Philosophy Through Geometry

Merlin CCC — March 2022

Supplementary Readings & Resources

If you're interested in supplementing the readings, activities, and discussions from our course—either at home alongside the course during March, or after it's over—here are a few books which may be especially helpful. They're certainly not the only resources available, but they include the core classics, as well as some more modern books which I personally have found useful. None of these books are required for the class series, and you will not be expected to read any of them.

Andrew Sutton, *Ruler and Compass: Practical Geometric Constructions* (Bloomsbury/Wooden Books, 2009).

We'll be doing some constructions together each week, but if you're looking to continue that practice with more advanced figures, this is book a great place to turn. This small little book gives instructions for more than 175 ruler-and-compass constructions. It's focused entirely on practical techniques rather than philosophical commentary, but as we'll see during the class, simply constructing the geometrical figures will take you a long way, all on its own.

Euclid, *The Thirteen Books of the Elements*, translated with introduction and commentary by Sir Thomas L. Heath (originally Cambridge University Press; reprinted by Dover Publications).

This is the other side of the classical geometrical tradition: formal proofs in the ancient style. Translated into countless languages, Euclid's work was the standard textbook of geometry throughout Europe and the Middle East until the early 20th century. We'll be looking at a very small amount of this material in weeks 2 and 4, but there is much, much more than we'll have time for. Heath's excellent translation is in three volumes. Start with just volume one: it will keep you busy for a while!

Sir Thomas L. Heath, *A Manual of Greek Mathematics* (Oxford University Press, 1930; reprinted by Dover Publications, 1963 and 2003).

This is a nice narrative history of the Greek mathematical tradition (including geometry) from its earliest beginnings, through Euclid, and beyond. This is an abridgment of Heath's two-volume *History Greek Mathematics*. This abridgment leaves out a lot of the technical details (meant for classics scholars or professional mathematicians), to focus on telling a story to ordinary readers. Even with this one-volume version, there's no need to get bogged down in the details of every page; feel free to jump around to topics of interest, or simply to focus on the grand narrative arc.

Proclus, *A Commentary on the First Book of Euclid's Elements*, translated by Glenn R. Morrow (Princeton University Press, 1970).

Written by the head of Plato's Academy sometime in the 5th century CE, this is much more than just a commentary on Euclid. Proclus' two "Prologues" give a sweeping history of mathematics, and a detailed account of the place of geometry in philosophical education. This is the toughest book on this list, filled with lots of high-powered Platonic metaphysics—which is exactly what we'd expect, given its author! The translator does a nice job of helping the reader through, but even so, it's the kind of book you'll need to read several times to really put everything together.

George R. Walker and Jim Tolpin, *By Hand & Eye* (Lost Art Press, 2013).

Written by two professional furniture-makers and designers, this book gives a gentle touch of theory and history, along with plenty of practical exercises. The exercises will train your eye to see the world in geometric proportions, and guide your hand to design furniture (or buildings, or whatever) using compass and dividers, without mathematics or measurements—the way that traditional architects, designers, and craftsmen have done from antiquity through the beginnings of the industrial age. This is not an "academic" treatise. Instead, it's one more link in the same long tradition of harmony and proportion that ancient philosophers, musicians, and artisans were all part of.