ANCIENT MEDICINE IN THE LIGHT OF THE PRE-SOCRATIC PHILOSOPHERS

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γλσκηθὰ γὰξ ἀ θύζηο ἀ ηῶ ἀξηζκῶ θαὶ
ἠγεκληθὰ θαὶ δηδαζθαιηθὰ ηῶ ἀπνξνπκέλσ
παληὸο θαὶ ἀγλννπκέλσ   παληί.νὺ γὰξ
ἧοδῆιλιλνὺδελὶ νὐδὲληῶλ πξαγκάησλ ν ὕηε αὐηῶλ
πνζ᾿ αὐηὰ ν ὕηεᾰιιο πξὸο ἄιιν, εἰ κὴ ἦο ἀξηζκὸο
θαὶ ἀ ηνύησνὺζία.[1]

The cause of knowledge is the nature of the
number, capable of directing and instructing
every man if any thing is dubious or unknown.
For none of the things would be evident to
anyone, neither in relation to those things, nor the
relations between them, were it not for the
number and its essence…" (from Fragment 11)[2]

PHILOLAUS

ηνὺο ἀλζξώπνπο θεζὶλδηὰ η   νῦην ἀπόιιπζζαη ,
ὅηηνὺ δύλαληαη ηὴλ ἀξρὴληῶηηηέιεη πξνζζάςαη.[3]

It is said that men die because they are not able to
fasten the beginning to the end. (Fragment 1)[4]

ALCMAEON

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[1] Teo de Esmirna, 106, 10. Translation taken from the book *Fragmenta*. Ed. H. Diels and W. Kranz, *Die Fragmente der Vorsokratiker*, vol. 1. Berlin: published by Weidmann, 1951.

[2] Translation taken from the book *OS PRÉ-SOCRÁTICOS – FRAGMENTOS, DOXOGRAFIA E COMENTÁRIOS*, p. 251, José Cavalcante de Souza et al., São Paulo, published by Abril Cultural, 1978.

[3] Aristóteles, Problemata, 916 a 33. Translation taken from the book *Fragmenta*. Ed. H. Diels and W. Kranz, *Die Fragmente der Vorsokratiker*, vol. 1. Berlin: Weidmann, 1951.

[4] Translation taken from the book *MITO E PENSAMENTO ENTRE OS GREGOS* (with reference to A. Rostagni, in *Il Verbo diPitagora*, Turim, 1924), p. 122, Jean-Pierre Vernant, São Paulo, published by Paz e Terra, 2002;

Based on the analysis of fragments attributed to the pre-Socratic philosophers, it is possible to understand the active principle of ancient medicine. The understanding of the principles of ancient medicine makes it possible to understand great works of antiquity, be they intellectual or artistic.

II

So let us address the principles of ancient medicine. Regarding the concept of harmony, Philolaus of Croton, a disciple of Pythagoras, said:

> πεξὶ δὲ θύζηνο θαὶ ἀξκνλίαο ὧδεἔρεη· [...] ἐπεὶ δὲ ηαὶ ἀξραὶ ὑπᾶξρνλνὐρόκνῖαη νὐδ᾽ ὁκόθπινη ἔζζαη, ἤδε ἀδύλαηνλ ἦο θα αὐηαῖο θνζκεζῆλαη , εἰ κὴ ἀξκνλία ἐπεγέλεηνὠηηηηηνληῶλἄδεηηξόπσηἐγέλεην. ηὰ κὲλὧλὁκνῖα θαὶ ὁκόθπια ἀξκνλίαο νὐδὲλ ἐπεδένλην , ηὰ δὲ ἀλό κνηα κεδὲ ὁκόθπια κεδὲ ἰζηαγῆ ἀλάγθα ηᾶη ηηηανύηαη ἀξκνλίαη ζπγθεθιεῖζζαη, νἵαη κεὶηνληηηηηεὶηλιηθόζκση θαηερέζζαη.

> On nature and harmony, it is as follows: [...] since these beginnings were neither alike nor even related, it would not have been possible for them to be ordered, if a harmony had not come upon them, that would somehow create them. Therefore, like things would need neither harmony nor concordance, but things that are unalike and not even related or orderable, are required to be bonded together by such harmonies, which are able to include them in the universe. (Fragment 6, Diels-Kranz)

> ἔζηη γὰξ ἀξκνλία πνιπκηηηγέσλ ἕλσζηο θαὶ δίρα θξνλεόλησλ ζπκθξόλεζηο.

> For harmony is the union of the mixture of various elements and the concordance of different thoughts" (Fragment 10, Diels-Kranz).

For the Pythagoreans, these principles, dispersed in nature and united by harmony, led to the Table of Opposites. Regarding this, and in reference to the thinking of Aristotle, Italian professor Rodolfo Mondolfo[5] said *(Metaphysics, I, 5, 986b)*:

5Mondolfo, Rodolfo, O Pensamento Antigo, Volume I, São Paulo, publishedby Mestre Jou, in collaborationwith USP, 1972, p. 60.

Others of them say that there are ten principles of things, arranged in a series (of opposite pairs): <u>finite, infinite; odd, even; unity, plurality; right, left; male, female; at rest, in motion; straight, curved; light, darkness; good, bad; square, oblong</u>. It seems that Alcmaeon of Croton thought the same way, whether he took the theory from them or they took it from him, because when Pythagoras was already very old, Alcmaeon was in full youth, and held similar doctrines to theirs. He said, in effect, that most human things are arranged in opposite pairs, but without expounding, like them, those oppositions in a particular order, but at random, such as white–black, bitter–sweet, good–bad, large–small. He added them confusedly to the others; the Pythagoreans, however, determined the number and relationship of the oppositions. Thus, we can learn from both that the principle of beings consists of opposites; but only from some (i.e., the Pythagoreans) the number and names of these opposites. (emphasis added)

On analysing the Table of Opposites, the first opposites are the finite and the infinite (limited and unlimited). In respect of this opposition, Philolaus said:

ἁ θύζηο δ   '   ἐληῶηθόζκση ἀξκόρζεὲμ ἀπεί   ξσληε θαὶ πεξαηλόλησλ, θαὶ ὅινο ὁ̓ θόζκνο θαὶ ηὰ ἐλ αὐηῶῆ πάληα'.

Nature is adjusted in the universe by infinite and finite things, and the whole universe and all things in it. (Fragment 1, Diels-Kranz)

On another occasion, Philolaus wrote:

ἀλάγθα ηὰ ἐόλησ ε ῖκελ πάληα ἢ πεξαίλνλησ ἢ ἄπεηξα ἢ πεξαίλνληά ηε θαὶ ἄπεηξα· ἄπεηξα δὲ κόλνλ ἢ πεξαίλνλησ κόλνλ>νὔ θα εἴε. ἐπεὶ ηνίλπλ θαίλεηαη νὔη' ἐθ πεξαηλόλησλ πάλησλἐόλησ ν ὔη' ἐμ ἀπείξσλ πάλησλ , δῆιινληἆξα ὅηηηέθ πεξαηλόλησλ ηε θαὶ ἀπείξσλ ὅ ηεθόζκνο θαὶ ηὰ ἐλ αὐηῶη ζπλαξκόρζε. δειινῖ δὲ θαὶ ηὰ ἐληηνῖ   ἔξγνηο.ηὰ κὲλ γὰξ αὐηῶλἐθ πεξαηλόλησλ πεξαίλνληη , ηὰ δ ' ἐθ πεξαηλόλησλ ηε θαὶ ἀπείξσλ πεξαίλνληί ηε θαὶ νὐ πεξαίλνληη   , ηὰ δ ' ἐμ ἀπείξσλ ἄπεηξα θαλέληηαη.

It is necessary that all existing things be either finite or infinite, but they could not be infinite or finite only. Thus, given that they seem to originate neither from the finite nor the infinite, it is clear that the universe and all things in it are composed by the finite and the infinite. These things are also evident in actions, for some are finite by their own

finitude, others are finite and infinite by their finitude and infinity, and those that originate in the infinite reveal themselves to be infinite. (Fragment 2, Diels-Kranz)

As for the second principle, represented by the opposition of odd and even in the Table of Opposites, Porphyry said:

ηὸλδὲ ηῆοἐηεξόηεηνο θαὶ ἀληζόηεηνο θαὶ παληὸοηνῦ κεξηζζηνῦ θαὶ ἐλκεηαβνι ῆ θαὶ ἄιινηεἄιισοἔρνληνο δπνεηδῆ ιόγνλ θαὶ δπάδα πξνζεγόξεπζαι·

the nature of diversity, of inequality, of all that is divisible, is in what is changeable and, sometimes one way, sometimes the other, which is called a dual relationship or duality *(Life of Pythagoras, 50)*[6]

From this duality comes the harmony of odd and even.

From the third principle, called unity–plurality, come the dimensions that are manifested as the end, the middle and the beginning, the concept of the unity in manifold form, the sphere and its infinitude.

The fourth principle, stated as right–left, has the following concept in Aristotle: "Some say that there is a right and a left (part) of the sky, such as the Pythagoreans, and this is in fact their opinion."

The right–left principle reveals the Pythagorean concern with the interaction between man and nature, and how the latter manifests itself to the former. The universal duality in essence.

The fifth principle brings us to the male–female opposition. On this, we have in Diels-Kranz Fragment 12 of Philolaus:

θαὶ ηὰ κὲλ ηᾶο ζθαίξαο ζώκαηα πέληεεὶηί   , ηὰ ἐλ ηᾶη ζθαίξαη πῦξ θαὶ ὕδσξ θαὶ γᾶ θαὶ ἀήξ , θαὶ ὃ ηᾶο ζθαίξαο ὁιθάο, πέκπηνλ.

And the sphere has five bodies, and the bodies in the sphere are the fire, water, earth and air, and the vessel of the sphere.

The fifth opposition of the table reveals the human condition; whereby it seems the vessel is the way it manifests itself with Philolaus.

As for the other principles, Philolaus explains them, whereby he conveys in general terms the concepts of the ten:

ζεσξεῖλδεῖ ηὰ   ἔξγα θαὶ ηηλνυζίαλ ηῶ αξηζκῶ θαηηαὰ
δύλακηλ ἄηηοεζηἰλὲλ ηᾶη δεθάδη· κεγάια γὰξ θαὶ παληειὴο
θαὶ παληεξγὸο θαὶ ζείσ θαὶ νὐξαλίσ βίσ θαὶ ἀλζξσπίλσ
ἀξρὰ θαὶ ἀγεκὼλθνηλσλῦζα *** δύλακηο θαὶ ηᾶο δεθάδνο.
ἄλεπ δὲ ηνύηαο πάλη᾽ ἄπεηξα θαὶ ἄδεια θαὶ ἀθαλῆ.γλσθηθὰ
γὰξ ἁ θύζηο ἁ ηῶ ἁ ξηζκῶ θαὶ ἡγεκνληθὰ θαὶ δηδαζθαιηθὰ
ηῶ ἀπνξνπκέλσ παληὸο θαὶ ἀγλννπκέλσ παληί   .νὐ γὰξ
ἦο δῆλινλὐδελὶ νὐδὲληῶλ πξαγκάησλ ν ὕηε αὐηῶλ πνζ᾽ αὐηὰ
νὔηεἄιισ πξὸο ἄιιν, εἰ κὴ   ἦο ἀξηζκὸο θαὶ ἁ ηνύηασνὐζία   .
λῦλδὲ ν ὗηνο   θαηηαὰ ζπξὰλ ἀξκόδσλ αἰζζήζει πάληα
γλσζηὰ θαὶ πνηάγσξα ἀιιάινηο θαηὰ γλώκνλνζθύζηλ
ἀπεξγάδεηαη ζσκαηῶλ θαὶ ζξίδσιελὐνηόγνπν
ξσξηνέζάζηλπν ηῶλ πξαγκάησλ ηῶληε ἀπείξσλ θαὶ ηῶλ
πεξαηλόληασλ. ἴδνηνδέ θα λὐ κόλνλἐληνῖο δαηκνλλί νηο θαὶ
ζείνηο πξάγκαζη ηὰλ ηῶ ἀξηζκῶ θύζηλ θαὶ ηὰλ δύλακηλ
ἰζρύνπζαλ, ἀιιὰ θαὶ ἐληνῖο ἀλζξσπηθνῖο   ἔξγνηο θαὶ ιόγνηο
πᾶζη παληᾶ θαὶ θαηὰ ηὰο δεκηνπξγίαο ηὰο ηερληθὰο
πάζαο θαὶ θαηὰ ηὰλ κνπζηθάλ.

The activities and the essence of the number must be observed according to its power that exists within the ten, because it is great, it takes all to its conclusion, makes all things reality, and the principle of celestial and human livesconductsunion *** also a power of the ten. Without this, all things are limitless, obscure and elusive. The nature of the number leads to knowledge, thought and science, even though someone may not know everything, and may be ignorant of all. For nothing would be evident to anyone, not in itself, nor one thing in relation to another, were it not for the existence of the number and its essence. This, in fact, composed according to the soul and by the perception of the senses, makes all things known and interrelated, depending on the nature of knowledge, making them tangible and dividing them, setting apart each limitless and limited thing. And the nature of the number and its active power can be

seen not only in the actions of the genii and of the gods, but also in all actions and human words, everywhere, in the crafts, in all the arts, and in the musical art. (Fragment 11, Diels-Kranz)

Thus we have some of the principles of the Table of Oppositesanalysed, and others inferred by applying the assumptions contributed by Philolaus in the collected fragments.

<u>III</u>

Let us return to the first opposition of the Pythagorean table: the finite and the infinite. This opposition shows us how the universe manifests itself: the manifestation of the limited finite in the unlimited infinite.

Philolaus wrote about how the universe manifests itself:

ὁ θόζκνοεῖοἐζηηλ, ἤξμαην δὲ γίγλεζζαη ἀπὸ ηνῦ κέζνπ θαὶ ἀπὸ ηνῦ κέζνπ εἰοηὸ ἄλσδηὰ ηῶλ αὐηῶληνῖο θάησ.ἔζηη γὰξ ηὰ ἄλσηνῦ κέζνπ ὑπελαληίσο θείκεια ηνῖο θάησ .ηνῖο γὰξ θαηοηάησ ηὰ κέζα ἐζηὶλ ὥζπεξ ηὰ ἀλσηάησ θαὶ ηὰ ἄιια ὡζαύησο.πξὸο γὰξ ηὸ κέζνλ θαηὰ ηαὐηά ἐζηηλἐθάηεξα, ὅζα κὴ κεηελήλεθηαη.

The universe is one, but began to arise from the center, and from the center to the top, by means of the same things related to those below. For the things above are on the opposite side of the center in relation to those below. For, with respect to the lowest things, the central things are as the highest, in the same way as to the rest. For, with respect to the center, each of these thingsis the same if not displaced. (Fragment 17, Diels-Kranz)

Anaxagoras of Clazomenae gives us the concept of the universe as seen below:

ὁκνῦ πάληα ρξήκαηα ἦλ, ἄπεηξα θαὶ πιῆζνο θαὶ ζκηθξόηεηα· θαὶ γὰξ ηὸ ζκηθξὸλ ἄπεηξνλἦλ. θαὶ πάλησλὁκνῦ ἐόλησλνὐδὲλἔλδεινλἦλ ὑπὸ ζκηθξόηεηνο·

all things were together, infinite in number and smallness, for the small too was infinite. And because all things were

together, nothing was visible for its smallness. (Fragment 1, Diels-Kranz)

θαὶ πξῶηνλ ἀπό ηνπ ζκηθξνῦ   ἤξμαην πεξηξσξεῖλ , ἐπὶ δὲ πιένλ πεξηξσξεῖ , θαὶ πεξηξσξήζεη ἐπὶ πιένλ   .[…] ἡ δὲ πεξηξώξεζηο αὐηὴ ἐπνίεζελ ἀπνθξίλεζζαη .θαὶ ἀπνθξίλεηαη ἀπό ηεηλῦ ἀξαηλῦ ηὸ ππθλὸλ θαὶ ἀπὸ ηνῦ ςπξξνῦ ηὸ ζεξκὸλ θαὶ ἀπὸ ηνῦ δνζεξνῦ ηὸ ιακπξὸλ θαὶ ἀπὸ ηνῦ δηεξνῦ ηὸ κεξόλ.

And first it started to rotate around the small, and rotating around the greater, and it will rotate around what is greater. […] and this rotation produced the separation. And dense separates from permeable, heat from cold, light from dark, and wet from dry. (Fragment 12, Diels-Kranz)

θαὶ ἐπεὶ ἤξμαην ὁ˙λνῦοθηλεῖλ, ἀπὸ ηνῦ θηλνπκέλνπ παληὸο ἀπεθξίλεην, θαὶ ὅζνλἐθίλεζελ ὁ λνῦο , πᾶλ ηνῦ ηνδηεθξίζε· θηλνπκέλσλ δὲ θαὶ δηαθξηλνκέλσλ ἡ πεξηξώξεζηο πνιιῶ κᾶιλλ ἐπνίεηδηαθξίλεζζαη.

When the spirit began to move, it separated from everything that was in motion, and the spirit moved everything, and that everything was separated; and rotation, because it was itself in motion and separating, made the separation much greater. (Fragment 13, Diels-Kranz)

In his concept of the universe, Anaxagoras brings us to the idea of motion. His intellect introduces motion with the separation of opposites from the moment when all was together, infinite in number and smallness. And this separation will spread increasingly in a continuous motion.

Both Philolaus of Croton and Anaxagoras of Clazomenae considered the existence of an original union, where nothing was discernible and all parts constituted the originating harmonic unity. Thus, it can be said of this originating unity that all divisions deriving from it always take into account that original harmonic unified nature. Therefore, it can be said that once the unity is divided, there is always a similarity between the parts that compose it.

Regarding the mechanism by which this birth proceeds from the center, we find in Mondolfo[7], referring to Aristotle (*Physics,* IV, 6, 213b.22–27):

> εἶλαη δ' ἔθαζαλ θαὶ νί Ππζαγόξεηνηθελόλ , θαὶ ἐπεηζηέλαη αὐηὸ ἠῶνὺξαλῷ ἐθηνῦ ἀπείξνπ πλεύκαηνο ὡο ἀλαπλένλη θαὶ ηὸ θελόλ , ὃ δηνξίδεη ηὰο θύζεηο , ὡοὅληνονηῦ θελνῦ ροξηζκνῦ ηηλὸοηηῶλέθεμῆο θαὶ [ηῆο] δηνξίζεσο· θαὶ ηνῦη' εἶλαη πξῶη νλέληηο ἀξηζκνῖο · ηὸ γὰξ θελόλδηνξξίδεηηηλὴλἀθύζηλ αὐηῶλ.

> And the Pythagoreans also say that the void exists and enters itself in heaven by breathing the infinite breath, and that the void separates things from natures, because it is a kind of void that allows separation and the separation of successive things, and this precedes numbers, because the void separates their nature.[8]

Mondolfo returns further down, again referring to Aristotle (Physics, III, 4, 203a.4–7):

> νί Ππζαγόξεην θαὶ Πιάησλ , θαζ' αὑηό, νὐρὼο ζπκβεβεθόοηηηληέηέξῳ ἀιι ' νὐζίαλ αὐηὸ ὂληὸ ἄπεηξνλ.πιὴλί κέλ Ππζαγόξεηνηέληνῖο αἰζζεηνῖο [...] θαὶ εἶλαη ηὸ ἔμσηνῦ νὐξαλνῦ ἄπεηξνλ.

> The Pythagoreans and Plato do not consider infinity as an accident (attribute) of another substance but a substance in itself. However, the Pythagoreans include it among sensible things […] and say that infinity is outside of the heavens.

He ultimately concludes: "…it seems that, for Pythagoras, infinity is not identified only with air and vacuum, but also with darkness, as opposed to the limit, which is identified with fire."

IV

The numbers appear on the second principle of the Table of Opposites. Regarding the forms of the numbers, which we find in the second principle of the Table of Opposites, Philolaus wrote:

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7 *Idem*, p. 50.

8 *Physics·* Ed. W.D. Ross, *Aristotelisphysica·* Oxford: Clarendon Press, 1966.

ὅ γα κὰλ ἀξηζκὸο ἔρεηδύνκὲλἴδηα εἴδε, πεξηζζὸλ θαὶ ἄξηηνλ, ηξίηνλδὲ ἀπ ' ἀκθνηέξσλκεηρζέληνλ ἀξηηνπέξηηηνλ· ἐθαηέξῷ δὲ ηῷ ε ἴδενο πνιιαὶ κνξθαὶ , ἅοἕθαζηνλ αὐηαπὸ ζεκαίλεη.

Numbers are of two special kinds, odd and even, with a third, even–odd, arising from a mixture of the two; and many forms that are specific to each of these kinds, which shows how each one of these exists of itself. (Fragment 5, Diels-Kranz)

According to Rodolfo Mondolfo[9], the Pythagoreans had the habit of representing numbers geometrically through stones or points side by side. Thus, the even numbers are represented as follows: .. (2); .... (4); ...... (6). Odd numbers are represented by: ... (3); ..... (5); .... (7). It can be seen that, for the even numbers, there is nothing opposing a dividing line, whereas for the odd numbers, the central point stands in the way of drawing a line. For this reason, they claim that even numbers are infinite—there is infinity in the middle of them—and the odd numbers are finite. Therefore, in numerical representation, we see that the series two (2), four (4), six (6)… is even (and infinite), and the series three (3), five (5), seven (7)… is odd (and finite), thereby leaving one (1) as even–odd.

Regarding one (1), Mondolfo says[10]:

The reason why one participates in the even (infinite) and the odd (finite) is explained by Theon of Smyrna (A, V): Aristotle, in his work on the Pythagoreans, said one participates in the two natures. Indeed, added to an even number it creates an odd number; added to an odd, it creates an even, which it could not do if it did not participate in the two natures. Therefore, the unity is called even–odd (Fragment 199, Aristotle).

[9] *Idem*, p. 58.

[10] *Idem, ibidem·*

Organizing this universe represented by the numbers, Philolaus said:

ἡ κὲλκνλὰο ὡοᾰλ αῗξρὴ νῦζα πάλησλ

the One is the first principle of all things (Fragment 8, Diels-Kranz)

Complementing this aforementioned concept, Aristotle says:

θαὶ νί Ππζαγόξεηνη δ   ' ἔλα, ηὸλ καζεκαηηθόλ, πιὴλὺ θερσξηζκέλνλ ἀιι   ' ἐθηνύηνπ ηὰο αἰζζεηὰο νὺζίαο ζπλεζηάλαη θαζίλ·

and the Pythagoreans say that there is one type of number, the mathematical, although that does not exist on its own, but consists of sensible things *(Metaphysics,* 1080b.16–18)[11]

This is how the Pythagoreans understand the need for the union of opposites that is found in nature. Harmony regulates everything in order to bring the unlimited and the limited together, and is represented numerically by the number one, for it is this that represents numerical harmony.

V

Unity and plurality, the third principle set out in the Table of Opposites, bring us to the concept of infinities. Regarding infinities, Anaxagoras said:

νῦηε γὰξ ηνῦ ζκηθξνῦ εῗζηηηό γεεἰάρηζηνλ, ἀιι' ἔιαζζνλ ἀεί (ηὸ γὰξ ἐὸλνῦ θ ἔζηηηὸ κὴ νὺθεῗλαη) – ἀιιὰ θαὶ ηνῦ κεγάινπ ἀεί ἐζηηθεῖδνλ .θαὶ ἴζνλἐζηὶ ηῶηζκηθηθξῶη πιῆζνο , πξὸο έαπηὸ δὲ ἔθαζηόλ ἐζηη θαὶ κέγα θαὶ ζκηθξόλ.

Because there is no minimum degree of smallness, but always something smaller. For it is impossible for a being not to be. But also of largeness, there is always something larger. And it is the same in multitude as smallness (from Fragment 3)[12].

Also, we have in Philolaus:

11 *Metaphysics·* Ed. W.D. Ross, *Aristotle's metaphysics,* 2 vols. Oxford: Clarendon Press, 1970.

12 SIMPLÍCIO, *Ph*ysics, 164, 16. Translation taken from the book O PENSAMENTO ANTIGO, HISTÓRIA DA FILOSOFIA GRECO-ROMANA ("Ancient Thought, a History of Greco-Roman Philosophy"), by Rodolfo Mondolfo, Volume I, published by MestreJou, 1973.

ηò πξᾶηλ ἀξκνζζέλ, ηò ἔλ, ἐληῶηκέζη ηᾶο ζθαίξαο ἐζηία θαιεῖηαη.

> The first to be composed, the one, in the middle of the sphere, is called home. (Fragment 7, Diels-Kranz)

Thus, we can numerically represent the infinite. At the center of the sphere we have the one (1), the first to be composed, the unity. Starting from this, there is a plurality in largeness and smallness. In an attempt to represent the small universe, we have: 1 (center of the sphere), 1/2 (one smaller), 1/3 (one smaller) and so on ad infinitum, the infinitely small. Starting again with one (1) as the center, we have: 1 (center of the sphere), 2 (one larger), 3 (one larger) and so on ad infinitum, the infinitely large. Here we have demonstrated the infinitesimal and the infinite.

Thus, we have demonstrated numerically the third principle of the Table of Opposites. Regarding this principle—namely, unity and its plurality—Aristotle wrote in the Table of Opposites:

> Καζάπεξ γάξ θαζη θαὶ νί Ππζαγόξεηνη   , ηò πᾶλ θαὶ ηὰ πάληα ηνῖοηξηζὶλῶξηζηαη·   ηειεπηὴ γὰξ θαὶ κέζνλ θαὶ ἀξῂ ηòλ ἀξηζκòλἔρεηηòληῦ παληόο, ηαῦηα δὲ ηòληῆοηξηάδνο.

> For, as the Pythagoreans also say, the whole and all things define the number three: for the end, the middle and the beginning have the number of everything, and these form a triad. (*Du ciel,* 268a.10–13)[13]

This provides a glimpse of how this plurality of one is manifested. At the center of the sphere is the one, the unity. The plurality is found both in the infinitely large—the beginning—and in the infinitesimal, the end. Placing the one in the center of the sphere, in view of the infinity that surrounds it, makes us infer the infinity of the sphere itself.

VI

The fourth opposition of the Table is the right–left. The observation of duality, the dualistic conception of the universe.

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13 *De caelo.* Ed. P. Moraux, *Aristote. Du ciel.* Paris Les Belles Lettres, 1965.

Regarding the dualistic conception of the universe, Heraclitus of Ephesus said:

θόζκνληόλδε, ηὸλ αὐηὸλ ἁπάλησλ , νὔηεηηοζεῶλνὔηε ἀλζξώπσλ ἐπνίεζελ , ἀιι' ἦλ ἀεὶ θαὶ ἔζηηλ θαὶ ἔζηαη πῦξ ἀείδσλλ, ἁπηόκελλκέηξα θαὶ ἀπνζβελλύκελλ κέηξα.

This universe, which is the same for all, no one of gods or men has made. But it always was and will be: an ever-living fire, with measures of it kindling, and measures going out. (Fragment 30, Diels-Kranz)

Mondolfo teaches us that this exchange of things is conceived as periodic universal event in the conception of cosmic cycles that Greek thinking had extracted from Chaldean-Babylonian astrology.

Extending the idea of cosmic cycles, Mondolfo says, using Seneca's words: "Berosus (Babylonian), who interpreted Belos, said the great cosmic year is completed by the course of the stars, and says it with such assurance as to determine the moment of the universal conflagration." [14]

Complementing the ideas of Seneca, Rodolfo Mondolfo explains:

The great cosmic year, which is the period in which the cycle of the eternal return of the cosmic rotations is completed, has its summer in the conflagration, and its winter in the universal flood. Berosus, a Chaldean priest of the third century BC, an echo of the ancient traditions of Babylon, estimated it at 432,000 years (c.f. Fragm. historic. graec, Fr 4 of Berosus), but the Greek authors calculated it to be between 10 and 30 thousand years at most[15].

VII

The fifth opposition set out in the Pythagorean Table of Opposites is male–female. The discussion on the vessel of the sphere about which Philolaus told us. This brings us to discuss of how the vessel is manifested.

Mondolfo presents the Pythagorean idea of soul-harmony as follows: "Music, by its nature, is found among the sweetest things. And it seems that there is (in us) an affinity with harmonies and numbers; for this reason, many sages say in unison that the soul is a harmony; others say that it has a harmony (Aristotle, Politics, VIII, 5, 1340). And they say that harmony is a mixture and a composition of mixed things, and the soul can be neither one nor the other of such things (Aristotle, De An., I, 4, 407)"

Mondolfo says the following of this divergence[16]: "Aristotle speaks thus of Alcmaeon, who lived around the year 515 (when, according to Aristotle, Pythagoras was old): The man from Croton calls the soul immortal because it resembles immortal things; this similarity lies in constantly being in motion, because divine things also move constantly: the Moon, the Sun, the stars and all Heaven (De anima, I, 2, 405)".

Unlike Pythagoras, who like the Egyptians conceived the soul in metempsychosis, Alcmaeon associates the soul only with the movement of the universe in immortal motion.

According to Mondolfo, the so-called Medical Theories Connected to Pythagoreanism existed from Alcmaeon[17], who flourished in Croton in 515 BC, to Philolaus of Croton, who flourished in 420 BC, to Philistion of Locri, who flourished in 310 BC.

The philosophers of Croton, starting with Alcmaeon, tell us that:

πεξὶ ηῶλ ἀθαλέσλ , πεξὶ ηῶλζλεηῶλ ζαθήλεηαλ κὲλζενὶ ἔρνλῃ, ὡοδὲ ἀλζεώπνηοηεθκαίξεζζαη θαὶ ηὰ ἐμῆο.

Concerning invisible and divine things, the gods have clarity, but as men we conjecture sequences of events. (Fragment 30, Diels-Kranz)

and then, with Philolaus, we have the number subsequent to conjecture:

16 Idem p. 50
17 Idem, p. 53.

ὤζῃε θαὶ δηάλνηαί ηηλεο θαὶ πάζενυϑεϑ   ᾿ ἡκῐλεῐζηλ, ἤ
πξάμεηο αἱ θαηὰ ηὰο ηνηαύηαο δηαλνίαο θαὶ ινγηζκνύο

such that some knowledge is not in us by experience or by actions, but in accordance with thoughts and numbers (Fragment 16, Diels-Kranz)

VIII

With these concepts clear, it is possible to conceive of the mechanism by which the active principles of the drugs used in ancient medicine worked. For the sake of argument, let us take the following example: a patient who is too calm, complaining that this fact prevents him from being more productive at work. From this situation it is inferred that the place where this feeling is processed in the thoughts of that individual is expanded beyond that originating harmonic One. Being in harmony puts that One in the number-1 position referred to by Philolaus. In this situation, any external agent that has an effective impact on that region of thought will cause the expansion of that originating harmonic One. Let us take chamomile as the ideal treatment. This herb, given to a healthy patient, will cause him or her to be calm. This fact means that this herb, if properly treated, will put an end to the excessive calm.

The manipulation may be by means of a process of dilution in water of the chosen substance, the chamomile. Stir the compound for a while. After this, the next step is the collection of a drop and further dilution in pure water and manipulation; repeating this until the desired point is reached. Thus, the principle contained in the chamomile is taken to a dimension well below the dimension at which the expansion in thought is manifested.

Thus, it follows that the place where the calming thought occurs in the patient's brain is expanded to the dimension of the principle, this being due to the action of the external agent. In this situation, a particle of chamomile that has reached a sufficient potency for the case, a particle that came to that universe below the originating dimension, is used in order to achieve the level of smallness appropriate to effect the opposition.

What will happen? That event caused by chamomile in that microworld, in the dimension of the end according to Alcmaeon's formula, will continue expanding, almost by a breath of the infinite (*pneuma*), toward the dimension of the middle, where the origin of the disharmonized thought is seated. And that microuniverse will start evolving toward the dimension of the brain where the thought is disharmonized. The moment the artificial microuniverse (the end) reaches the dimension of the thought that is expanded by the external agent (the beginning), the following phenomenon occurs.

That combination (the One), represented by the location in the brain where that thought is processed, has expanded to the largeness due to the external agent, and now has also expanded toward the smallness by means of the manipulated chamomile. This combination will now have added to it the information that that *One,* the corresponding brain in harmony, its expansion to the largeness caused by the external agent and the expansion to the smallness, caused artificially by the chamomile, has come to an end, which occurred in the direction of the small world, since expansion of particles below the dimension at which the chamomile has been inoculated is not possible, since its nature is similar to that of the external agent, causing an expansion also similar to that of the external agent. Since the combination expands uniformly, the end of the possibility of expansion that occurred in the dimension of the smallness will cause a cessation of the expansive activity. With this information, the location of the brain that processes the excessively calm thought,which prevents the patient from being more productive at work, will start a retraction process, due to the expansion that previously occurred, which will cease when the artificial expansion that occurred in the dimensions below reaches the proposed target for the end of the excessive calmness; this will promote a return of that process of established imbalance.

The use of the concept of opposites (large–small) is practiced in the change that happens. The dimension of smallness—the microcosm—in opposition to the dimension of largeness, the macrocosm, where the morbid manifestation occurs—

gives the degree of effectiveness in combating morbidity by using the expansion of the One. The technique, the Greek *ars,* based on opposites, is observed. The combination resulting from the large–small opposition provides the return to the harmonic point prior to the action of the external agent.

IX

By using the Pythagorean concepts, it was possible to create the profile of the ancient medication. Given this, it is possible that ancient medicine has a resemblance to the medicine practiced among the Greeks at the time of the pre-Socratic philosophers; this we will now see by introducing concepts of the ancient medicine practiced by the Greeks.

Francisco Guerra[18] explains that: "There existed in Greece an astral medicine nourished by a broad Persian and Egyptian tradition of astronomical observations shaped by Greek medics before the 4th century BC." He goes on to conclude: "Greek astral medicine, based on the concept of universal sympathy and the correlation of the macrocosm of the universe with the microcosm of humans were known as the *Corpus Hermeticum.*"

From what we can see, both the Greek astral medicine and ancient medicine have the same foundations. The macrocosm–microcosm correlation and universal sympathy are seen in both medical concepts. In the example we have provided, there is a sympathy between chamomile and the external agent. The sympathy is manifested because both cause expansion in the same area of thought, the external agent is conceived in the macrocosm (the largeness) and chamomile is conceived to act in the microcosm (the smallness), which will result in the patient being healed. As with Greek astral medicine, ancient medicine works with the ideas of universal sympathy, macrocosm and microcosm. From what Guerra tells us, Greek astral medicine was theorized in the *Corpus Hermeticum*, and thus it is possible to

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[18] Guerra, Francisco, Historia de La Medicina, Madrid, Ediciones Norma, 1982, p. 117/118.

say that those concepts that explained ancient medicine—concepts of the Pythagorean School—were concepts that were included in the *Corpus Hermeticum·*