The Commentaries of Proclus on the First Book of Euclid's Elements of Geometry Translated by Thomas Taylor (London, 1792) Book II, Chapter 3

Transcribed by David R. Wilkins

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CHAP. III.

From whence the whole of Geometry originated, how far it proceeds, and in what its Utility consists.

But, beginning still higher, let us contemplate the whole of geometry, from whence it originated, and how far it proceeds in its energies: for thus we shall properly perceive the ornament which it contains. Indeed, it is necessary to understand that it is extended through the universality of things: that it accommodates its animadversions[40] to all beings; and contains in itself the forms of all things: that, according to its supreme part, and which is endued with the highest power of intelligence, it surveys true beings; and teaches by images the properties of divine ornaments, and the powers of intellectual forms: for it contains the reasons of these also in its peculiar contemplations. And it exhibits what figures are convenient to the god, to primary essences, and to the natures of souls. But, according to its middle cognitions, it evolves cogitative reasons; explains and beholds the variety which they contain; exhibits their existence, and inherent passions; as also, their communities and diversities. From which, indeed, it comprehends, in terminated bounds, the imaginative formations of figures, and reduces them to the essential substance of reasons. But, according to the third propagations of cogitative intelligence, it considers nature, and delivers the manner in which the forms of sensible elements, and the powers which they contain, are previously received according to cause, in the reasons themselves. For it possesses, indeed, the images of universal intelligible genera; but the exemplars of such as are sensible: and completes its own essence, according to such things as are subject to cogitation. And through these, as though proper mediums, it ascends and descends to those universals which truly

[40]Intellections are universally correspondent to their objects, and participate of evidence or the contrary, in proportion as their subjects are lucid or obscure. Hence, Porphyry, in his sentences, justly observes, that "we do not understand in a similar manner with all the powers of the soul, but according to the particular essence of each. For with the intellect we understand intellectually; and with the soul, rationally: our knowledge of plants is according to a seminal conception; our understanding of bodies is imaginative; and our intelleftion of the divinely solitary principle of the universe, who is above all things, is in a manner superior to intellectual perception, and by a super-essential energy." Ἀφορμαὶ πρὸς τὰ Νοητὰ. (10.) So that, in consequence of this reasoning, the speculations of geometry are then most true, when most abstracted from sensible and material natures.

are, and to sensible forms which are in a state of perpetual formation. But always geometrically philosophising concerning the things which are, it comprehends in all the proportions of virtues, the images of intellectual, animal, and natural concerns. And it delivers, in an orderly manner, all the ornaments of republics: and exhibits in itself their various mutations. Such then are its energies arising from a certain immaterial power of cognition: but when it touches upon matter, it produces from itself a multitude of sciences; such as geodæsia, mechanics, and perspective: by which it procures the greatest benefit to the life of mortals. For it constructs by these sciences, war-instruments, and the bulwarks of cities; and makes known the circuits of mountains, and the situations of places. Lastly, it instructs us in measures: at one time of the diversified ways of the earth; and at another, of the restless paths of the deep. Add too, that it constructs balances and scales, by which it renders to cities a sure equality according to the invariable standard of number. Likewise, it clearly expresses, by images, the order of the whole orb of the earth; and by these, manifests many things incredible to mankind, and renders them credible to all. Such, indeed, as Hiero of Syracuse is reported to have said of Archimedes[41], when he had fabricated a ship furnished with three sails, which he had prepared to send to Ptolemy king of Egypt. For when all the Syracusians together, were unable to draw this ship, Archimedes enabled Hiero to draw it himself, without any assistance from others. But he, being astonished, said, From this day, Archimedes shall be believed in whatever he shall affirm. They also report, that Gelo said the same, when Archimedes discovered the weight of the several materials from which his crown was composed, without dissolving their union. And such are the narrations which many of the ancients have delivered to our memory, who were willing to speak in praise of the mathematics: and, on this account, we have placed before the reader, for the present, a few out of the many, as not foreign from our design of exhibiting the knowledge and utility of geometry.

[41]See Plutarch, in the life of Marcellus.