

Philosophy through Geometry

Merlin CCC, March 2022

Readings for Week 1: The Geometric Ethos

Reading 1A: Plato, *Meno* 80b–82c.[†]

MENO But in what way, Socrates, will you search for a thing of which you are entirely ignorant? For by what mark which may discover it will you look for it when you know none of the marks that distinguish it? Or, if you should not fail of meeting with it, how will you discern it, when met with, to be the very thing you were in search of, and knew nothing of before?

SOC. I apprehend, Meno, what it is you mean. Do you observe how captious a **way of reasoning** you introduce? For it follows from hence, that it is impossible for a man to seek, either for that which he knows, or for that of which he is ignorant. For no man would seek to know what he knows, because he has the knowledge of it already, and has no need of seeking for what he has. Nor could any man seek for what he is ignorant of, because he would not know what he was seeking for.

MENO Do you not think then, Socrates, that this **way of reasoning** is fair and right?

SOC. Not I, for my part.

MENO Can you say in what respect it is wrong?

SOC. I can. For I have heard the **sayings** of men and women who were wise, and knowing in divine things.

MENO What **sayings**?

SOC. Such as I think true, as well as beautiful.

MENO But what sayings were they? and by whom were they uttered?

SOC. Those who uttered them were of the priests and priestesses, such as made it their business to be able to give a **rational account** of those things in which they were employed. The same sayings are delivered also by Pindar, and many other of the poets, as many as are divine. The sayings are these: but do you consider with yourself whether you think them true. These persons then tell us that the soul of man is immortal; that sometimes it ends, which is called dying; and that afterwards it begins again, but never is dissolved; and that for this reason we ought to live, throughout our lives, with all sanctity. For

Persephone will return to the sun above in the ninth year
the souls of those from whom
she will exact punishment for old miseries,
and from these come noble kings,
mighty in strength and greatest in wisdom,
and for the rest of time men will call them sacred heroes.[‡]

[†] All the passages from Plato are taken from the translation of Thomas Taylor and Floyer Sydenham, very slightly modified by David Nowakowski. The numbers/letters (known as Stephanus numbers) refer to the standard edition of Plato's works, and can be found in the margins of all modern translations.

[‡] The translation of this fragment of Pindar (frag. 133, in the standard edition) is from G.M.A. Grube.

The soul then being immortal, having been often born, having beheld the things which are here, the things which are in Hades, and all things, there is nothing of which she has not gained the knowledge. No wonder, therefore, that she is able to recollect, with regard to virtue as well as to other things, what formerly she knew. For all things in nature being linked together in relationship, and the soul having heretofore known all things, nothing hinders but that any man, who has recalled to mind, or, according to the common phrase, who has learnt, one thing only, should of himself recover all his ancient knowledge, and find out again all the rest of things; if he has but courage, and faints not in the midst of his researches. For inquiry and learning is reminiscence all. We therefore ought not to hearken to that sophistical **way of reasoning** aforementioned; for our believing it to be true would make us idle. And, accordingly, the indolent, and such as are averse to taking pains, delight to hear it. But this other way of thinking, which I have just now given you an account of, makes men diligent, sets them at work, and puts them upon inquiry. And as I believe it to be true, I am willing, with your assistance, to inquire into the nature of virtue.

MENO With all my heart, Socrates. But say you this absolutely, that we do not learn any thing; and that all, which we call learning, is only reminiscence? Can you teach me to know this doctrine to be true?

SOC. I observed to you before how full you are of craftiness, O Meno. And, to confirm my observation, you now ask me if I can teach you; I, who say that there is no such thing as teaching, but that all our knowledge is reminiscence; that I may appear directly to contradict myself.

MENO Not so, Socrates, by Zeus. I did not express myself in those terms with any such design; but merely from habit, and the common usage of that expression. But if any way you can prove to me that your doctrine is true, do so.

SOC. This is by no means an easy task. However, for your sake, I am willing to try and do my utmost. Call hither to me then one of those your numerous attendants, whichever you please, that I may prove in him the truth of what I say.

MENO I will, gladly. Come hither, you.

SOC. Is he a Grecian, and speaks he the Greek language?

MENO Perfectly well. He was born in my own family.

SOC. Be attentive now, and observe whether he appears to recollect within himself, or to learn any thing from me.

MENO I shall.

SOC. Tell me, boy; do you know what a square space is? Is it of such a figure as this?

BOY It is.

SOC. A square space then is that which has all these lines equal, four in number.

BOY It is so truly.

[The dialogue between Socrates and the Boy continues through several pages, with a variety of questions, answers, and false starts.]

Reading 1B: Plato, *Meno* 85a–86c.

SOC. Now consider, how large this square is which is enclosed by those four lines.

BOY Why, I do not know.

SOC. Are not those four squares, ABCD, BTUC, CDXW, WYUC, cut each of them in half by these four lines, BD, BU, DW, WU, drawn within them; or are they not?

BOY They be.

SOC. In the square, ATYX, how many spaces are there then, as large as the space ABCD?

BOY Four.

SOC. And how many such in the square, BDWU, from which half the other is cut off?

BOY Two.

SOC. How many more are four than two?

BOY Twice as many.

SOC. How many square feet then doth this square, BDWU, contain?

BOY Eight.

SOC. From what line is it drawn?

BOY From this here.

SOC. From the line BD, do you say, reaching from corner to corner of the square ABCD, which contains four square feet?

BOY Yes.

SOC. The sophists call such a line the diameter. If the diameter then be its name, from the diameter of a square, as you say, you boy of Meno's, may be drawn a square twice as large as the square of which it is the diameter.

BOY It is so, Socrates, for certain.

SOC. Well; what think you, Meno? Has this boy, in his answers, given any other opinion than his own?

MENO None other: he has given his own opinion only.

SOC. And yet, but a little before, as we both observed, he had no knowledge of the matter proposed, and knew not how to give a right answer.

MENO True.

SOC. But those very opinions, which you acknowledge to be his own, were in him all the time: were they not?

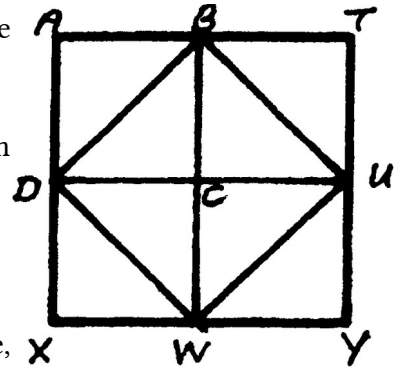
MENO They were.

SOC. In a man therefore, who is ignorant, there are true opinions concerning those very things of which he is ignorant.

MENO It appears there are.

SOC. Those opinions then are stirred up afresh in the mind of that boy, as fancies are in dreaming. And if he should frequently be questioned of these things, and by many different persons, you may be assured he will at length know them with as much certainty as any man.

MENO Indeed, it seems so.



SOC. Will he not then know them without being taught them, having only been asked questions, and recovering of himself from within himself his lost knowledge?

MENO He will.

SOC. But our recovery of knowledge from within ourselves, is not this what we call reminiscence?

MENO Without doubt.

SOC. And this knowledge, which he now has, must he not at some time or other have acquired it, or else have always been possessed of it?

MENO Certainly.

SOC. Now if he was always possessed of it, he was always a person of knowledge. But if at any time he first received it, was it not in this present life? unless some person has taught him the science of geometry. For he will make his answers with no less certainty in every part of geometry, and indeed in all the other mathematical sciences. Is there any one, then, who has taught the boy all this? I ask you; because you ought to know, since he was born and bred up in your family.

MENO I am certain that no person has ever taught him those sciences.

SOC. And yet he entertains those opinions, which he has just now declared: does he not?

MENO It appears, Socrates, that he must.

SOC. If then he had this knowledge within him, not having acquired it in this present life, it is plain that in some other time he had learnt it and actually possessed it.

MENO It appears so.

SOC. And was not that time then, when he was not a man?

MENO Certainly.

SOC. If true opinions then are in him, at both these times, the time when he is, and the time when he is not a man; opinions which, awakened and roused by questions, rise up into science; must not his soul be well furnished with this discipline throughout all ages? for it is plain, that in every age he either is, or is not a man.

MENO In all appearance it must be so.

SOC. If the truth of things therefore is always in the soul, the soul should be immortal. So that whatever you happen now not to know, that is, not to remember, you ought to undertake with confidence to seek within yourself, and recall it to your mind.

MENO You seem to me, Socrates, some how or other to speak rightly.

SOC. As to my own part, Meno, I would not contend very strenuously for the truth of my **argument** in other respects; but that in thinking it our duty to seek after the knowledge of things we are at present ignorant of, we should become better men, more manly, and less idle, than if we suppose it not possible for us to find out, nor our duty to inquire into, what we know not; this I would, if I was able, strongly, both by word and deed, maintain.

MENO In this also, Socrates, you seem to me to say well.

Reading 2: Plato, *Phaedo* 72e–74a.

CEBES But according to that doctrine, Socrates, which you are frequently accustomed to employ (if it is true), that learning, with respect to us, is nothing else than reminiscence; according to this, it is necessary that we must have learned the things which we now call to mind in some former period of time. But this is impossible, unless our soul subsisted somewhere before it took up its residence in this human form; so that from hence the soul will appear to be a certain immortal nature.

SIMMIAS But, Cebes, recall into my memory what demonstrations there are of these particulars; for I do not very much remember them at present.

CEBES The truth of this is evinced by one argument, and that a most beautiful one; that men, when interrogated, if they are but interrogated properly, will speak about every thing just as it is. At the same time, they could never do this unless science[†] and right reason resided in their natures. And, in the second place, if any one leads them to diagrams, or any thing of this kind, he will in these most clearly discover that this is really the case.

SOC. But if you are not persuaded from this, Simmias, see if, from considering the subject in this manner, you will perceive as we do. For you do not believe how that which is called learning is reminiscence.

SIMMIAS I do not disbelieve it; but I desire to be informed concerning this, which is the subject of our discourse, I mean reminiscence; and indeed, from what Cebes has endeavoured to say, I almost now remember, and am persuaded: but nevertheless I would at present hear how you attempt to support this opinion.

SOC. We defend it then as follows: we confess without doubt, that if any one calls any thing to mind, it is necessary that at some time or other he should have previously known this.

SIMMIAS Entirely so.

SOC. Shall we not confess this also, that when science is produced in us, after some particular manner, it is reminiscence? But I mean by a particular manner, thus: If any one, upon seeing or hearing any thing, or apprehending it through the medium of any other sense, should not only know it, but should also think upon something else, of which there is not the same, but a different science, should we not justly say, that he recollects or remembers the particular, of which he receives a mental conception?

SIMMIAS How do you mean?

SOC. Thus: In a certain respect the science of a man is different from that of a lyre.

SIMMIAS How should it not?

SOC. Do you not, therefore, know that lovers when they see a lyre, or a vestment, or any thing else which the objects of their affection were accustomed to use, no sooner know the lyre, than they immediately receive in their intellectual[‡] part the form of the beloved person to whom the lyre belonged? But this is no other than reminiscence: just

† Here and throughout, the translators are using the original English meaning of “science,” as a synonym for “knowledge” (from the Latin root *scio, sciere*, meaning “to know”), as a translation of the Greek term *episteme*. Compared to how the word “science” is used today, this older sense has a much wider scope than we’re used to.

‡ Taylor and Sydenham use the technical term “dianoëtic” here. We’ll come back to this term in our discussion of the “Divided Line” in Plato’s *Republic*, during week 3 of the series.

as any one, upon seeing Simmias, often recollects Cebes; and in a certain respect an infinite number of such particulars continually occur.

SIMMIAS An infinite number indeed, by Zeus.

SOC. Is not then something of this kind a certain reminiscence; and then especially so, when any one experiences this affection about things which, through time, and ceasing to consider them, he has now forgotten?

SIMMIAS Entirely so.

SOC. But what, does it happen, that when any one sees a painted horse and a painted lyre, he calls to mind a man? and that when he beholds a picture of Simmias, he recollects Cebes?

SIMMIAS Entirely so.

SOC. And will it not also happen, that on seeing a picture of Simmias he will recollect Simmias himself?

SIMMIAS It certainly will happen so.

SOC. Does it not therefore follow, that in all these instances reminiscence partly takes place from things similar, and partly from such as are dissimilar?

SIMMIAS It does.

SOC. But when any one recollects any thing from similars, must it not also happen to him, that he must know whether this similitude is deficient in any respect, as to likeness, from that particular of which he has the remembrance?

SIMMIAS It is necessary.

SOC. Consider then if the following particulars are thus circumstanced: Do we say that any thing is in a certain respect equal? I do not say one piece of wood to another, nor one stone to another, nor any thing else of this kind; but do we say that *equal itself*, which is something different from all these, is something or nothing?

SIMMIAS We say it is something different, by Zeus, Socrates, and that in a wonderful manner.

SOC. Have we also a scientific knowledge of that which is equal itself?

SIMMIAS Entirely so.

SOC. But from whence do we receive the science of it? Is it not from the particulars we have just now spoken of, viz. on seeing wood, stones, or other things of this kind, which are equals, do we not form a conception of that which is different from these? But consider the affair in this manner: Do not equal stones and pieces of wood, which sometimes remain the same, at one time appear equal, and at another not?

SIMMIAS Entirely so.

SOC. But what, can *equals themselves* ever appear to you unequal? or can equality seem to be inequality?

SIMMIAS By no means, Socrates.

SOC. These equals, therefore, are not the same with equal itself.

SIMMIAS By no means, Socrates, as it appears to me.

SOC. But from these equals, which are different from equal itself, you at the same time understand and receive the science of *equal itself*.

SIMMIAS You speak most true.

SOC. Is it not, therefore, either similar to these or dissimilar?

SIMMIAS Entirely so.

SOC. But indeed this is of no consequence: for while, in consequence of seeing one thing, you understand another, from the view of this, whether it is dissimilar or similar, it is necessary that this conception of another thing should be reminiscence.

SIMMIAS Entirely so.

SOC. But what will you determine concerning this? Do we suffer any thing of this kind respecting the equality in pieces of wood, and other such equals as we have just now spoken of? and do they appear to us to be equal in the same manner as equal itself? and is something or nothing wanting, through which they are less equal than equal itself?

SIMMIAS There is much wanting.

SOC. Must we not, therefore, confess, that when any one, on beholding some particular thing, understands that he wishes this which I now perceive to be such as something else is, but that it is deficient, and falls short of its perfection; must we not confess that he who understands this, necessarily had a previous knowledge of that to which he asserts this to be similar, but in a defective degree?

SIMMIAS It is necessary.

SOC. What then, do we suffer something of this kind or not about equals and equal itself?

SIMMIAS Perfectly so.

SOC. It is necessary, therefore, that we must have previously known *equal itself* before that time, in which, from first seeing equal things, we understood that we desired all these to be such as *equal itself*, but that they had a defective subsistence.

SIMMIAS It is so.

SOC. But this also we must confess, that we neither understood this, nor are able to understand it, by any other means than either by the sight, or the touch, or some other of the senses.

SIMMIAS I speak in the same manner about all these. For they are the same, Socrates, with respect to that which your discourse wishes to evince. But indeed, from the senses, it is necessary to understand that all equals in sensible objects aspire after *equal itself*, and are deficient from its perfection. Or how shall we say?

SOC. In this manner: Before, therefore, we begin to see, or hear, and to perceive other things, it necessarily follows, that we must in a certain respect have received the science of *equal itself*, so as to know what it is, or else we could never refer the equals among sensibles to *equal itself*, and be convinced that all these desire to become such as *equal itself*, but fall short of its perfection.

SIMMIAS This, Socrates, is necessary, from what has been previously said.

SOC. But do we not, as soon as we are born, see and hear, and possess the other senses?

SIMMIAS Entirely so.

SOC. But we have said it is necessary that prior to these we should have received the science of *equal itself*.

SIMMIAS Certainly.

SOC. We must necessarily, therefore, as it appears, have received it before we were born.

SIMMIAS It appears so.

SOC. If, therefore, receiving this before we were born, we were born possessing it; we both knew prior to our birth, and as soon as we were born, not only *the equal, the greater, and the lesser*, but every thing of this kind: for our discourse at present is not more concerning *the equal* than *the beautiful, the good, the just, and the holy*, and in one word, about every thing which we mark with the signature of *that which is*, both in our interrogations when we interrogate, and in our answers when we reply: so that it is necessary we should have received the science of all these before we were born.

SIMMIAS All this is true.

SOC. And if, since we receive these sciences, we did not forget each of them, we should always be born knowing, and should always know them, through the whole course of our life: for to know is nothing else than this, to retain the science which we have received, and not to lose it. Or do we not call oblivion the loss of science?

SIMMIAS Entirely so, Socrates.

SOC. But if, receiving science before we were born, we lose it at the time of our birth, and afterwards, through exercising the senses about these particulars, receive back again those sciences which we once before possessed, will not that which we call learning be a recovery of our own proper science? and shall we not speak rightly when we call this a certain reminiscence?

SIMMIAS Entirely so.

SOC. For this appears to be possible, that when any one perceives any thing, either by seeing or hearing, or employing any other sense, he may at the same time know something different from this, which he had forgotten, and to which this approaches, whether it is dissimilar or similar. So that, as I said, one of these two things must be the consequence: either that we were born knowing these, and possess a knowledge of all of them, through the whole of our life; or that we only remember what we are said to learn afterwards; and thus learning will be reminiscence.

SIMMIAS The case is perfectly so, Socrates.