[Sir Thomas L. Heath, *The Thirteen Books of Euclid's Elements* (2nd edition), pp. 186–187 (1925).]

[Heath's commentary on Euclid, *Elements*, Book I, Definition 18.]

Definition 18.

[•]Ημικύκλιον δέ ἐστι τὸ περιοχόμενον σχῆμα ὑπό τε τῆς διαμέτρου καὶ τῆς ἀπολαμβανομένης ὑπ' αὐτῆς περιφερείας. κέντρον δὲ τοῦ ἡμικυκλίου τὸ αὐτό, ὃ καὶ τοῦ κύκλου ἐστίν.

A semicircle is the figure contained by the diameter and the circumference cut off by it. And the centre of the semicircle is the same as that of the circle.

The last words, "And the centre of the semicircle is the same as that of the circle," are added from Proclus to the definition as it appears in the MSS. Scarburgh remarks that a semicircle has no centre, properly speaking, and thinks that the words are not Euclid's but only a note by Proclus. I am however inclined to think that they are genuine, if only because of the very futility of an observation added by Proclus. He explains, namely, that the semicircle is the only plane figure that has its centre on its perimeter (!), "so that you may conclude that the centre has three positions, since it may be within the figure, as in the case of a circle, or in the perimeter, as with the semicircle, or outside, as with some conic lines (the single-branch hyperbola presumably)"!

Proclus and Simplicius point out that, in the order adopted by Euclid for these definitions of figures, the first figure taken is that bounded by *one* line (the circle), then follows that bounded by *two* lines (the semicircle), then the triangle, bounded by *three* lines, and so on. Proclus, as usual, distinguishes different kinds of figures bounded by two lines (pp. 159, 14–160, 9). Thus they may be formed

(1) by circumference and circumference, e.g. (a) those forming angles, as a *lune* ($\tau \dot{o} \mu \eta \nu \sigma \epsilon i \delta \epsilon \zeta$) and the figure included by two arcs with convexities outward, and (b) the *angle-less* ($\dot{\alpha}\gamma \dot{\omega}\nu \omega \nu$), as the figure included between two concentric circles the *coronal*;

(2) by circumference and straight line, e.g. the semicircle or segments of circles ($\dot{\alpha}\psi\tilde{\alpha}\delta\varepsilon\zeta$ is a name given to those less than a semicircle);

(3) by "mixed" line and "mixed" line, e.g. two ellipses cutting one another;

(4) by "mixed" line and circumference, e.g. intersecting ellipse and circle;

(5) by "mixed" line and straight line, e.g. half an ellipse.

Following Def. 18 in the MSS. is a definition of a *segment of a circle* which was obviously interpolated from III. Def. 6. Proclus, Martianus Capella and Boethius do not give it in this place, and it is therefore properly omitted.