

Iamblichus, *De communi mathematica scientia* XXVI
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*Objections to mathematics as not being worth anything,
and replies ordered in opposition to these objections,
and on several grounds*
(7.7-9)

There have been certain people, both ancient and modern, who have maintained the opposite opinion about the mathematical subjects, criticizing them as utterly useless and as contributing nothing to human life. And some of them undertake it this way: [5] if their end result is useless, the point for which the philosophers say they should be learned, it will necessarily be much more pointless to invest effort in them. [8] And on what the end is, there is pretty much agreement among those who have been most precise about it. [10] For some of them say that it is knowledge of what is unjust and just and bad and good, a knowledge similar to geometry and the other sciences of that sort, while others say it is intelligence about nature as well as that sort of truth, the sort of intelligence that those around Anaxagoras and Parmenides proposed. [79.1-15]

So it should not be overlooked by someone who is going to scrutinize these subjects that everything that is good and beneficial for the life of humans consists in being used and put into action, and not in the mere knowledge. [18] For we are not healthy by being acquainted with what produces health, but rather by applying it to our bodies, nor are we wealthy by knowing about wealth, but by possessing a very substantial amount, nor, most important of all, do we live well by knowing certain beings, but by acting well, for this is truly what it is to be successful. [24] Hence it is appropriate for philosophy as well, if indeed it is beneficial, to be either a practice of good things or else useful for those sorts of practices. [79.15-80.1]

Now then, that it is neither itself a sort of production of things, nor is any other of the sciences previously mentioned, is clear to all; and someone could realize that it is not useful for actions either, from this: [5] **we have the greatest example of this in the sciences that are similar to it and the opinions that underlie them, for we see the geometers being able to do none of those things that they observe by demonstration; and yet to divide an estate, and all the other properties of quantities as well as locations, is something that the land-surveyors can do on the basis of experience, whereas those who know about the mathematical subjects and the arguments about them know how they should act, but are not able to act. [80.1-13]**

The case is similar with music and the other sciences in which the cognitive aspect is divided off from the empirical. [15] **For those who determine the proofs and the arguments about harmony and other things like that are accustomed to enquiring, but take part in none of their practical functions, just like those who do philosophy. [19] In fact, even if they happen to be capable of handling something in them, when they learn the proofs, they automatically do it worse, as if on purpose, whereas those who have no knowledge of the arguments, if they are trained and have correct opinions, are altogether superior for all practical purposes. [23] So too with the subject matter of astronomy such as sun and moon and the other stars; those whose training has been in the causes and the arguments have no knowledge of what is useful for humans, whereas those who have what are called navigational sciences about them are capable of predicting for us storms and winds and many of these**

events. [81.1] Hence for practical activities sciences like this will be entirely useless, and if among activities they miss out on the correct ones, the love of learning misses out on the greatest of goods. [80.13-81.4]

Against those who make these objections we reply that there are mathematical sciences and that these are capable of being taken part in. [7] For **prior things are always more cognizable than posterior things, and what is better in nature than what is worse, for there is knowledge of what is determinate and orderly more than of their opposites, and again of the causes more than of the effects.** [11] *And there are determinate and ordered things among the immovable mathematical forms.* [12] **And prior things are causes more than posterior things (for if they are eliminated, then the things that have their substance <made> out of them are eliminated: if numbers then lines, if lines then surfaces, and if surfaces then solids).** [16] Hence since mathematics is more simple than everything else, they will also be more of a ruler than everything. [17] Hence there will be much more knowledge concerning the things that are better and more authoritative, and capable of being acquired. [19] **For it is a much greater prerequisite to be intelligent about the causes and the elements than about the posterior things; for these are not among the highest things, nor are the primary things naturally <made> out of them; rather, it is out of those <elements> and because of those <causes> that the other things come into being and are manifestly constituted.** [81.5-24]

And that knowledge of mathematics is the greatest of the goods and most valuable of all will be clear from the following. [26] *For reason and wisdom lead among the good things,* [82.1] and there is no other criterion or standard of good things more precise than the intelligent man [3] **For all that this man will choose are good things and their contraries are bad.** [4] **And since everybody chooses most of all what conforms to their own proper dispositions (a just man choosing to live justly, a man with bravery to live bravely, likewise a self-controlled man to live with self-control), it is clear that the intelligent man will choose most of all to be intelligent; for this is the function of that capacity.** [9] Hence it's clear that, according to the most authoritative judgment, **intelligence is supreme among goods.** [11] *And one should not in every case pursue this for the sake of utility, for it is itself desirable on account of itself.* [81.24-82.13]

And as to the benefit and the greatness of the thing, I consider this to have been sufficiently demonstrated; but as to the reason why it is much easier to acquire it than other goods, I was convinced by the following: [17] despite no payment coming from the people to those who do philosophy which would make them keen to exert considerable effort in this way, and despite having given to the other skills a big lead, nevertheless the fact that in running a short time they have surpassed them in precision seems to me to be a sign of the easiness of philosophy. [22] **And again, the fact that everybody feels at home with this and wishes to occupy their leisure with it, renouncing everything else, is no slight evidence that the close attention comes with pleasure; for no one is willing to work hard for a long time.** [26] **In addition to these, its practice greatly differs from all others: philosophers need neither tools nor special places for their job; rather, wherever in the inhabited world the mind runs, it latches onto the truth equally as if it were present everywhere.** [83.2] But these considerations perhaps being out of place, they should be mentioned on another occasion, for it has been demonstrated that intelligence is possible, and why it is the greatest of goods and easy to acquire. [82.13-83.5]

Now admittedly minute precision about the truth is the most recent of the occupations. [7] For their first necessity, after the destruction and the inundation, was to be concerned about their food and staying alive; but when they became more prosperous they worked out the skills that are for pleasure, such as music and so on, and it was when they had more than the necessities that they undertook to do philosophy. [12] And the progress that has now been made from small impulses in a short time by those whose research is about geometry and arguments and the other educational subjects is so great that no other race has made such progress in any of the skills. [16] And yet, whereas everyone helps to urge the other skills onward by publicly honoring them and giving payment to those who have them, those whose business is with these things not only get no exhortation from us, but often actually get prevented by us; [20] still, nevertheless, they have advanced the most, because in their nature they have seniority, for what is later in coming to be takes the lead in substance and in perfection. [83.5-22]

And so the knowledge of mathematics is far superior to all these other kinds of knowledge, having an advantage over all the occupations in beauty and precision. [25] But this is true according to the following argument as well. [84.1] **For the things that are of the same nature in coming to be are the first ones to be taken seriously by humans**, so that they possess as much as possible, but the things that are released from our bodily nature are much more honorable than the first. [84.1-5] For the things that are chosen out of necessity are presupposed, but those that are valuable for themselves and serious are worthy of dignities and honour. [83.23-84.7]

Now then, mathematics turns out to be no small use for the whole of human life, as is very clear to those who take a close look at the functioning of our way of life due to the mathematical arts; [10] *but in fact such things are worth little effort, but the greatest one is the purification of the immortal soul, the leading around of intelligence towards the intelligible, and the communion with the actuality of being.* [14] *But the mathematical science supplies all the good things by preparing them for us, so that I do not know if there is any other method that so contributes to the end result of success.* [17] *For these reasons not only are the opposite arguments shown to be false, but it has also been demonstrated that mathematics is highly useful for us.* [84.7-20]