



HEGEL ON NUMBER MYSTICISM: PYTHAGOREANISM, ASTROLOGY, I CHING

ON ASTROLOGY

The content of astrology is to be rejected as superstition; but science is under the obligation to assign the specific ground for this rejection. This ground must not be simply that the planets are [only] bodies and remote from us, but more specifically that the planetary life of the Solar System is only a life of *motion*, in other words, is a life in which the determining factor is constituted by space and time (for the moments of space and time are the moments of motion). The laws of planetary motion are determined solely by the Notion of space and of time; it is, therefore, in the planets that absolutely free motion has its actuality. But even in what is physically individual this abstract motion is a completely subordinate factor; the individual as such makes its own space and time; its alteration is determined by its concrete nature. [On the natural rhythms of the animal body] But for mind, the abstract determinations of space and time, the mechanics of free motion, have absolutely no significance and no power; the determinations of self-conscious mind are infinitely more substantial, more concrete, than the abstract determinations of juxtaposition and succession. Mind, as embodied, is indeed in a definite place and in a definite time; but for all that it is exalted over them. [Only the distance of the earth from the sun matters to human life.] The strictly terrestrial phenomena, too—the annual revolution of the Earth round the Sun, the daily axial rotation of the Earth, the inclination of the Earth's axis to the ecliptic—all these determinations belonging to the Earth's individuality, though not without influence on mankind, have no significance on mind as such. The Church itself has therefore rightly rejected as superstitious and unethical the belief in a power exercised over the human spirit by these terrestrial and cosmic relationships. Man should regard himself as free from such relationships of Nature; but in that superstition he thinks of himself as a creature of Nature.

SOURCE: Zusatz, section (I)(A)(a)(alpha), para. 392, "Physical Qualities", in *Hegel's Philosophy of Mind: Being Part Three of the Encyclopaedia of the Philosophical Sciences*, translated by William Wallace, together with the Zusätze in Boumann's text (1845); translated by A. V. Miller; with foreword by J. N. Findlay (Oxford: Clarendon Press, 1971); excerpt, pp. 37-38.

ON THE I CHING

These symbols are quite abstract categories, and consequently the most superficial determinations of the understanding. It must certainly be considered that pure thoughts are brought to consciousness, but in this case we make no advance, merely remaining stationary so far as they are concerned. The concrete is not conceived of speculatively, but is simply taken from ordinary ideas, inasmuch as it is expressed in accordance with their forms of representation and of perception. Hence in this collection of concrete principles there is not to be found in one single instance a sensuous conception of universal natural or spiritual powers. We may thus obtain a philosophic origin for everything out of these abstract thoughts of unity and duality. All symbols have the advantage of indicating thoughts and of calling up significations, and in this way such are

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abstraction with the Chinese thus goes on to what is concrete, although in accordance with an external kind of order only, and without containing anything that is sensuous.

SOURCE: *Lectures on the History of Philosophy*, vol. 1, by Georg Wilhelm Friedrich Hegel; translated by E.S. Haldane; introduction to the Bison Book Edition by Frederick C. Beiser (Lincoln: University of Nebraska Press, 1995), pp. 121-123.

ON PYTHAGOREANISM (I)

It would however, be a superfluous and thankless task to try to use such an unmanageable and inadequate medium as spatial figures and numbers for the expression of thoughts, and to treat them violently for this purpose. For the specific concept would always be related only externally to them. The simple elementary figures and numbers can in any case be used as symbols, which, however, are a subordinate and poor expression for thoughts. The first attempts of pure thought took recourse to such aids: the Pythagorean system of numbers is the famous example of this. But with richer concepts these means became completely unsatisfactory, since their external juxtaposition and contingent combination are not at all appropriate to the nature of the concept, and make it altogether ambiguous which of the many possible relationships in complex numbers and figures should be adhered to. Besides, the fluid character of the concept is dissipated in such an external medium, in which each determination falls into the indifferent being outside the others. This ambiguity could only be removed by an explanation. The essential expression of the thought is in that case this explanation, and this symbolizing is an empty superfluity.

SOURCE: *Encyclopedia of the Philosophical Sciences in Outline, and Critical Writings*, by G.W.F. Hegel, edited by Ernst Behler (New York: Continuum, 1990) [The German Library; v. 24]; *Encyclopedia of the Philosophical Sciences in Outline*, translated by Steven A. Taubeneck, section (B) The Philosophy of Nature, I. Mathematics, from #202, pp. 148-149.

ON PYTHAGOREANISM (II)

Pythagoras, as is well known, philosophized in numbers, and conceived number as the fundamental principle of things. To the ordinary mind this view must at first glance seem an utter paradox, perhaps a mere craze. What then, are we to think of it? To answer this question, we must, in the first place, remember that the problem of philosophy consists in tracing back things to thoughts, and, of course, to definite thoughts. Now number is undoubtedly a thought: it is the thought nearest the sensible, or, more precisely expressed, it is the thought of the sensible itself, if we take the sensible to mean what is many, and in reciprocal exclusion. The attempt to apprehend the universe as number is therefore the first step to metaphysics. In the history of philosophy, Pythagoras, as we know, stands between the Ionian philosophers and the Eleatics. While the former, as Aristotle says, never get beyond viewing the essence of things as material, and the latter, especially Parmenides, advanced as far as pure thought, in the shape of Being, the principle of the Pythagorean philosophy forms, as it were, the bridge from the sensible to the supersensible.

We may gather from this, what is to be said of those who suppose that Pythagoras undoubtedly went too far, when he conceived the essence of things as mere number. It is true, they admit, that we can number things; but, they contend, things are more than mere

numbers. But in what respect are they more? The ordinary sensuous consciousness, from its own point of view, would not hesitate to answer the question by handing us over to sensuous perception, and remarking that things are not merely numerable, but also visible, odorous, palpable, etc. In the phrase of modern times, the fault of Pythagoras would be described as an excess of idealism. As may be gathered from what has been said on the historical position of the Pythagorean school, the real state of the case is quite the reverse. Let it be conceded that things are more than numbers; but the meaning of that admission must be that the bare thought of number is still insufficient to enunciate the definite notion or essence of things. Instead, then, of saying that Pythagoras went too far with his philosophy of number, it would be nearer the truth to say that he did not go far enough; and in fact the Eleatics were the first to take the further step to pure thought. Besides, even if there are not things, there are states of things, and phenomena of nature altogether, the character of which mainly rests on definite numbers and proportions. This is especially the case with the difference of tones and their harmonic concord, which, according to a well-known tradition, first suggested to Pythagoras to conceive the essence of things as number. Though it is unquestionably important to science to trace back these phenomena to the definite numbers on which they are based, it is wholly inadmissible to view the characterization by thought as a whole as merely numerical. We may certainly feel ourselves prompted to associate the most general characteristics of thought with the first numbers: saying, 1 is the simple and immediate; 2 is difference and mediation; and 3 the unity of both of these. Such associations however are purely external: there is nothing in the mere numbers to make them express these definite thoughts. With every step in this method, the more arbitrary grows the association of definite numbers with definite thoughts. Thus we may view 4 as the unity of 1 and 3, and of the thoughts associated with them, but 4 is just as much the double of 2; similarly 9 is not merely the square of 3, but also the sum of 8 and 1, of 7 and 2, and so on. To attach, as do some secret societies of modern times, importance to all sorts of numbers and figures, is to some extent an innocent amusement, but it is also a sign of deficiency of intellectual resource. These numbers, it is said, conceal a profound meaning, and suggest a deal to think about. But the point in philosophy is, not what you may think, but that you do think: and the genuine air of thought is to be sought in thought itself, and not in arbitrarily selected symbols.

SOURCE: *Hegel's Logic: Being Part One of the Encyclopaedia of the Philosophical Sciences*, translated by William Wallace, with a foreword by J. N. Findlay (Oxford: Clarendon Press, 1975), chap. VII, section 104, pp. 154-155.

ON PYTHAGOREANISM (III)

Connected with this, there is a similar method of representing the universal content by means of numbers, lines and geometric figures. These are figurative, but not concretely so, as in the case of myths. Thus it may be said that eternity is a circle, the snake that bites its own tail. This is only an image, but Mind does not require such a symbol. There are people who value such methods of representation, but these forms do not go far. The most abstract determinations can indeed be thus expressed, but any further progress brings about confusion. Just as the freemasons have symbols which are esteemed for their depth of wisdom—depth as a brook is deep when one cannot see the bottom—that which is hidden very easily seems to men deep, or as if depth were concealed beneath. But when it is hidden, it may possibly prove to be the case that there is nothing behind. This is so in freemasonry, in which everything is concealed to those outside and also to many people within, and where nothing remarkable is possessed in learning or in science, and least of all in Philosophy. Thought is, on the contrary,

simply its manifestation; clearness is its nature and itself. The act of manifestation is not a condition which may be or may not be equally, so that thought may remain as thought when it is not manifested, but its manifestation is itself, its Being. Numbers, as will be remarked in respect of the Pythagoreans, are unsuitable mediums for expressing thoughts; thus [Greek terms] are, with Pythagoras, unity, difference, and unity of the unity and of the difference. The two first of the three are certainly united by addition; this kind of union is, however, the worst form of unity. In Religion the three make their appearance in a deeper sense as the Trinity, and in Philosophy as the Notion, but enumeration forms a bad method of expression. There is the same objection to it as would exist to making the mensuration of space the medium for expressing the absolute. People also quote the Philosophy of the Chinese, of the Foei, in which it is said that thoughts are represented by numbers. Yet the Chinese have explained their symbols and hence have made their meaning evident. Universal simple abstractions have been present to all people who have arrived at any degree of culture.

SOURCE: *Lectures on the History of Philosophy*, by Georg Wilhelm Friedrich Hegel, translated by E.S. Haldane, introduction to the Bison Book Edition by Frederick C. Beiser (Lincoln: University of Nebraska Press, 1995); from introduction, section B2, vol. 1, pp. 88-89.

ON PYTHAGOREANISM (IV)

Numbers have been much used as the expression of ideas, and this on the one hand has a semblance of profundity. For the fact that another significance than that immediately presented is implied in them, is evident at once; but how much there is within them is neither known by him who speaks nor by him who seeks to understand; it is like the witches' rhyme (one time one) in Goethe's 'Faust'. The less clear the thoughts, the deeper they appear; what is most essential, but most difficult, the expression of oneself in definite conceptions, is omitted. Thus Pythagoras' philosophy, since much has been added to it by those who wrote of it, may similarly appear as the mysterious product of minds as shallow and empty as they are dark. Fortunately, however, we have a special knowledge of the theoretic, speculative side of it, and that, indeed, from Aristotle and Sextus Empiricus, who have taken considerable trouble with it.

SOURCE: *Lectures on the History of Philosophy*, by Georg Wilhelm Friedrich Hegel, translated by E.S. Haldane, introduction to the Bison Book Edition by Frederick C. Beiser (Lincoln: University of Nebraska Press, 1995); from part one, section 1, chapter I, section B, vol. 1, p. 195.

This is part of a whole section devoted to Pythagoras and the Pythagoreans (pp. 194-239), the most sustained treatment by Hegel of Pythagoras I have found. This section is too lengthy to reproduce. Aside from a discussion of Pythagoras' life, there is some detail concerning his treatment of number. There is a brief recapitulation of the conceptual inadequacy of the Pythagorean philosophy of number in LHP, vol. 2, pp. 80-81, but there is nothing new here.

ON PYTHAGOREANISM (V)

§ 462

As we know, Pythagoras represented rational relationships (or philosophemata) by numbers; and more recently, too, numbers and forms of their relations, such as powers and so on, have

been employed in philosophy for the purpose of regulating thoughts or expressing them. From an educational point of view, number has been regarded as the most suitable object of inner intuition and arithmetical operations with number have been held to be the mental activity in which mind brings to view its most characteristic relationships and in general, the fundamental relationships of essence. How far number can claim this high worth is evident from its Notion as now before us.

§ 463

We saw that number is the absolute determinateness of quantity, and its element is the difference which has become indifferent — an implicit determinateness which at the same time is posited as wholly external. Arithmetic is an analytical science because all the combinations and differences which occur in its subject matter are not intrinsic to it but are effected on it in a wholly external manner. It does not have a concrete subject matter possessing inner, intrinsic, relationships which, as at first concealed, as not given in our immediate acquaintance with them, have first to be elicited by the efforts of cognition. Not only does it not contain the Notion and therefore no problem for speculative thought, but it is the antithesis of the Notion. Because of the indifference of the factors in combination to the combination itself in which there is no necessity, thought is engaged here in an activity which is at the same time the extreme externalisation of itself, an activity in which it is forced to move in a realm of thoughtlessness and to combine elements which are incapable of any necessary relationships. The subject matter is the abstract thought of externality itself.

§ 464

As this thought of externality, number is at the same time the abstraction of the manifoldness of sense, of which it has retained nothing but the abstract determination of externality itself. In number, therefore, sense is brought closest to thought: number is the pure thought of thought's own externalisation.

§ 465

The mind which rises above the world of the senses and contemplates its own essence, when it seeks an element for its pure representation, for the expression of its essence, may therefore happen on number, this inner, abstract externality, before it grasps thought itself as this element and wins the purely spiritual expression for the representation of its essence. This is why we see number used for the expression of philosophemata early on in the history of philosophy. It forms the latest stage in that imperfection which contemplates the universal admixed with sense. The ancients were clearly aware that number stands midway between sense and thought. Aristotle quotes Plato as saying that the mathematical determinations of things stand apart from and midway between the world of the senses and the Ideas; they are distinguished from the former by being invisible (eternal) and unmoved, and from the latter by being a many and a like, where as the Idea is purely self-identical and within itself a one. A more detailed and profound reflection on this subject by Moderatus of Cadiz is quoted in Malchi Vita Pythagorae. That the Pythagoreans hit on numbers he ascribes to their inability to apprehend clearly in reason fundamental ideas and first principles, because these are hard to think and hard to express; numbers serve well as designations in instruction; in this among other things the Pythagoreans imitated the geometers who cannot express what is corporeal in thoughts and therefore use figures, saying 'this is a triangle', by which they do not mean that the visible drawing is to be taken for the triangle but only that it is a representation of the

the above meaning is to be taken for the thought of unity, that it is a representation of the thought of it. Thus the Pythagoreans expressed the thought of unity, of self-sameness and equality and the ground of agreement, of connection and the sustaining of everything, of the self-identical, as a one. It is superfluous to remark that the Pythagoreans passed on from numbers to thought as a medium of expression, to the express categories of like and unlike, of limit and infinity; even in respect of these numerical expressions it is reported that the Pythagoreans distinguished between the Monas and the one; the Monas they took as the thought, but the one as the number, and similarly, they took two for the arithmetical term and the Dyas (for this is what it seems to mean there) for the thought of the indeterminate. These ancients at the outset perceived quite correctly the inadequacy of number forms for thought determinations and equally correctly they further demanded in place of this substitute for thoughts the characteristic expression; how much more advanced they were in their thinking than those who nowadays consider it praiseworthy, indeed profound, to revert to the puerile incapacity which again puts in the place of thought determinations numbers themselves and number-forms like powers, the infinitely great, the infinitely small, one divided by infinity, and other such determinations, which are themselves often only a perverted mathematical formalism.

§ 466

In connection with the expression quoted above, that number stands between sense and thought, since, like the former, it is in its own self a many and an asunderness, it must be observed that the many itself is sense taken up into thought, is the category of what is in its own self external and so proper to sense. When richer, concrete veritable thoughts, when what is most alive and most active, what is comprehended only in its concrete relationships, when such are transposed into this element of pure self-externality, they become dead, inert determinations.

§ 467

The richer in determinateness and, therefore, in relationships thoughts become, the more confused and also the more arbitrary and meaningless becomes their representation in such forms as numbers. The one, the two, the three, the four, Henas or Monas, Dyas, Trias, Tetractys, have still some resemblance to the wholly simple abstract Notions; but when numbers are supposed to represent concrete relationships, it is vain to try to retain such resemblance.

§ 468

But thought is set its hardest task when the determinations for the movement of the Notion through which alone it is the Notion, are denoted by one, two, three, four; for it is then moving in its opposite element, one which is devoid of all relation; it is engaged on a labour of derangement. The difficulty in comprehending that, for example, one is three and three is one, stems from the fact that one is devoid of all relation and therefore does not in its own self exhibit the determination through which it passes into its opposite; on the contrary, one is essentially a sheer excluding and rejection of such a relation. Conversely, understanding makes use of this to combat speculative truth (as, for example, against the truth laid down in the doctrine called the trinity) and it counts the determinations of it which constitute one unity, in order to expose them as sheer absurdity — that is, understanding itself commits the same absurdity of making that which is pure relation into something devoid of all relation. When the trinity was so named it was not reckoned that understanding would consider the

When the unity was so named it was not reckoned that understanding would consider the one and number to be the essential determinateness of its content. This name expresses contempt for the understanding, which has nevertheless confirmed itself in its conceit of clinging to the one and number as such, and has set it up against reason.

§ 469

To take numbers and geometrical figures (as the circle triangle etc., have often been taken), simply as symbols (the circle, for example, as a symbol of eternity, the triangle, of the trinity), is so far harmless enough; but, on the other hand, it is foolish to fancy that in this way more is expressed than can be grasped and expressed by thought. Whatever profound wisdom may be supposed to lie in such meagre symbols or in those richer products of fantasy in the mythology of peoples and in poetry generally, it is properly for thought alone to make explicit for consciousness the wisdom that lies only in them; and not only in symbols but in nature and in mind. In symbols the truth is dimmed and veiled by the sensuous element; only in the form of thought is it fully revealed to consciousness: the meaning is only the thought itself.

§ 470

But the perversity of employing mathematical categories for the determination of what belongs to the method or content of the science of philosophy is shown chiefly by the fact that, in so far as mathematical forms signify thoughts and distinctions based on the Notion, this their meaning has indeed first to be indicated, determined and justified in philosophy. In the concrete philosophical sciences philosophy must take the logical element from logic, not from mathematics; it can only be an expedient of philosophical incapacity which, instead of going to philosophy for the logical element, has recourse to the shapes assumed by the logical element in other sciences, many of which shapes are only adumbrations of that element, others even defective forms of it. Apart from this, the mere application of such borrowed forms is an external procedure; the application itself must be preceded by an awareness not only of their meaning but of their value, too, and such awareness can come only from reflecting on them, not from the authority of mathematics. But logic itself is such awareness and it strips these forms of their particularity which it renders superfluous and unnecessary; it is logic which rectifies these forms and alone procures for them their justification, meaning and value.

§ 471

As for the supposed primary importance of number and calculation in an educational regard, the truth of the matter is clearly evident from what has been said. Number is a non-sensuous object, and occupation with it and its combinations is a non-sensuous business; in it mind is held to communing with itself and to an inner abstract labour, a matter of great though one-sided importance. For, on the other hand, since the basis of number is only an external, thoughtless difference, such occupation is an unthinking, mechanical one. The effort consists mainly in holding fast what is devoid of the Notion and in combining it purely mechanically. The content is the empty one; the substantial content of moral and spiritual life in its various forms on which, as the noblest aliment, education should nurture the young mind, is to be supplanted by the blank one or unit; when such exercise is made the prime interest and occupation, the only possible outcome must be to dull the mind and to empty it of both form and substance. Calculation being so much an external and therefore mechanical business, it has been possible to construct machines which perform arithmetical operations with complete

has been possible to construct machines which perform arithmetical operations with complete accuracy. A knowledge of just this one fact about the nature of calculation is sufficient for an appraisal of the idea of making calculation the principal means for educating the mind and stretching it on the rack in order to perfect it as a machine.

SOURCE: *Hegel's Science of Logic*, translated by A.V. Miller, foreword by J.N. Findlay (Atlantic Highlands, NJ: Humanities Press International, 1989 [c1969]); [Remark 2: The Employment of Numerical Distinctions for Expressing Philosophical Notions](#), pp. 212-217.

[Hegel on Ars Combinatoria & Characteristica Universalis](#)

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