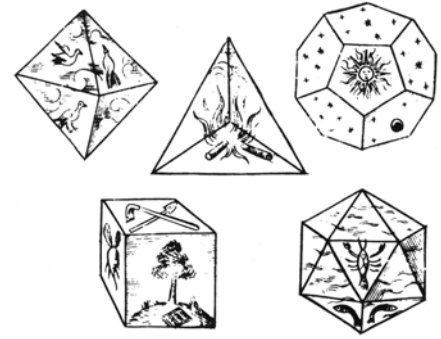


Tetraktys

The Theology of Arithmetic



The five regular solids

What is the importance of number?

What are the problems with number?

What is the advantage of a numerical account?

What is the advantage of imagery or narrative accounts?

What is the importance of applying number to phenomena, i.e., counting?

What are the problems of applying number to phenomena, i.e., counting?

What can be done with number that cannot be done otherwise?

For whom? When? In what circumstances?

Philolaus in Stobaeus 1.3.8 (DK11)

The power, efficacy and essence of Number is seen in the Decad; it is great, it realizes all its purposes, and it is the cause of all effects. The power of the Decad is the principle and guide of all life, divine, celestial, or human into which it is insinuated; without it everything is unlimited, obscure, and furtive. Indeed, it is the nature of Number which teaches us comprehension, which serves us as a guide, and teaches us all things which would otherwise remain impenetrable and unknown to every man. For there is nobody who could get a clear notion about things in themselves, nor in their relations, if there was no Number or Number-essence. By means of sensation, Number instills a certain proportion, and thereby establishes among all things harmonic relations, analogous to the nature of the geometric figure called the gnomon; it incorporates intelligible reasons of things, separates them, individualizes them, both in limited and unlimited things. And it is not only in matters pertaining to daimons or Gods that you may see the force manifested by the nature and power of Number, but it is in all its works, in all human thoughts, everywhere indeed, and even in the productions of arts and music. The Nature and Harmony are numberless, for what is false has no part in their essence and the principle of error and envy is thoughtless, irrational, indefinite nature. Never could error slip into Nature, for its nature is hostile thereto. Truth is the proper, innate character of Number.

Alexander Polyhistor in Diogenes Laertius VIII.24-25

This principle of all things is the monad or unit; arising from this monad the unlimited dyad or two serves as material substratum to the monad, which is cause; from the monad and the unlimited dyad spring numbers; from numbers, points; from points, lines; from lines, plane figures; from plane figures, solid figures; from solid figures, sensible bodies, the elements of which are four, fire, water, earth and air; these elements interchange and turn into one another completely, and combine to produce a universe, animate, intelligent, spherical.

Macrobius, Commentary on Cicero's Dream of Scipio I.vi.7-8, 10-11

The one is called *monas*, that is Unity, and is both male and female, odd and even, itself not a number, but the source and origin of numbers. This monad, the beginning and ending of all things, yet itself not knowing a beginning or ending, refers to the Supreme God ... Be not disturbed over the fact that although the monad seems to surpass all numbers it is especially praiseworthy in conjunction with seven: the incorrupt monad is joined with no number more appropriately than with the Virgin. The reputation of virginity has so grown about the number seven that it is called Pallas (Athena). Indeed, it is regarded as a virgin because, when doubled, it produces no number under ten, the latter being truly the first limit of numbers. It is Pallas because it is born only from the multiplication of the monad, just as Minerva alone is said to have been born of one parent.

Pseudo-Iamblichus, Theology of Arithmetic 13-14

From division into two, they call the dyad 'Justice' {*dikeê*} (as it were 'dichotomy' {*dikebê*}), and they call it Isis, not only because the product of its multiplication is equal {*ison*} to the sum of its addition, as we said, but also because it alone does not admit division into unequal parts. And they call it Nature, since it is movement towards being and, as it were a sort of coming-to-be and extension from a seed principle. ... They also name it Diometor, the mother of Zeus (they said the monad was Zeus), and Rhea, after its flux and

extension, which are the properties both of the dyad and of Nature, which is in all respects coming into being. And they say that the name dyad is suited to the moon, both because it admits of more settings *{duseis}* than any of the other planets, and because the moon is halved or divided into two.

Plato, Republic VIII 529b-530c

[529b] And I dare say that if a person were to throw his head back and study the fretted ceiling, you would still think that his mind was the percipient, and not his eyes. And you are very likely right, and I may be a simpleton: but, in my opinion, that knowledge only which is of being and of the unseen can make the soul look upwards, and whether a man gapes at the heavens or blinks on the ground, seeking to learn some particular of sense, I would deny that he can learn, for nothing of that sort is matter of science; his soul is looking downwards, not upwards, [529c] whether his way to knowledge is by water or by land, whether he floats, or only lies on his back.

I acknowledge, he said, the justice of your rebuke. Still, I should like to ascertain how astronomy can be learned in any manner more conducive to that knowledge of which we are speaking?

I will tell you, I said: The starry heaven which we behold is wrought upon a visible ground, and therefore, although the fairest and [529d] most perfect of visible things, must necessarily be deemed inferior far to the true motions of absolute swiftness and absolute slowness, which are relative to each other, and carry with them that which is contained in them, in the true number and in every true figure. Now, these are to be apprehended by reason and intelligence, but not by sight.

True, he replied.

The spangled heavens should be used as a pattern and with a view to that higher knowledge; [529e] their beauty is like the beauty of figures or pictures excellently wrought by the hand of Daedalus, or some other great artist, which we may chance to behold; any geometrician who saw them would appreciate the exquisiteness of their workmanship, but he would never dream of thinking that in them he could find the true [530a] equal or the true double, or the truth of any other proportion.

No, he replied, such an idea would be ridiculous.

And will not a true astronomer have the same feeling when he looks at the movements of the stars? Will he not think that heaven and the things in heaven are framed by the Creator of them in the most perfect manner? But he will never imagine that the proportions of night and day, or of both to the month, or of the month to the year, or [530b] of the stars to these and to one another, and any other things that are material and visible can also be eternal and subject to no deviation -- that would be absurd; and it is equally absurd to take so much pains in investigating their exact truth.

I quite agree, though I never thought of this before.

Then, I said, in astronomy, as in geometry, we should employ problems, and [530c] let the heavens alone if we would approach the subject in the right way and so make the natural gift of reason to be of any real use.

Plato, Republic X 616b-617d

Now when the spirits which were in the meadow had tarried seven days, on the eighth they were obliged to proceed on their journey, and, on the fourth day after, he said that they came to a place where they could see from above a line of light, straight as a column, extending right through the whole heaven and through the earth, in colour resembling the rainbow, only brighter and purer; another day's journey [616c] brought them to the place, and there, in the midst of the light, they saw the ends of the chains of heaven let down from above: for this light is the belt of heaven, and holds together the circle of the universe, like the under-girders of a trireme. From these ends is extended the spindle of Necessity, on which all the revolutions turn. The shaft and hook of this spindle are made of steel, and the whorl is made partly of steel and also partly of other materials. Now the whorl is [616d] in form like the whorl used on earth; and the description of it implied that there is one large hollow whorl which is quite scooped out, and into this is fitted another lesser one, and another, and another, and four others, making eight in all, like vessels which fit into one another; the whorls [616e] show their edges on the upper side, and on their lower side all together form one continuous whorl. This is pierced by the spindle, which is driven home through the centre of the eighth. The first and outermost whorl has the rim broadest, and the seven inner whorls are narrower, in the following proportions -- the sixth is next to the first in size, the fourth next to the sixth; then comes the eighth; the seventh is fifth, the fifth is sixth, the third is seventh, last and eighth comes the second. The largest [of fixed stars] is spangled, and the seventh [or sun] is brightest; the eighth [or moon] [617a] coloured by the reflected light of the seventh; the second and fifth [Saturn and Mercury] are in colour like one another, and yellower than the preceding; the third [Venus] has the whitest light; the fourth [Mars] is reddish; the sixth [Jupiter] is in whiteness second. Now the whole spindle has the same motion; but, as the whole revolves in one direction, the seven inner circles move slowly in the other, and of these the swiftest is the eighth; [617b] next in swiftness are the seventh, sixth, and fifth, which move together; third in swiftness appeared to move according to the law of this reversed motion the fourth; the third appeared fourth and the second fifth. The spindle turns on the knees of Necessity; and on the upper surface of each circle is a siren, who goes round with them, hymning a single tone or note. The eight together form one harmony; and round about, at equal intervals, [617c] there is another band, three in number, each sitting upon her throne: these are the Fates, daughters of Necessity, who are clothed in white robes and have chaplets upon their heads, Lachesis and Clotho and Atropos, who accompany with their voices the harmony of the sirens -- Lachesis singing of the past, Clotho of the present, Atropos of the future; Clotho from time to time assisting with a touch of her right hand the revolution of the outer circle of the whorl or spindle, and Atropos with her left hand touching and guiding the inner ones, and Lachesis [617d] laying hold of either in turn, first with one hand and then with the other.