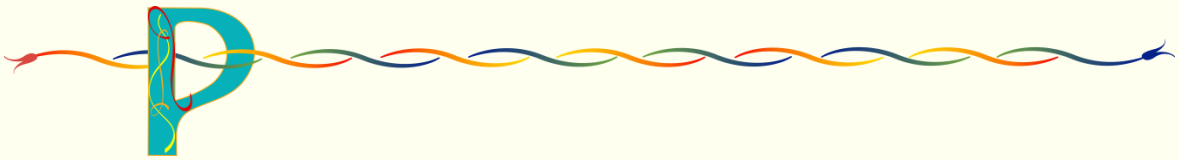
Plutarch on Plato's procreation of the soul in Timaeus

Train of thoughts[1]

- Opinion of Plato concerning the soul
- Quotation from the *Timæus* of Plato.
- Opinions of Xenocrates and Crantor.
- Plato held the eternity of matter.
- Nature of the soul, according to Plato.
- The material of which the world was formed, originally a shapeless mass existing from eternity.
- It was arranged in perfect and beautiful forms by God.
- The soul of the world.
- Origin of evil.
- Reconciliation of Plato with himself.
- His real meaning.
- The four original elements of all created, corporeal things.
- The soul is both created and uncreated.
- The subject illustrated by geometry and the doctrine of ratios.
- And by the musical scale.
- Relation of spirit to matter.
- The opinion of those philosophers refuted who make the soul a compound of both.
- The soul of the world, what?
- The divisible and the indivisible: the Other and the Same.
- The four elements, how related.
- Generation, what?

[1] See Boeckh's dissertation *Ueber die Bildung der Weltseele im Timæos des Platon*, now reprinted in his Kleine Schriften, III, *pp.* 109-180. For the passages relating to music, see Westphal's *Harmonik und Melopöie der Griechen*, *pp.* 134-36. See also the note prefixed to Plutarch on Music, Vol. I, *p.* 102. (G.)

- Two discordant principles rule the world — Fate or Necessity, and Intelligence or Wisdom.
- The soul is not altogether the workmanship of the Deity.
- Another illustration from geometry.
- Illustration from the planetary system.
- And from musical science.



Plato on the procreation of the soul.

Published under the title "Concerning the procreation of the soul, as discoursed in Timæus" in: *Plutarch's Morals*. Translated from the Greek by Several Hands. Corrected and revised by William W. Goodwin with an Introduction by Ralph Waldo Emerson. (1st ed. 1684-1694, London, 5-vols.) Boston: Little, Brown, & Co., 1878 (based on the 5th ed. of 1718); Vol. II, *pp.* 326-67. This article was translated by John Philips.

THE FATHER TO AUTOBULUS AND PLUTARCH WISHETH HEALTH

1 Since it is your opinion that it would be requisite for me to collect together what I have discoursed and written dispersedly in several treatises explaining, as we apprehended his sense and meaning, what opinion Plato had concerning the soul, as requiring a particular commentary by itself; therefore I have compiled this discourse, which asks for your consideration and pardon not only because the matter itself is by no means easy to be handled, but also because the doctrines herein contained are somewhat contrary to those held by most of the Platonic philosophers. And I will first rehearse the words as they run originally in the text itself of *Timæus*.[1]

> There being one substance not admitting of division, but continuing still the same, and another liable to be divided among several bodies, out of both these he produced for a middle mixture a third sort of Substance, partaking of the nature of the Same and of the nature of the Other, and placed it in the midst between that which was indivisible and that which was subject to be corporeally divided. Then taking all three, he blended them into one form, forcibly adapting to the Same the nature of the Other, not readily condescending to a mixture. Now when he had thus mixed them with the Substance, and reduced the three into one, he again divided this whole matter into so many parts as were thought to be necessary; every one of these parts being composed of the Same, the Other, and the Substance And thus he began his division.

By the way, it would be an endless toil to recite the contentions and disputes that have from hence arisen among his interpreters, and to you indeed superfluous, who are not ignorant yourselves of the greatest part.

But seeing that Xenocrates won to his opinions several of the most eminent philosophers, while he defined the substance of the soul to be number moved by itself; and that many adhered to Crantor the Solian, who affirmed the soul to consist partly of an essence perceptible to the mind, partly of a nature concerned with sensible things and subject to opinions; I am apt to believe that the perspicuity of these matters clearly dilucidated will afford you a fair entrance into the knowledge of the rest.

[1] *Timæus*, *p.* 35a-b

2 Nor does either of the two conjectures require many words of explanation. For the one side pretends that by the mixture of the divisible and indivisible substance no other thing is meant than the generation or original of number, seeing that the unit is undividable but multitude is subject to division; however, that out of these is begot number, unity terminating plurality and putting a period to infinity, which they call the unlimited binary. This binary Zaratas, the scholar of Pythagoras, named the mother, but the unit the father of number; and therefore he believed those numbers were the best which approached nearest in resemblance to the unit. Nevertheless, this number cannot be said to be the soul; for it neither has the power to move, neither can it be moved. But the Same and the Other being blended together, of which one is the original of motion and mutation, the other of rest and stability, from these two springs the soul, which is no less active or passive itself to stay or to be stayed, than to move or to be moved.

But the followers of Crantor, supposing the proper function of the soul to consist in judging of those things which are discernible to the understanding and those which are liable to sense, as also of the differences and similitudes of these things, as well in themselves as in reference one to another, allege the soul to be composed of all, to the end she may have a true knowledge of the whole. Now the things of which the All is composed are fourfold — the intelligible nature, always immutable and still the same, and the sensitive nature, which is passive and subject to alteration; and also the nature of the Same, and the nature of the Other, in regard the two former in some measure participate also of diversity and identity.

3 All these philosophers likewise equally hold that the soul neither derives its beginning from time nor is the product of generation, but that it is endued with several faculties and virtues, into which Plato, as it were, melting and dissolving its substance for contemplation's sake, supposes it in his discourse to have had its original from procreation and mixture.

The same was his opinion concerning the world; for he knew it to be uncreated and without end, but not perceiving it so easy to apprehend how the structure was reared, or by what order and government supported, unless by admitting its beginning and the causes thereto concurring, he followed that method to instruct himself. These things being thus generally by them laid down, Eudorus will allow to neither side any share of probability; and indeed to me they both seem to have wandered from the opinion of Plato, if we intend to make the most likely rule our guide — which is not to advance our own conceits, but to come as close as we can to his sense and meaning. Now as to this same mixture (as they call it) of the intelligible and sensitive substance, no reason appears why it should be more the original of the soul than of any other thing that ye can name. For the whole world itself and every one of its parts pretend to no other composition than of a sensitive and an intelligible substance, of which the one affords matter and foundation, the other form and figure to the whole mass. And then again, whate'er there is of material substance, framed and structured by participation and assimilation of the intelligible nature is not only to be felt but visible to the eye; whenas the soul still soars above the reach of all natural apprehension. Neither did Plato ever assert the soul to be number, but a perpetually self-moving nature, the fountain and principle of motion. Only he embel-

lished and adorned the substance of it with number, proportion, and harmony; as being a subject capable of receiving the most goodly form which those ornaments could produce. So that I cannot believe it to be the same thing to compose the soul according to number, and to affirm the soul to be number itself. Nor can it be said to be harmony because harmoniously composed, as he has clearly demonstrated in his Treatise of the Soul. But plain it is, that those philosophers understood not the meaning of the Same and the Other. For they tell us how the Same contributes rest, the Other motion toward the generation of the soul. Though Plato himself, in his treatise entitled the Sophist, disposes and distinguishes Essence, the Same, the Other, together with Motion and Rest, as being five things altogether differing one from another and void of mutual affinity.

4 But these men are generally, as the most part of Plato's readers, timorous and vainly perplexed, using all their endeavours by wresting and tormenting his sense to conceal and hide what he has written, as if it were some terrible novelty not fit for public view, that the world and the soul neither had their beginning and composition from eternity, nor had their essence from a boundless immensity of time — of which we have particularly spoken already. So that now it shall suffice to say no more than this, that these writers confound and smother (if they do not rather utterly abolish) his eager contest and dispute in behalf of the Gods, wherein Plato confesses himself to have been transported with an ambitious zeal, even beyond the strength of his years, against the atheists of his time. For if the world had no beginning, Plato's opinion vanishes — that the soul, much elder than the body, is the principle of all motion and alteration, or (to use his own words) their chieftain and first efficient cause, whose mansion is in Nature's secret retirements. But what the soul is, what the body, and why the soul is said to have been elder than the body, shall be made appear in the progress of this discourse. The ignorance of this seems to have been the occasion of much doubt and incredulity in reference to the true opinion.

5 First therefore, I shall propose my own sentiments concerning these things, desiring to gain credit no otherwise than by the most probable strength of arguments, explaining and reconciling to the utmost of my ability truth and paradox together; after which I shall apply both the explication and demonstration to the words of the text. In my opinion then the business lies thus. The world, saith Heraclitus, neither did any one of all the Gods nor any mortal man create — as if he had been afraid that, not being able to make out the creation by a Deity, we should be constrained to acknowledge some man to have been the architect of the universe. But certainly far better it is, in submission to Plato's judgment, to avow, both in discourse and in our songs of praise, that the glory of the structure belongs to God — for the frame itself is the most beautiful of all masterpieces, and God the most illustrious of all causes — but that the substance and materials were not created, but always ready at the ordering and disposal of the Omnipotent Builder, to give it form and figure, as near as might be, approaching to his own resemblance. For the creation was not out of nothing, but out of matter wanting beauty and perfection, like the rude materials of a house, a garment, or a statue, lying first in shapeless confusion. For before the creation of the world there was nothing but a confused heap; yet was that confused heap neither without a body, without motion, nor without a soul. The corporeal part was without form or consistence, and the moving part stupid and headlong; and this was

the disorder of a soul not guided by reason. God neither incorporated that which is incorporeal, nor conveyed a soul into that which had none before; like a person either musical or poetical, who does not make either the voice or the movement, but only reduces the voice with harmony, and graces the movement with proper measures. Thus God did not make the tangible and resistant solidity of the corporeal substance, nor the imaginative or moving faculties of the soul; but taking these two principles as they lay ready at hand — the one obscure and dark, the other turbulent and senseless, both imperfect without the bounds of order and decency — he disposed, digested, and embellished the confused mass, so that he brought to perfection a most absolute and glorious creature. Therefore the substance of the body is no other than that all-receiving Nature, the seat and nurse of all created beings.

6 But the substance of the soul, in Philebus, he called an infinite being, the privation of number and proportion; having neither period nor measure either of diminution or excess or distinction or dissimilitude. But as to that order which he alleges in *Timæus* to be the mixture of nature with the indivisible substance, but which being applied to bodies becomes liable to division — he would not have it thought to be a bulk made up by units or points, nor longitude and breadth, which are qualities more consentaneous to bodies than to the soul, but that disorderly unlimited principle, moving both itself and other substances, that which he frequently calls necessity, and which within his treatise of laws he openly styles the disorderly, ill-acting, or harm-doing soul. For such was this soul of herself; but at length she came to partake of understanding, ratiocination, and harmony, that she might be the soul of the world. Now that all-receiving principle of matter enjoyed both magnitude, space, and distance; but beauty, form, and measure of proportion it had none. However, all these it obtained, to the end that, when it came to be thus embellished and adorned, it might assume the form of all the various bodies and organs of the earth, the sea, the heavens, the stars, and of all those infinite varieties of plants and living creatures. Now as for those who attribute to this matter, and not to the soul, that which in *Timæus* is called necessity, in Philebus vast disproportion and unlimited exorbitancy of diminution and excess — they can never maintain it to be the cause of disorder, since Plato always alleges that same matter to be without any form or figures, and altogether destitute of any quality or effectual virtue properly belonging to it; comparing it to such oils as have no scent at all, which the perfumers mix in their tinctures. For there is no likelihood that Plato would suppose that to be the cause and principle of evil which is altogether void of quality in itself, sluggish, and never to be roused on to action, and yet at the same time brand this immensity with the harsh epithets of base and mischievous, and call it necessity repugnant and contumaciously rebellious against God. For this same necessity, which renverses heaven (to use his own phrase in his *Politicus*) and turns it the quite contrary way from decency and symmetry, together with innate concupiscence, and that inbred confusion of ancient nature, hurly-burly'd with all manner of disorder, before they were wrought and kneaded into the graceful decorum of the world — whence came they to be conveyed into several varieties of forms and beings, if the subject, which is the first matter, were void of all quality whatsoever and deprived of all efficient cause; more especially the Architect being so good of himself, and intending a frame the nearest approaching to his own perfections? For besides these there is no third prin-

ciple. And indeed, we should stumble into the perplexed intricacies of the Stoics, should we advance evil into the world out of nonentity, without either any preceding cause or effect of generation, in regard that among those principles that have a being, it is not probable that either real good or that which is destitute of all manner of quality should afford birth or substance to evil. But Plato escaped those pitfalls into which they blundered who came after him; who, neglecting what he carefully embraced, the third principle and energetic virtue in the middle between God and the first matter, maintain the most absurd of arguments, affirming the nature of evils to have crept in spontaneously and adventitiously, I know not how nor by what strange accidents. And yet they will not allow an atom of Epicurus so much as a moment's liberty to shift in its station, which, as they say, would infer motion out of nonentity without any impulsive cause; nevertheless themselves presuming all this while to affirm that vice and wickedness, together with a thousand other incongruities and vexations afflicting the body, of which no cause can be ascribed to any of the principles, came into being (as it were) "by consequence."

7 Plato however does not so; who, despoiling the first matter of all manner of distinction, and separating from God, as far as it is possible, the causes of evil, has thus delivered himself concerning the world, in his *Politicus*. Saith he:

> The world received from the Illustrious Builder all things beautiful and lovely; but whatsoever happens to be noxious and irregular in heaven, it derives from its ancient habit and disposition, and conveys them into the several creatures.

And a little farther in the same treatise he saith:

> In process of time, when oblivion had encroached upon the world, the distemper of its ancient confusion more prevailed, and the hazard is, lest being dissolved it should again be sunk and plunged into the immense abyss of its former irregularity.

But there can be no dissimilitude in the first matter, as being void of quality and distinction.

Of which when Eudemus with several others was altogether ignorant, he seems deridingly to cavil with Plato, and taxes him with asserting the first matter to be the cause, the root, and principle of all evil, which he had at other times so frequently dignified with the tender appellations of mother and nurse. Whereas Plato gives to matter only the titles of the mother and nurse; but the cause of evil he makes to be the moving force residing within it, not governed by order and reason though not without a soul neither, which, in his treatise of the Laws, he calls expressly the soul repugnant and in hostility with that other propitiously and kindly acting. For though the soul be the principle of motion, yet is it the understanding and intelligence which measures that motion by order and harmony, and is the cause of both. For God could not have brought to rest mere sleepy and sluggish matter, but he brought it to rest when it had been troubled and disquieted by a senseless and stupid cause. Neither did he infuse into nature the principles of alteration and affections; but when it was under the pressure of those unruly disorders and alterations, he discharged it of its manifold enormities and irregularities, making use of symmetry, proportion, and number. For these are the most proper instruments, not by alteration and lawless

motion to distract the several beings with passions and distinctions, but rather to render them fixed and stable, and nearest in their composition to those things that in themselves continue still the same upon the equal poise of diuturnity. And this, in my judgment, is the sense and meaning of Plato.

8 Of which the easy reconciliation of his seeming incongruities and contradiction of himself may serve for the first proof. For indeed no men of judgment would have objected to the most Bacchanalian sophister, more especially to Plato, the guilt of so much inconvenience and impudent rashness in a discourse by him so elaborately studied, as to affirm the same nature in one place never to have been created, in another to have been the effects of generation; — in *Phædrus* to assert the soul eternal, in *Timæus* to subject it to procreation. The words in *Phædrus* need no repetition, as being familiar to nearly every one, wherein he proves the soul to be incorruptible in regard it never had a beginning, and to have never had a beginning because it moves itself. But in *Timæus*, saith he,

> God did not make the soul a junior to the body, as now we labour to prove it to have been subsequent to the body. For he would never have suffered the more ancient, because linked and coupled with the younger, to have been governed by it; only we, guided I know not how by chance and inconsiderate rashness, frame odd kind of notions to ourselves. But God most certainly composed the soul excelling the body both in seniority of origin and in power, to be mistress and governess of her inferior servant.[1]

And then again he adds, how that the soul, being turned upon herself, began the divine beginning of an eternal and prudent life. Saith he,

> Now, the body of heaven became visible; but the soul being invisible, nevertheless participating of ratiocination and harmony, by the best of intelligible and eternal beings she was made the best of things created.[2]

Here then he determines God to be the best of sempiternal beings, the soul to be the most excellent of temporal existences. By which apparent distinction and antithesis he denies that the soul is eternal, and that it never had a beginning.

9 And now what other or better reconciliation of these seeming contrarieties than his own explanation, to those that are willing to apprehend it? For he declares to have been without beginning the never procreated soul, that moved all things confusedly and in an irregular manner before the creation of the world. But as for that which God composed out of this and that other permanent and choicest substance, making it both prudent and orderly, and adding of his own, as if it were for form and beauty's sake, intellect to sense, and order to motion, and which he constituted prince and chieftain of the whole — that he acknowledges to have had a beginning and to have proceeded from generation. Thus he likewise pronounces the body of the world in one respect to be eternal and without beginning, in another sense to be the work of creation. To which purpose, where he says that the visible structure, never in repose at first but restless in a confused and tempestuous motion, was at length by the

[1] *Timæus*, *p.* 34b

[2] *ibid.*, *p.* 36e

hand of God disposed and ranged into majestic order — where he says that the four elements, fire and water, earth and air, before the stately pile was by them embellished and adorned, caused a prodigious fever and shivering ague in the whole mass of matter, that laboured under the combats of their unequal mixtures — by his urging these things, he gives those bodies room in the vast abyss before the fabric of the universe.

Again, when he says that the body was younger than the soul, and that the world was created, as being of a corporeal substance that may be seen and felt — which sort of substances must necessarily have a beginning and be created — it is evidently demonstrable from thence that he ascribes original creation to the nature of bodies. But he is far from being repugnant or contradictory to himself in these sublimest mysteries. For he does not contend, that the same body was created by God or after the same manner, and yet that it was before it had a being — which would have been to act the part of a juggler; but he instructs us what we ought to understand by generations and creation. Therefore, says he, at first all these things were void of measure and proportion; but when God first began to beautify the whole, the fire and water, earth and air, having perhaps some prints and footsteps of their forms, lay in a huddle jumbled all together — as probable it is that all things are, where God is absent — which then he reduced to a comely perfection varied by number and order. Moreover, having told us before that it was a work not of one but of a twofold proportion to bind and fasten the bulky immensity of the whole, which was both solid and of a prodigious profundity, he then comes to declare how God, after he had placed the water and the earth in the midst between the fire and the air, incontinently closed up the heavens into a circular form. Out of these materials, saith he, being four in number, was the body of the world created, agreeing in proportion, and so amicably corresponding together, that being thus embodied and confined within their proper bounds, it is impossible that any dissolution should happen from their own contending force, unless he that riveted the whole frame should go about again to rend it in pieces; — most apparently teaching us, that God was not the parent and architect of the corporeal substance only, or of the bulk and matter, but of the beauty and symmetry and similitude that adorned and graced the whole. The same we are to believe, he thought, concerning the soul; that there is one which neither was created by God nor is the soul of the world, but a certain self-moving and restless efficacy of a giddy and disorderly agitation and impetuosity, irrational and subject to opinion; while the other is that which God himself, having accoutred and adorned it with suitable numbers and proportions, has made queen regent of the created world, herself the product of creation also.

10 Now that Plato had this belief concerning these things, and did not for contemplation's sake lay down these suppositions concerning the creation of the world and the soul — this, among many others, seems to be an evident signification that, as to the soul, he avers it to be both created and not created, but as to the world, he always maintains that it had a beginning and was created, never that it was uncreated and eternal. What necessity therefore of bringing any testimonies out of *Timæus*? For the whole treatise, from the beginning to the end, discourses of nothing else but of the creation of the world. As for the rest, we find that Timæus, in his Atlantic, addressing himself in prayer to the Deity, calls God that being which of old existed in his works,

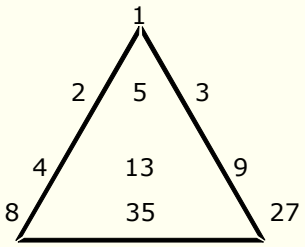
but now was apparent to reason. In his *Politicus*, his Parmenidean guest acknowledges that the world, which was the handiwork of God, is replenished with several good things, and that, if there be any thing in it which is vicious and offensive, it comes by mixture of its former incongruous and irrational habit. But Socrates, in the *Politicus*, beginning to discourse of number, which some call by the name of wedlock, says:

> The created Divinity has a circular period, which is, as it were, enchased and involved in a certain perfect number;

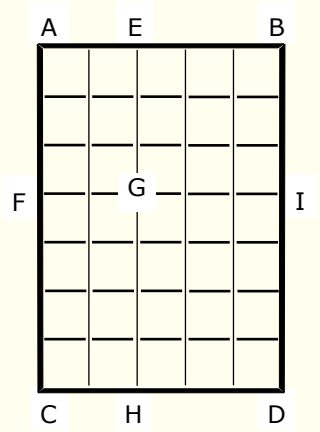
meaning in that place by created Divinity no other than the world itself.

11 The first pair of these numbers consists of one and two, the second of three and four, the third of five and six; neither of which pairs make a tetragonal number, either by themselves or joined with any other figures. The fourth consists of seven and eight, which, being added all together, produce a tetragonal number of thirty-six. But the quaternary of numbers set down by Plato have a more perfect generation, of even numbers multiplied by even distances, and of odd by uneven distances. This quaternary contains the unit, the common original of all even and odd numbers. Subsequent to which are two and three, the first plane numbers; then four and nine, the first squares; and next eight and twenty-seven, the first cubical numbers (not counting the unit). Whence it is apparent, that his intention was not that the numbers should be placed in a direct line one above another, but apart and oppositely one against the other, the even by themselves, and the odd by themselves, according to the scheme here given. In this manner similar numbers will be joined together, which will produce other remarkable numbers, as well by addition as by multiplication.

1	2
3	4
5	6
7	8



12 By addition thus: two and three make five, four and nine make thirteen, eight and twenty-seven make thirty-five. Of all which numbers the Pythagoreans called five the nourisher, that is to say, the breeding or fostering sound, believing a fifth to be the first of all the intervals of tones which could be sounded. But as for thirteen, they called it the remainder, despairing, as Plato himself did, of being ever able to divide a tone into equal parts. Then five and thirty they named harmony, as consisting of the two cubes eight and twenty-seven, the first that rise from an odd and an even number, as also of the four numbers, six, eight, nine, and twelve, comprehending both harmonical and arithmetical proportion. Which nevertheless will be more conspicuous, being made out in a scheme to the eye.

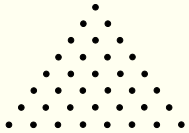


Admit a right-angled parallelogram, A B C D, the lesser side of which A B consists of five, the longer side A C contains seven squares. Let the lesser division be unequally divided into two and three squares, marked by E; and the larger division in two unequal divisions more of three and four squares, marked by F. Thus A E F G comprehends six, E B G I nine, F G C H eight, and G I H D twelve. By this means

the whole parallelogram, containing thirty-five little square areas, comprehends all the proportions of the first concords of music in the number of these little squares. For six is exceeded by eight in a sesquiterce proportion (3:4), wherein the diatessaron is comprehended. And six is exceeded by nine in a sesquialter proportion (2:3), wherein also is included the fifth. Six is exceeded by twelve in duple proportion (1:2), containing the octave; and then lastly, there is the sesquioctave proportion of a tone in eight to nine. And therefore they call that number which comprehends all these proportions harmony. This number is 35, which being multiplied by 6, the product is 210, which is the number of days, they say, which brings those infants to perfection that are born at the seventh month's end.

13 To proceed by way of multiplication — twice 3 make 6, and 4 times 9 thirty-six, and 8 times 27 produce 216. Thus six appears to be a perfect number, as being equal in its parts; and it is called matrimony, by reason of the mixture of the first even and odd. Moreover it is composed of the original number, which is one, of the first even number, which is two, and the first odd number, which is three. Then for 36, it is the first number which is as well quadrangular as triangular, being quadrangular from 6, and triangular from 8.[1] The same number arises from the multiplication of the first two square numbers, 4 and 9; as also from the addition of the three cubical numbers, 1, 8, and 27, which being put together make up 36. Lastly, you have a parallelogram with unequal sides, by the multiplication of 12 by 3, or 9 by 4. Take then the numbers of the sides of all these figures, the 6 of the square, the 8 of the triangle, the 9 for the one parallelogram, and the 12 for the other; and there you will find the proportions of all the concords. For 12 to 9 will be a fourth, as nete to paramese. To eight it will prove a fifth, as nete to mese. To six it will be an octave, as nete to hypate. And the two hundred and sixteen is the cubical number proceeding from six which is its root, and so equal to its own perimeter.

14 Now these numbers aforesaid being endued with all these properties, the last of them, which is 27, has this peculiar to itself, that it is equal to all those that precede together; besides, that it is the periodical number of the days wherein the moon finishes her monthly course; the Pythagoreans make it to be the tone of all the harmonical intervals. On the other side, they call thirteen the remainder, in regard it misses a unit to be half of twenty-seven. Now that these numbers comprehend the proportions of harmonical concord, is easily made apparent. For the proportion of 2 to 1 is duple, which contains the diapason; as the proportion of 3 to 2 sesquialter, which embraces the fifth; and the proportion of 4 to 3 sesquiterce, which comprehends the diatessaron; the proportion of 9 to 3 triple, including the diapason and diapente; and that of 8 to 2 quadruple, comprehending the double diapason. Lastly, there is the sesquioctave in 8 to 9, which makes the interval of a single tone. If then the unit, which is common, be counted as well to the even as the odd numbers, the whole series will be equal to the sum of the decade. For the even numbers[2] (1 + 2 + 4 + 8)



[1] See note on Platonic Questions, No. V. § 2. Thirty-six is called the triangular of eight, because a triangle thus made of thirty-six points will have eight points on each side. (G.)

[2] That is, in the quaternary, § 11. See the diagram, *p.* 339. (G.)

give 15, the triangular number of five. On the other side, take the odd numbers, 1, 3, 9, and 27, and the sum is 40; by which numbers the skilful measure all musical intervals, of which they call one a diesis, and the other a tone. Which number of 40 proceeds from the force of the quaternary number by multiplication. For every one of the first four numbers being by itself multiplied by four, the products will be 4, 8, 12, 16, which being added all together make 40, comprehending all the proportions of harmony. For 16 is a sesquiterce to 12, duple to 8, and quadruple to 4. Again, 12 holds a sesquialter proportion to 8, and triple to 4. In these proportions are contained the intervals of the diatessaron, diapente, diapason, and double diapason. Moreover, the number 40 is equal to the two first tetragons and the two first cubes being taken both together. For the first tetragons are 1 and 4, the first cubes are 8 and 27, which being added together make 40. Whence it appears that the Platonic quaternary is much more perfect and fuller of variety than the Pythagoric.

15 But since the numbers proposed did not afford space sufficient for the middle intervals, therefore there was a necessity to allow larger bounds for the proportions. And now we are to tell you what those bounds and middle spaces are. And first, concerning the medieties (or mean terms); of which that which equally exceeds and is exceeded by the same number is called arithmetical; the other, which exceeds and is exceeded by the same proportional part of the extremes, is called sub-contrary. Now the extremes and the middle of an arithmetical mediety are 6, 9, 12. For 9 exceeds 6 as it is exceeded by 12, that is to say, by the number three. The extremes and middle of the sub-contrary are 6, 8, 12, where 8 exceeds 6 by 2, and 12 exceeds 8 by 4; yet 2 is equally the third of 6, as 4 is the third of 12. So that in the arithmetical mediety the middle exceeds and is exceeded by the same number; but in the sub contrary mediety, the middle term wants of one of the extremes, and exceeds the other by the same part of each extreme; for in the first 3 is the third part of the mean; but in the latter 4 and 2 are third parts each of a different extreme. Whence it is called sub-contrary. This they also call harmonic, as being that whose middle and extremes afford the first concords; that is to say, between the highest and lowermost lies the diapason, between the highest and the middle lies the diapente, and between the middle and lowermost lies the fourth or diatessaron. For suppose the highest extreme to be placed at nete and the lowermost at hypate, the middle will fall upon mese, making a fifth to the uppermost extreme, but a fourth to the lowermost. So that nete answers to 12, mese to 8, and hypate to 6.

16 Now the more readily to find out these means Eudorus hath taught us an easy method. For after you have proposed the extremities, if you take the half part of each and add them together, the product shall be the middle, alike in both duple and triple proportions, in arithmetical mediety. But as for sub-contrary mediety, in duple proportion, first having fixed the extremes, take the third part of the lesser and the half of the larger extreme, and the addition of both together shall be the middle; in triple proportion, the half of the lesser and the third part of the larger extreme shall be the mean. As for example, in triple proportion, let 6 be the least extreme, and 18 the biggest; if you take 3 which is the half of 6, and 6 which is the third part of 18, the product by addition will be 9, exceeding and exceeded by the same proportional parts of the extremes. In this manner the mediums are found out; and these are so to be disposed and placed as to fill up the duple and triple intervals. Now of these

proposed numbers, some have no middle space, others have not sufficient. Being therefore so augmented that the same proportions may remain, they will afford sufficient space for the aforesaid mediums. To which purpose, instead of a unit they choose the six, as being the first number including in itself a half and third part, and so multiplying all the figures below it and above it by 6, they make sufficient room to receive the mediums, both in double and triple distances, as in the example below:

12	2		3	18
24	4	6	9	54
48	8		27	162

Now Plato laid down this for a position, that the intervals of sesquialters, sesquiterces, and sesquioctaves having once arisen from these connections in the first spaces, the Deity filled up all the sesquiterce intervals with sesquioctaves, leaving a part of each, so that the interval left of the part should bear the numerical proportion of 256 to 243.[1] From these words of Plato they were constrained to enlarge their numbers and make them bigger. Now there must be two numbers following in order in sesquioctave proportion. But the six does not contain a sesquioctave; and if it should be cut up into parts and the units bruised into fractions, this would strangely perplex the study of these things. Therefore the occasion itself advised multiplication; so that, as in changes in the musical scale, the whole scheme was extended in agreement with the first (or base) number. Eudorus therefore, imitating Crantor, made choice of 384 for his first number, being the product of 64 multiplied by 6; which way of proceeding the number 64 led them to, having for its sesquioctave 72. But it is more agreeable to the words of Plato to introduce the half of 384. For the remainder of that will bear a sesquioctave proportion in those numbers which Plato mentions, 256 and 243, if we make use of 192 for the first number. But if the same number be made choice of doubled, the remainder (or leimma) will have the same proportion, but the numbers will be doubled, i.e. 512 and 486. For 256 is in sesquiterce proportion to 192, as 512 to 384. Neither was Crantor's reduction of the proportions to this number without reason, which made his followers willing to pursue it; in regard that 64 is both the square of the first cube, and the cube of the first square; and being multiplied by 3, the first odd and trigonal, and the first perfect and sesquialter number, it produces 192, which also has its sesquioctave, as we shall demonstrate.

[1] *Timæus*, *p.* 36a

17 But first of all, we shall better understand what this leimma or remainder is and what was the opinion of Plato, if we do but call to mind what was frequently bandied in the Pythagorean schools. For interval in music is all that space which is comprehended by two sounds varied in pitch. Of which intervals, that which is called a tone is the full excess of diapente above diatessaron; and this being divided into two parts, according to the opinion of the musicians, makes two intervals, both which they call a semitone. But the Pythagoreans, despairing to divide a tone into equal parts, and therefore perceiving the two divisions to be unequal, called the lesser leimma (or defect), as being lesser than the half. Therefore some there are who make the diatessaron, which is one of the concords, to consist of two tones and a half; others, of two tones and leimma. In which case sense seems to govern the musicians, and demonstration the mathematicians. The proof by demonstration is thus made out. For it is certain from the observation of instruments that the diapason has double proportion, the diapente a sesquialter, the diatessaron a sesquiterce, and the tone a sesquioctave proportion. Now the truth of this will easily appear upon examination, by hanging two weights double in proportion to two strings, or by making two pipes of equal hollowness double in length, the one to the other. For the bigger of the pipes will yield the deep sound, as hypate to nete; and of the two strings, that which is extended by the double weight will be acuter than the other, as nete to hypate; and this is a diapason. In the same manner two longitudes or ponderosities, being taken in the proportion of 3: 2, will produce a diapente; and three to four will yield a diatessaron; of which the latter carries a sesquiterce, the former a sesquialter proportion. But if the same inequality of weight or length be so ordered as nine to eight, it will produce a tonic interval, no perfect concord, but harmonical enough; in regard the strings being struck one after another will yield so many musical and pleasing sounds, but all together a dull and ungrateful noise. But if they are touched in consort, either single or together, thence a delightful melody will charm the ear. Nor is all this less demonstrable by reason. For in music, the diapason is composed of the diapente and diatessaron. But in numbers, the duple is compounded of the sesquialter and sesquiterce. For 12 is a sesquiterce to 9, but a sesquialter to 8, and a duple to 6. Therefore is the duple proportion composed of the sesquialter and sesquiterce, as the diapason of the diapente and diatessaron. For here the diapente exceeds the diatessaron by a tone; there the sesquialter exceeds the sesquiterce by a sesquioctave. Whence it is apparent that the diapason carries a double proportion, the diapente a sesquialter, the diatessaron a sesquiterce, and the tone a sesquioctave.

18 This being thus demonstrated, let us see whether the sesquioctave will admit a division into two equal parts; which if it will not do, neither will a tone. However, in regard that 9 and 8, which make the first sesquioctave, have no middle interval, but both being doubled, the space that falls between causes two intervals, thence it is apparent that, if those distances were equal, the sesquioctave also might be divided into equal parts. Now the double of 9 is 18, that of 8 is 16, the intermedium 17; by which means one of the intervals becomes larger, the other lesser; for the first is that of 18 to 17, the second that of 17 to 16. Thus the sesquioctave proportion not being to be otherwise than unequally divided, consequently neither will the tone admit of an equal division. So that neither of these two sections of a divided tone is to be called a semitone, but according as the mathematicians name it, the remainder. And

this is that which Plato means, when he says, that God, having filled up the sesquiterces with sesquioctaves, left a part of each; of which the proportion is the same as of 256 to 243. For admit a diatessaron in two numbers comprehending sesquiterce proportion, that is to say, in 256 and 192; of which two numbers, let the lesser 192 be applied to the lowermost extreme, and the bigger number 256 to the uppermost extreme of the tetrachord. Whence we shall demonstrate that, this space being filled up by two sesquioctaves, such an interval remains as lies between the numbers 256 and 243. For the lower string being forced a full tone upward, which is a sesquioctave, it makes 216; and being screwed another tone upward it makes 243. Which 243 exceeds 216 by 27, and 216 exceeds 192 by 24. And then again of these two numbers, 27 is the eighth of 216, and 24 the eighth of 192. So the biggest of these two numbers is a sesquioctave to the middle, and the middle to the least; and the distance from the least to the biggest, that is from 192 to 243, consists of two tones filled up with two sesquioctaves. Which being subtracted, the remaining interval of the whole between 243 and 256 is 13, for which reason they called this number the remainder. And thus I am apt to believe the meaning and opinion of Plato to be most exactly explained in these numbers.

19 Others, placing the two extremes of the diatessaron, the acute part in 288, and the lower sound in 216, in all the rest observe the same proportions, only that they take the remainder between the two middle intervals. For the base, being forced up a whole tone, makes 243; and the upper note, screwed downward a full tone, begets 256. Moreover 243 carries a sesquioctave proportion to 216, and 288 to 256; so that each of the intervals contains a full tone, and the residue is that which remains between 243 and 256, which is not a semitone, but something less. For 288 exceeds 256 by 32, and 243 exceeds 216 by 27; but 256 exceeds 243 by 13. Now this excess is less than half of the former. So it is plain that the diatessaron consists of two tones and the residue, not of two tones and a half. Let this suffice for the demonstration of these things. Nor is it a difficult thing to believe, by what has been already said, wherefore Plato, after he had asserted that the intervals of sesquialter, sesquiterce, and sesquioctave had arisen, when he comes to fill up the intervals of sesquiterces with sesquioctaves, makes not the least mention of sesquialters; for that the sesquialter is soon filled up, by adding the sesquiterce to the sesquioctave, or the sesquioctave to the sesquiterce.

20 Having therefore shown the manner how to fill up the intervals, and to place and dispose the medieties, had never any person taken the same pains before, I should have recommended the further consideration of it to the recreation of your fancies; but in regard that several most excellent musicians have made it their business to unfold these mysteries with a diligence more than usually exact — more especially Crantor, Clearchus, and Theodorus, all born in Soli — it shall suffice only to show how these men differed among themselves. For Theodorus, varying from the other two, and not observing two distinct files or rows of numbers, but placing the duples and triples in a direct line one before another, grounds himself upon that division of the substance which Plato calls the division in length, making two parts (as it were) out of one, not four out of two. Then he says, that the interposition of the mediums ought to take place in that manner, to avoid the trouble and confusion which must arise from transferring out of the first duple into the first triple the intervals which

are ordained for the supplement of both. . . . But as for those who take Crantor's part, they so dispose their numbers as to place planes with planes, tetragons with tetragons, cubes with cubes, opposite to one another, not taking them in file, but alternatively odd to even. [Here is some great defect in the original.]

21 . . . Which, being in themselves permanently the same, afford the form and species; but being subject to corporeal division, they become the matter and subject to receive the other's impression, the common mixture being completed out of both. Now the indivisible substance, which is always one and the same, is not to be thought to be incapable of division by reason of its smallness, like the most minute of bodies, called atoms. But as it is unmixed, and not to be any way affected, but pure and altogether of one sort, it is said not to consist of parts, but to be indivisible. By means of which purity, when it comes in any manner whatsoever to approach and gently touch compounded divisible and differing substances, all their variety ceases and they crowd together into one habit by sympathy and similitude. If now any one will call that substance which admits corporeal separation matter, as a nature subject to the former and partaking of it, the use of that equivocal term will nothing disadvantage our discourse. But they are under a mistake that believe the corporeal to be blended with the indivisible matter. First, for that Plato does not here make use of any one of its names; whereas in other places he calls it the receptacle and nurse, capable of both receiving and fostering the vast infinity of created beings; not divisible among bodies, but rather the body itself parted and divided into single individuals. Then again, what difference would there be between the creation of the world and that of the soul, if the composition of each proceeded from both matter and the intelligible essence? Certainly Plato, as endeavouring to separate the generation of the body from that of the soul, tells us that the corporeal part was by God seated and deposited within it, and that it was outwardly covered and enveloped by it; and after he had thus wrought the soul to its perfection out of proportion, he then proceeds to this argument concerning matter, of which he had no occasion to make mention before when he was producing the soul, as being that which had not its existence from matter.

22 The same may be said against the followers of Poseidonius. For they seem not altogether to separate the soul from matter; but imagining the essence of limitations to be divisible in reference to bodies, and intermixing it with the intelligible essence, they defined the soul to be an idea (or essential form) of that which has extension in every direction, subsisting in an harmonical proportion of numbers. For (they say) all mathematical objects are disposed between the first intelligible and sensible beings; and since the soul contains the sempiternal nature of things intelligible and the pathetic nature of things subjected to sense, it seems but rational that it should consist of a substance between both. But they were ignorant that God, when the soul was already brought to perfection, afterwards making use of the limitations of bodies to form and shape the matter, confined and environed the dissipated and fleeting substance within the compass of certain surfaces composed of triangles adapted together. And it is even more absurd to make the soul an idea. For the soul is always in motion; the idea is incapable of motion; the one never to be mixed with that which is subjected to sense, the other wrought into the substance of the body. Moreover, God could be said only to imitate an idea, as his pattern; but he was the artificer of the

soul, as of a work of perfection. Now enough has been already said to show that Plato does not assert number to be the substance of the soul, only that it is ordered and proportioned by number.

23 However this is a common argument against both the former opinions, that neither in corporeal limits nor in numbers there is the least footstep or appearance of that power by which the soul assumes to itself to judge of what is subject to sense. For it was the participation of the intelligible principle that endued it with understanding and the perceiving faculty. But as for opinion, belief, imagination, and its being affected with qualities relating to the body, no man could ever dream that they proceeded simply either from units, or lines, or surfaces. For not only the souls of mortals have a power to judge of what is subject to sense; but the soul of the world also, says Plato,

> . . . when it revolves upon itself, and happens once to touch upon any fluid and roving substance or upon anything indivisible, then being moved throughout its whole self, it gives notice with what this or that thing is identical, to what heterogeneal, and in what relations especially and in what manner it happens to be and to be affected towards each created thing.[1]

Here he gives at the same time an intimation of the ten Categories or Predicaments; but afterwards he gives us a clearer manifestation of these things. Says he,

> For when true reason is fixed upon what is subject to sense, and the circle of the Other, observing a just and equal motion, conveys its intelligence to the whole soul, then both opinion and belief become steadfast and certain; on the other side, when it is settled upon ratiocination, and the circle of the Same, turning readily and easily, furnishes its intimations, then of necessity knowledge arrives to perfection. And indeed, whoever shall affirm that anything in which these two operations take place is anything besides a soul, may deservedly be thought to speak anything rather than the truth.

From whence then does the soul enjoy this motion whereby it comprehends what is subject to sense, different from that other intelligible motion which ends in knowledge? This is a difficult task to resolve, unless we steadfastly assert that Plato here did not compose the soul, so singly considered, but the soul of the world also, of the parts above mentioned — of the more worthy indivisible substance, and of the less worthy divisible in reference to bodies. And this soul of the world is no other than that motion which gives heat and vigour to thought and fancy, and sympathizes with what is subject to sense, not created, but existing from eternity, like the other soul. For Nature, which had the power of understanding, had also the power of opining. But the intelligible power is subject neither to motion nor affection, being established upon a substance that is still the same. The other is movable and fleeting, as being engaged to an unstable, fluctuating, and disunited matter. In regard the sensible substance was so far from any order, that it was without shape and boundless. So that the power which is fixed in this was capable of producing no clear and well-grounded notions and no certain or well-ordered movements, but only sleepy dreams

[1] *Timæus*, *p.* 37a

and deliriums, which amuse and trouble corporeal stupidity; unless by accident they lighted upon the more worthy substance. For it was in the middle between the sensible and discerning faculty, and had a nature conformable and agreeable to both; from the sensible apprehending substance, and borrowing from judgment its power of discerning things intelligible.

24 And this the express words of Plato declare. Saith he,

> For this is my opinion, in short, that being, place, and generation were three distinct things even before the heavens were created.[1]

By place he means matter, as being the seat and receptacle; by being or existence, the intelligible nature; and by generation, the world not being yet created, he designs only that substance which was subject to change and motion, disposed between the forming cause and the thing formed, transmitting hither those shapes and figures which were there contrived and moulded. For which reason it was called divisible; there being a necessity of distributing sense to the sensitive, and imagination to the imaginative faculty. For the sensitive motion, being proper to the soul, directs itself to that which is outwardly sensible. As for the understanding, it was fixed and immovable of itself, but being settled in the soul and becoming its lord and governor, it turns upon itself, and accomplishes a circular motion about that which is always permanent, chiefly labouring to apply itself to the eternally durable substance. With great difficulty therefore did they admit a conjunction, till the divisible at length intermixing with the indivisible, and the restlessly hurried with the sleepy and motionless, constrained the Other to meet and join with the Same. Yet the Other was not motion, as neither was the Same stability, but the principle of distinction and diversity. For both the one and the other proceed from a different principle; the Same from the unit, the Other from the duad; and these were first intermixed with the soul, being fastened and bound together by number, proportion, and harmonical mediums; so that the Other being riveted into the Same begets diversity and disagreement; and the Same being fermented into the Other produces order. And this is apparent from the first powers of the soul, which are judgment and motion. Motion immediately shows itself in the heavens, giving us an example of diversity in identity by the circumvolution of the fixed stars, and of identity in diversity by the order of the planets. For in them the Same bears the chiefest sway; in terrestrial bodies, the contrary principle. Judgment has two principles — understanding from the Same, to judge of things in general, and sense from the Other, to judge of things in particular. Reason is a mixture of both, becoming intellect in reference to things intelligible, and opinion in things subject to sense; making use of the interdisposed organs of imagination and memory, of which these in the Same produce the Other, and those in the Other make the Same. For understanding is the motion of the considerative faculty about that which is permanent and stable. Opinion is a continuance of the perceptive faculty upon that which is continually in motion. But as for fancy or imagination, being a connection of opinion with sense, the Same has placed it in the memory; and the Other moves it again in the difference between past and present, touching at the same time upon diversity and identity.

[1] *Timæus*, *p.* 52d

25 But now let us take a draught of the corresponding composition of the soul from the structure of the body of the universe. There we find fire and earth, whose nature is such as not to admit of mixture one with another but with great difficulty, or rather is altogether obstinately refractory to mixture and constancy. God therefore, placing air and water in the middle between both — the air next the fire, the water next the earth — first of all tempered the middlemost one with another, and next, by the assistance of these two, he brought the two extreme elements not only to mix with the middlemost, but also to a mutual closure or conjunction between themselves. Then he drew together those contrary powers and opposing extremes, the Same and the Other, not immediately, the one adjoining to the other, but placing other substances between; the indivisible next the Same, and the divisible next the Other, disposing each to each in convenient order, and mixing the extremes with the middlemost. After which manner he interweaved and tissued the whole into the form and composition of the soul, completing, as far as it was possible, similitude out of things different and various, and one out of many. Therefore it is alleged by some, that Plato erroneously affirmed the nature of the Other to be an enemy to mixture, as being not only capable to receive it, but a friend of change. Whereas that should have been rather said of the nature of the Same; which, being stable and an utter adversary to mutability, is so far from an easy and willing condescension to mixture, that it flies and abhors it, to the end it may preserve itself pure and free from alteration. But they who make these objections against Plato betray their own ignorance, not understanding that the Same is the idea (or essential form) of those things that always continue in the same state and condition, and that the Other is the idea of those things which are subject to be variously affected; and that it is the peculiar nature of the one to disjoin and separate into many parts whatever it happens to lay hold upon, and of the other to cement and assimilate scattered substances, till they resume one particular form and efficacy.

26 And these are the powers and virtues of the soul of the universe. And when they once enter into the organs of corruptible bodies, being themselves incorruptible, there the form of the binary and boundless principle shows itself most briskly, while that of the unmixed and purer principle lies as it were dormant in obscurity. And thus it happens, that a man shall rarely observe any human passion or motion of the understanding, void of reason, where there shall not something appear either of desire or emulation, joy or grief. Several philosophers therefore will have the passions to be so many sorts of reasonings, seeing that desire, grief, and anger are all the effects of judgment. Others allege the virtues themselves to be derived from passions; fortitude depending on fear, temperance on voluptuousness, and justice on love of gain. Now the soul being both speculative and practical, contemplating as well generals as particulars, and seeming to comprehend the one by the assistance of the intellect and the other by the aid of sense, common reason, which encounters the Same in the Other and the Other in the Same, endeavours by certain limits and distinctions to separate one from many and the divisible from the indivisible; but she cannot accomplish her design nor be purely in one or the other, in regard the principles are so oddly interwoven and intermixed and confusedly huddled together.

For this reason did God constitute a receptacle for the Same and the Other, out of the indivisible and divisible substance, to the end there might be order in variety.

Now this was generation. For without this the Same could have no variety, and therefore no motion or generation; and the Other could have no order, and therefore no consistence or generation. For should we grant the Same to be different from the Other, and the Other to be the Same with itself, such a commixture would produce nothing generative, but would want a third something, like matter, to receive both and be disposed of by both. And this is that matter which God first composed, when he bounded the movable nature of bodies by the steadfastness of things intelligible.

27 Now then, as voice, merely voice, is only an insignificant and brutish noise, but speech is the expression of the mind by significant utterance; as harmony consists of sounds and intervals — a sound being always one and the same, and an interval being the difference and diversity of sounds, while both being mixed together produce air and melody; — thus the passive nature of the soul was without limits and unstable, but afterwards became determinate, when limits were set and a certain form was given to the divisible and manifold variety of motion. Thus having comprised the Same and the Other, by the similitudes and dissimilitudes of numbers which produce concord out of disagreement, it becomes the life of the world, sober and prudent, harmony itself, and reason overruling necessity mixed with persuasion. This necessity is by most men called fate or destiny, by Empedocles friendship and discord, by Heraclitus the opposite straining harmony of the world, as of a bow or harp, by Parmenides light and darkness, by Anaxagoras mind and infinity, by Zoroaster God and Dæmon, naming one Oromasdes, the other Arimanius. Though as for Euripides, he makes use of the disjunctive erroneously for the copulative, where he says,

> Jove, whether he be
> Necessity, that Nature's force controls,
> Or the intelligence of human souls.

For, indeed, the powers which bear dominion over the universe are necessity and wisdom. This is that therefore which the Egyptians intimate in their fables, feigning that, when Horus was punished and dismembered, he bequeathed his spirit and blood to his father, but his flesh and his fat to his mother. There is no part of the soul which remains pure and unmixed, or separate from the rest; for, according to the opinion of Heraclitus,

> . . . harmony latent is of greater value than that which is visible,

as being that wherein the blending Deity concealed and sunk all varieties and dissimilitudes. Nevertheless, there appears in the irrational part a turbulent and boisterous temerity; in the rational part, an orderly and well-marshalled prudence; in the sensitive part, the constraint of necessity; but in the understanding, entire and perfect command of itself. The limiting and bounding power sympathizes with the whole and the indivisible, by reason of the nearness of their relations; on the other side, the dividing power fixes itself upon particulars, by virtue of the divisible substance; and the whole rejoices at the mutation of the Same by means of the Other, as occasion requires. In the like manner, the various inclinations of men to virtue and vice, to pleasure and toil, as also the enthusiasms and raptures of lovers, the combats of honour with lustful desires, plainly demonstrate the mixture of the divine and im-

passible with the moral and corporeal part; of which Plato himself calls the one concupiscence of pleasures, natural to ourselves; the other an opinion introduced from without, aspiring to the chiefest good. For passible qualities of the soul arise from herself; but she participates of understanding, as being infused from without, by the more worthy principle.

28 Nor is the celestial nature privileged from this double society and communion. For sometimes it is seen to incline one way or the other, but it is set right again by the more powerful revolution of the Same, and governs the world. Nay, there shall come a time, as it has happened already, when the world's moving wisdom shall grow dull and drowsy, drowned in oblivion of its own duty; while that which is familiar and agreeable to the body from the beginning draws and winds back the right-hand motion of the universe, causing the wheels to go slow and heavy. Yet shall it not be able to dash in pieces the whole movement, for that the better part, rousing and recollecting herself and observing the pattern and exemplar of God, shall with his aid reduce all things again into their former order. Thus it is demonstrable by many proofs, that the soul was not altogether the workmanship of the Deity, but that having in itself a certain portion of innate evil, it was by him digested and beautified who limited infinity by unity, to the end it might be a substance within the compass of certain limits; intermixing order and mutation, variety and resemblance, by the force of the Same and the Other; and lastly working into all these, as far as it was possible, a mutual community and friendship by the assistance of numbers and harmony.

29 Concerning which things, although you have heard frequent discourses, and have likewise read several arguments and disputes committed to writing upon the same subjects, it will not be amiss for me also to give a short account, after a brief repetition of Plato's own words. Said he,

> God in the first place withdrew one part from the whole; which done, he took away the double of that; then a third part, sesquialter in proportion to the second, and triple to the first; then a fourth part, double to the second; next a fifth part, being the triple of the third; then a sixth, eight times the first; and lastly a seventh, being twenty-seven times the first. This done, he filled up the duple and triple intervals, retrenching also from thence certain other particles, and placing them in the midst of those intervals; so that in every interval there might be two medieties, the one exceeding and being exceeded by one and the same part of the extremes, the other exceeding and being exceeded by the same number. Now in regard that from these connections in the first spaces there arose the intervals of sesquialters, sesquiterces, and sesquioctaves, he filled up all the sesquiterce intervals with sesquioctaves, leaving a part of each, so that the interval left of the part might bear the numerical proportion of 256 to 243.[1]

Here the question will be first concerning the quantity, next concerning the order, and in the third place concerning the force and virtue of the numbers. As to the quantity, we are to consider which he takes in the double and triple intervals. As to the order, whether they are to be placed in one row, according to the direction of Theodorus, or (as Crantor will have them) in the form of a Λ, placing the unit at the

[1] *Timæus*, *p.* 35b

top, and the duples and triples apart by themselves in two several files. Lastly, we are to examine of what use and virtue they are in the structure and composition of the soul.

30 As to the first, we shall relinquish the opinion of those who affirm that it is enough, in proportions, to consider the nature of the intervals, and of the medieties which fill up their vacancies; and that the demonstration can be made out for any numbers whatsoever that have spaces sufficient to receive the aforesaid proportions. For this being granted, it makes the demonstration obscure, without the help of schemes, and drives us from another theory, which carries with it a delight not unbecoming philosophy.

	1	
2		3
4		9
8		27

Beginning therefore from the unit, let us place the duples and triples apart; and there will be on the one side, 2, 4, 8; on the other 3, 9, 27; — seven numbers in all, proceeding forward by multiplication four steps from the unit, which is assumed as the common base. . . . For not only here, but upon other occasions, the sympathy of the quaternary number with the septenary is apparent. There is this peculiar to that tetractys or quaternary number thirty six, so much celebrated by the Pythagoreans, which is more particularly worthy admiration — that it is composed of the first four even numbers and the first four odd numbers; and it is the fourth connection made of numbers put together in order. The first connection is of one and two; the second of odd numbers. . . . For placing the unit, which is common to both, before, he first takes eight and then twenty-seven, as it were pointing out with the finger where to place each particular sort.

[These places are so depraved in the original, that the sense is lost.]

But it belongs to others to explain these things more accurately and distinctly; while we content ourselves with only what remains, as peculiarly proper to the subject in hand.

31 For it was not out of vain-glory, to boast his skill in the mathematical sciences, that Plato inserted in a treatise of natural philosophy this discourse of harmonical and arithmetical medieties, but believing them both apt and convenient to demonstrate the structure and composition of the soul. For some there are who seek these proportions in the swift motions of the spheres of the planets; others rather in the distances, others in the magnitude of the stars; others, more accurate and nice in their enquiry, seek for the same proportions in the diameters of the epicycles; as if the Supreme Architect, for the sake of these, had adapted the soul, divided into seven parts, to the celestial bodies. Many also there are, who hither transfer the inventions of the Pythagoreans, tripling the distances of bodies from the middle. This is done by placing the unit next the fire; three next the Antichthon, or earth which is opposite to our earth; nine next the Earth; 27 next the Moon; 81 next to Mercury; 243 upon Venus; and 729 upon the Sun. The last (729) is both a tetragonal and cubical number, whence it is, that they also call the sun a tetragon and a cube. By this way of tripling they also reduce the other stars to proportion. But these people may be thought to dote and to wander very much from reason, if there by any use of geometrical demonstration, since by their mistakes we find that the most probable proofs pro-

ceed from thence; and although geometers do not always make out their positions exactly, yet they approach the nearest to truth when they say that the diameter of the sun, compared with the diameter of the earth, bears the proportion of 12 to 1; while the diameter of the earth to that of the moon carries a triple proportion. And for that which appears to be the least of the fixed stars, the diameter of it is no less than the third part of the diameter of the earth, and the whole globe of the earth to the whole globe of the moon is as twenty-seven to one. The diameters of Venus and the earth bear a duple, the globes or spheres of both an octave proportion. The width of the shadow which causes an eclipse holds a triple proportion to the diameter of the moon; and the deviation of the moon from the middle of the signs, either to the one or the other side, is a twelfth part. Her positions as to the sun, either in triangular or quadrangular distances, give her the form when she appears as in the first quarter and gibbous; but when she comes to be quite round, that is, when she has run through half the signs, she then makes (as it were) a kind of diapason harmony with six notes. But in regard the motions of the sun are slowest when he arrives at the solstices, and swiftest when he comes to the equinoxes, by which he takes from the day or adds to the night, the proportion holds thus. For the first thirty days after the winter solstice, he adds to the day a sixth part of the length whereby the longest night exceeds the shortest; the next thirty days he adds a third part; to all the rest till the equinox he adds a half; and so by sextuple and triple distances he makes even the irregularity of time.

Moreover, the Chaldæans make the spring to hold the proportion of a diatessaron to autumn; of a diapente to the winter, and of a diapason to the summer. But if Euripides rightly divides the year, where he says,

> Four months the parching heats of summer reign,
> And four of hoary winter's cold complain;
> Two months doth vernal pride the fields array,
> And two months more to autumn tribute pay,

— then the seasons shall be said to change in octave proportion.

Others there are, who fancy the earth to be in the lowest string of the harp, called proslambanomenos; and so proceeding, they place the moon in hypate, Mercury and Venus in the diatoni and lichani; the sun they likewise place in mese, as in the midst of the diapason, a fifth above the earth and a fourth from the sphere of the fixed stars.

32 But neither doth this pleasant conceit of the latter come near the truth, neither do the former attain perfect accuracy. However, they who will not allow the latter to depend upon Plato's sentiments will yet grant the former to partake of musical proportions; so that, there being five tetrachords, called *υπάτων*, *μέσων*, *συνημμένων*, *διεζευγμένων*, and *υπερβολαίων*, in these five distances they place all the planets; making the first tetrachord from the Moon to the Sun and the planets which move with the Sun, that is, Mercury and Venus; the next from the Sun to the fiery planet of Mars; the third between this and Jupiter; the fourth from thence to Saturn; and the fifth from Saturn to the sphere of the fixed stars. So that the sounds and notes which bound the five tetrachords bear the same proportion with the intervals of the

planets. Still further, we know that the ancient musicians had two notes called hypate, three called nete, one mese, and one paramese, thus confining their scale to seven standing notes, equal in number to the number of the planets. But the moderns, adding the proslambanomenos, which is a full tone in descent from hypate, have multiplied the scheme into the double diapason, and thereby confounded the natural order of the concords; for the diapente happens to be before the diatessaron, with the addition of the whole tone in the bass. Whereas Plato makes his addition in the upper part; for in his *Republic*[1] he says, that every one of the eight spheres rolls about a Siren which is fixed upon each of the tuneful globes, and that they all sing one counterpoint without diversity of modulation, taking every one their peculiar concords, which together complete a melodious consort.

These Sirens sing for their pleasure divine and heavenly tunes, and accompany their sacred circuit and dance with an harmonious song of eight notes. Nor was there necessity of a fuller chorus, in regard that within the confines of eight notes lay the first bounds and limits of all duple and triple proportions; the unit being added to both the even and odd numbers. And certainly from hence it was that the ancients raised their invention of nine Muses; of which eight were employed in celestial affairs, as Plato said; the ninth was to take care of things terrestrial, and to reduce and reform the inequality and confusion of error and jarring variance.

33 Now then consider whether the soul does not roll and turn and manage the heavens and the celestial bodies by means of those harmonious concords and equal motions that are wrought and fermented within her, being herself most wise and most just. And such she became by virtue of harmonical proportions, whose images representing things incorporeal are imprinted into the discernible and visible parts and bodies of the world. But the chief and most predominating power is visibly mixed in the soul, which renders her harmonious and obedient to herself, the other parts unanimously yielding to her as the most supreme and the divinest part of all. For the Sovereign Artificer and Creator finding a strange disorder and erroneous confusion in the motions of the decomposed and unruly soul, which was still at variance with herself, some things he divided and separated, others he brought together and reconciled to a mutual sympathy, making use of harmony and numbers. By virtue of which, the slightest and meanest of insensible substances, even stocks and stones, the rinds of trees, and sometimes even the rennets of beasts, by various mixtures, compositions, and temperatures, may become the charming objects of the sight, or afford most pleasing perfumes and wholesome medicaments for the relief of mankind, or be wrought and hollowed to send forth pleasing musical sounds. And for this reason it was that Zeno of Citium encouraged and persuaded youth to frequent the theatres, there to observe the variety of melodious sounds that proceeded from horns or cornets, wooden hautboys, flutes and reeds, or any other musical instruments to which the contrivance of art had rightly applied the reason of number and proportion. Not that we will here maintain, with the Pythagoreans, that all things resemble number, for that requires a long discourse to prove it. But where mutual society and sympathy arise out of discord and dissimilitude, that the cause of this is moderation and order, produced by the power of harmony and number, was a thing

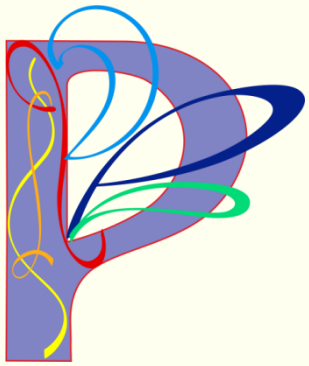
[1] X, *p.* 617b

not concealed even from the poets. And these give to what is friendly and kind the epithet “evenly fitted”; while, on the other side, men of rugged and malicious dispositions they called “unevenly tempered,” as if enmity and discord were nothing but a sort of a disproportion. For this reason, he who writes Pindar’s elegy gives him this encomium,

To foreigners agreeable, to citizens a friend;[1]

— the poet plainly inferring complacency of humour and the aptitude of a person to fit himself to all tempers to be an excellency aspiring to virtue itself. Which Pindar himself also testifies, saying of Cadmus, that he listened to true music from Apollo himself.[2] Nor must we believe that the theologists, who were the most ancient philosophers, ordered the pictures and statues of the Gods to be made with musical instruments in their hands because they thought the Gods no better than pipers or harpers, but to signify that no work was so becoming to the Gods as accord and harmony.

Now then, as it would be absurd and ridiculous for any man to search for sesquiterces, sesquialters, and duples in the neck, or belly, or sides of a lute or harp — though every one of these must also be allowed their symmetry of length and thickness — the harmony and proportion of concords being to be sought for in the sound; so it is most probable that the bodies of the stars, the distances of spheres, and the swiftness of the motions and revolutions, have their sundry proportions, as well one to another as to the whole fabric, like instruments of music well set and tuned, though the measure of the quantity be unknown to us. However, we are to imagine that the principal effect and efficacy of these numbers and proportions, which the Supreme Architect made use of, is that same agreement, harmony, and consent of the soul with itself, by means of which she replenished the heavens themselves, when she came to actuate and perform her office there, with so many infinite beauties, and by which she governs the earth by virtue of the several seasons, and other alterations wisely and artificially measured and varied as well for the generation as preservation of all terrestrial productions.



[1] *Αρμενος ην ξείνοισιν ανήρ όδε, και φίλος αστοίς.*

[2] See Boeckh’s note on Pindar, Frag. 8. The quotation from Pindar is corrupt; but the sense given above is derived from other quotations of the same passage. (G.)

Suggested reading for students.

On the soul of the spiritual man lit by its own light.

Insights to our divine ancestry and human nature may be gleaned from the following titles in the same series:

- A CONGENITAL PREPONDERANCE OF FIRE ELEMENTALS
- ANCIENT BELIEFS IN THE IMMORTALITY OF SOUL
- ANCIENT OPINIONS UPON PSYCHIC BODIES
- APOLLONIUS COMFORTS A BEREAVED FATHER
- ASTRAL BODIES OR DOPPELGÄNGERS
- ATMAN IS A RAY FROM A SPARK OF UNCREATED RAY
- BLAVATSKY ON AETHROBACY AND FAKIRS
- BLAVATSKY ON OCCULT DEVELOPMENT
- BLAVATSKY ON THE DUAL ASPECT OF WISDOM
- BLAVATSKY ON THREE ESSAYS BY É. LÉVI
- BLOOD IS THE FIRST INCARNATION OF UNIVERSAL FLUID
- CHINESE BELIEFS ABOUT THE HUMAN SOUL
- CICERO'S DREAM OF SCIPIO AND MACROBIUS' COMMENT
- CLASSIFICATION OF THE PRINCIPLES IN MAN
- COMMON-MISCONCEPTIONS-OF-THEOSOPHICAL-DOCTRINES
- CONCERNING THE DOCTRINES OF THE THEOSOPHISTS
- CONSTITUTION OF MAN - DRAWING
- CONSTITUTION OF MAN - ESOTERIC
- CONSTITUTION OF MAN - OVERVIEW
- COSMOS AND DEITY IN MAN - DRAWING
- DAS' SCIENCE OF THE EMOTIONS (1908)
- DEATH AND IMMORTALITY
- DEATH AND POST-MORTEM STATES
- DEATH HAS NO TERRORS

- DEVACHAN, DREAM REALM WHERE PURE SOULS ARE REWARDED
- DREAMLESS SLEEP
- ELIPHAS LEVI ON DEATH AND SATAN
- EMOTIONS' TRIUNE NATURE
- EVOLUTIONARY TRANSMIGRATION OF MATERIAL PARTICLES IN NATURE
- FACING SEVEN VIRGINS IN THE HALL OF JUDGMENT
- FROM THE STRONGHOLD OF YOUR SOUL, CHASE ALL YOUR FOES AWAY
- HAIR IS THE RETAINER OF PRANA
- IN DEEP SLEEP WE DREAM NO MORE AND CONFABULATE WITH THE STARS
- IS SUICIDE A CRIME
- JUDGE ON THE INNER CONSTITUTION OF MAN
- JUDGE ON THE OCCULT NATURE OF MAN
- LÉVI ON DEATH BEING THE BIRTH-PANG OF LIFE
- LIFE IS AN INDESTRUCTIBLE UNIVERSAL FORCE
- LOW BUFFOONERY AND MOCKING LAUGHS
- LYMPH IS A MASQUE FOR NYMPH
- NEED OF A SPIRITUAL VOCABULARY
- NO NEED FOR EXPENSIVE FUNERALS
- NOUS AUGOEIDES OF THE NEOPLATONISTS
- NOUS MOVES MAN
- OEDIPUS AND SPHINX UNRIDDLED
- OSIRIS AND TYPHON, HIGHER TRIAD AND LOWER TETRAD
- PLATO ON THE APPLE OF THE EYE
- PLATO'S TWO HORSES
- PLUTARCH COMFORTS APOLLONIUS
- PLUTARCH COMPARING PASSIONS AND DISEASES – TR. WHITE
- PLUTARCH ON BOASTED WISDOM, FORTITUDE, MAGNANIMITY, AND TEMPERANCE
- PLUTARCH ON EXERCISES PROPER FOR A SCHOLAR
- POST-MORTEM WANDERINGS OF THE WICKED SOUL
- PREMATURE AND PHENOMENAL GROWTHS
- PSYCHOLOGY LACKS ENTIRELY KNOWLEDGE OF THE SOUL
- PSYCHOMETRY IS THE NATURAL BUT LATENT FACULTY IN US
- REAL DREAMS ARE ACTIONS OF THE TRUE SELF

- RELEASING THE ASTRAL SOUL FROM ONE'S ASHES
- SEPTENARY IS THE CONSTITUTION OF MAN
- SIXTH SENSE IS REASON OVER INSTINCT
- SPECULATIONS ABOUT REINCARNATION AND MATERIALIZED SPIRITS
- SPIRIT AND PERISPIRIT
- SPIRIT PHOTOGRAPHS ARE OBJECTIVE COPIES FROM SUBJECTIVE IMAGES
- SUBBA ROW ON KAMA-LOKA
- SUBBA ROW ON THE SEVENFOLD PRINCIPLE IN MAN
- SUBBA ROW ON THOUGHT TRANSFERENCE
- SYNESIUS CONCERNING DREAMS
- THE AQUILINE NOSE IS ROYAL AND NOBLE
- THE DEVOTIONAL LOVE AND NOBLE ASPIRATIONS OF LOWER MANAS
- THE ESOTERIC PHYSIOLOGY OF MAN
- THE HEART IS THE ORGAN OF SPIRITUAL CONSCIOUSNESS
- THE IMAGE-MAKING POWER
- THE KARMIC EFFECTS OF INVASION, CIVILIZATION, AND VULGAR SPECULATION
- THE LIFE PRINCIPLE
- THE MOON REGULATES THE PRANA OF NATURE AND MAN
- THE OCCULT INFLUENCE OF MAN'S ACTIVE WILL
- THE PERISPIRIT OF ALLAN KARDEC
- THE PROPHECY OF GENERAL YERMOLOV
- THE SUTRATMAN OF THE UPANISHADS
- THE TWO VOICES OF LORD TENNYSON
- THE VOICE OF THE WILL IS THE ATOMIC POINT
- THEOSOPHICAL JEWELS - MAN, THE JEWEL OF THE UNIVERSE
- THEOSOPHICAL JEWELS - SEPTENARY ANTHROPOS
- THEOSOPHICAL JEWELS - THE CYCLE OF LIFE
- THEOSOPHICAL JEWELS - THE PATH OF ACTION
- THEOSOPHICAL JEWELS - THE PATH OF RENUNCIATION
- THEOSOPHICAL JEWELS - THE SUTRATMAN OF THE UPANISHADS
- THREE CUBITS OF THE EAR, FOUR OF THE STALK
- TIBETAN TEACHINGS ON AFTER-DEATH STATES
- TROUBLES FROM UNDISSOLVED EX-DOUBLES

- TWO SPIRITS UNITED IN THE ELYSIAN FIELDS
- WHEN INNER AND OUTER MAN ARE OFF-KILTER
- WHEN THE GREEN IS OVERCOME WITH AZURE
- WHEN THE SERPENT SLOUGHS OFF HIS SKIN
- WHY SECLUDING WOMEN DURING THEIR MENSTRUAL PERIOD
- WOE FOR THE LIVING DEAD