ſecants: then will the aperture of 10 and 10, or 70 and 70, on ſaid lines, give the tangent of 10⁰ or 70⁰.

If the converſe of any of theſe things were required, that is, if the radius be required, to which a given line is the ſine, tangent, or ſecant, it is but making the given line, if a chord, the aperture on the line of chords, between 10 and 10, and then the ſector will ſtand at the radius required; that is, the aperture be­tween 60 and 60 on the ſaid line is the radius. If the given line were a line, tangent, or ſecant, it is but making it the aperture of the given number of de­grees; then will the diſtance of 90 and 90 on the ſines, of 45 and 45 on the tangents, of 0 and 0 on the ſe­cants, be the radius.

*Astronomical Sector.* See *Astronomical Sector. Dialing Sector.* See *Dialing.*

SECULAR, that which relates to affairs of the preſent world, in which ſenſe the word ſtands oppoſed to spir*itual, ecclesiastical:* thus we ſay ſecular power, &c.

Secular, is more peculiarly uſed for a perſon who lives at liberty in the world, not shut up in a monaſtery, nor bound by vows, or ſubjected to the particu­lar rules of any religious community; in which ſenſe it ſtands oppoſed to *regular.* The Romiſh clergy are divided into ſecular and regular, of which the latter are bound by monaſtic rules, the former not.

*Secular Games,* in antiquity, ſolemn games held among the Romans once in an age. Theſe games laſted three days and as many nights; during which time ſacriſices were performed, theatrical ſhews exhibited, with combats, ſports, &c. in the circus. The occaſion of theſe games, according to Valerius Maximus, was to flop the progreſs of a plague. Valerius Publicola was the firſt who celebrated them at Rome in the year of the city 245. The ſolemnity was as follows: The whole world was invited by a herald to a feaſt which they had never ſeen already, nor ever ſhould ſee again. Some days before the games began, the quindecemviri in the Capitol and the Palatine temple, diſtributed to the people purifying compoſitions, of various kinds, as flambeaus, ſulphur, &c. From hence the populace paſſed to Diana's temple on the Aventine mount, with wheat, barley, and oats, as an offering. After this, whole nights were ſpent in devotion to the Deſtinies. When the time of the games was fully come, the people aſſembled in the Campus Martius, and ſacrificed to Ju­piter, Juno, Apollo, Latona, Diana, the Parcæ, Ceres, Pluto, and Proſerpine. On the firſt night oſ the feaſt the emperor, with the quindecemviri, cauſed three altars to be erected on the banks of the Tiber, which they ſprinkled with the blood of three lambs, and then proceeded to regular ſacrifice. A ſpace was next marked out for a theatre, which was illuminated with innumerable flambeaus and fires. Here they ſung hymns, and cele­brated all kinds of ſports. On the day after, having offered victims at the Capitol, they went to the Campus Martius, and celebrated ſports to the honour of Apollo and Diana. Theſe laſted till next day, when the noble matrons, at the hour appointed by the oracle, went to the Capitol to ſing hymns to Jupiter. On the third day, which concluded the ſolemnity, twenty-ſeven boys, and as many girls, ſung, in the temple of Palatine Apollo hymns and verſes in Greek and Latin, to recommend the city to the protection of thoſe deities whom they deſigned particularly to honour by their facriſices.

The inimitable Carmen Seculare of Horace was compoſed for this laſt day, in the Secular Games, held by Auguſtus.